

**TERMS OF REFERENCE
FOR
THE MEMORANDUM OF COOPERATION (MOC)
ON
ADVANCED REACTOR AND SMALL MODULAR REACTOR TECHNOLOGIES
BETWEEN
THE CANADIAN NUCLEAR SAFETY COMMISSION
AND
THE UNITED KINGDOM OFFICE FOR NUCLEAR REGULATION**

Purpose

The Participants, CNSC and ONR, have prepared these Terms of Reference to:

1. Describe the administration of the cooperation under the Memorandum of Cooperation on Advanced Reactor and Small Modular Reactor Technologies between the United Kingdom Office for Nuclear Regulation (ONR) and the Canadian Nuclear Safety Commission (CNSC), signed October 06, 2020 (the MOC).
2. Facilitate the establishment of a program of work through a committee to accomplish specific cooperative activities under the MOC.

Governance

All cooperative activities under the MOC are governed by the understandings set out in the Memorandum of Understanding between ONR and the CNSC for the Cooperation and Exchange of Information in Nuclear Regulatory Matters, that was signed on October 06, 2020 (the MOU). In accordance with Article VII of the MOU, the Participants established a coordinator to act as a point of contact to implement and administer the MOU. In the case of ONR, this is the ONR Head of Advanced Nuclear Technologies. In the case of CNSC, this is the Director General of the Directorate of Advanced Reactor Technologies.

The activities under the MOC will be coordinated by a committee, which is to be known as the Advanced Reactor Technologies and Small Modular Reactors Committee (the ART-SMR Committee). The Committee will meet at least bi-annually, or more frequently if needed. The Committee will approve and prioritize work plans established to accomplish specific cooperative activities. The Committee will assess progress of activities, deliverables, and new work plans at least bi-annually or as needed.

ONR and the CNSC are mature and agile nuclear regulatory bodies that jointly recognize the need for leadership in efficient and effective oversight of advanced reactor and SMR technologies. The Participants acknowledge the differences in each country's regulatory frameworks and licensing processes, while seeking to leverage scientific and engineering assessments from each other's reviews to the extent practical.

The MOC does not in any way change the national regulatory requirements of either country or fetter licensing decision-making. Further, the cooperative activities related to the review of specific technologies are subject to the terms and conditions in the agreements between the Participants and reactor design developers. For ONR, the scope and progression of activities under this MOC is subject to continued government and industry support to the initiative.

Application of the Terms of Reference

Cooperation under the MOC pertains to regulatory activities associated with advanced reactor and SMR technologies. These Terms of Reference apply, but are not limited to, cooperative activities on:

- Nuclear reactors that produce energy
- Water-cooled or non-water cooled (i.e., with alternative coolant technologies) reactors
- Development of shared advanced reactor and SMR technical review approaches that facilitate resolution of common technical questions to facilitate regulatory reviews that address each country's national regulations
- Collaboration on pre-licensing activities e.g., including design assessment¹ to ensure mutual preparedness to efficiently review advanced reactor and SMR designs
- Collaboration on research, training, and in the development of regulatory approaches to address unique and novel technical considerations for ensuring the safety of advanced reactors and SMRs
- Exchange of information on advanced reactor and SMR technologies, as in Article I of the MOU.

Desired Outputs

The outputs of this cooperation may include, but are not limited to:

- Collaboration on technical reviews leading to:
 - Identification and documentation of specific areas of common focus and agreement on acceptability in view of respective safety frameworks
 - Documentation of specific elements of the design where either regulator identified safety concerns.
- Exploration of opportunities for joint research in areas where further research and development could benefit both regulators
- Joint participation in assessments, inspections, and collaboration in oversight of research or testing activities, related to ongoing or expected regulatory reviews and/or activities intended to be submitted to both regulators for review, seeking to identify possible areas of potential alignment in regulatory approaches and frameworks

The cooperative activities under this MOC are intended to:

- Contribute to more efficient use of regulators' resources by leveraging the technical knowledge and resources between ONR and the CNSC, thereby reducing undue regulatory burden
- Enhance the depth and breadth of understanding of the respective staff of the CNSC and ONR on the counterpart nation's regulatory review activities and requirements
- Enhance the joint opportunities for learning and understanding the advanced reactor and SMR technologies under review.
- Enable the sharing of regulatory assessments of technical submissions that would be common to ONR and CNSC, with the goal of assessing the submission once to reduce regulatory burden
- Ultimately influence a convergence in regulatory standards between the two organisations

¹ The pre-licensing activities are engagement activities with reactor design developers or proponents (licence applicants or licensees). These activities are optional for the applicant or licensee to carry out under each Participant's national laws.

In addition, work plans will describe the deliverables associated with specific cooperation activities. Examples of specific cooperation activities are included in Annex A.

Administration of the ART-SMR Committee

Both Participants will appoint one primary lead (Co-Chair) for all activities under the MOC. These leads will serve as the primary interface between the organizations. Both Participants will appoint a primary lead for each work plan. These work plan leads are responsible for the delivery of the agreed work.

The ART-SMR Committee members are as follows:

CNSC	ONR
Director General of Advanced Reactor Technologies - <i>Co-Chair</i>	ONR Head of Advanced Nuclear Technologies <i>Co-Chair</i>
Director of Advanced Reactors Assessment Division	ONR Advanced Nuclear Technologies Delivery Management Group Lead
Director of Advanced Reactor Licensing Division	ONR - CNSC Liaison Officer
	ONR Advanced Nuclear Technologies International Task Lead

The programme of work will contain projects that will cover common issues of regulatory interest that are within the scope of the MOC.

A work plan may be prepared for projects that includes a description of the activity that aligns with the MOC, purpose, expected outcomes, responsibilities, project team structure, and schedule. A sample work plan is included in Annex B.

Roles and Responsibilities

1. The ART-SMR Committee will:

Be Co-Chaired by the Director General of the Directorate of Advanced Reactor Technologies (CNSC) and the Head of Advanced Nuclear Technologies (ONR)

- provide direction on cooperation activities
- approve the specific cooperative activities and work plans proposed under the MOC and establish a prioritized list of activities to be accomplished within an agreed upon timeline
- oversee the execution of the cooperative activities under the MOC
- establish interfaces with directorates/divisions within ONR and the CNSC to ensure appropriate participation of directorates or divisions
- approve the MOC deliverables such as common positions, or other documents or reports related to this MOC (e.g., documentation of regulatory practices, processes, comparison of technical criteria)

- report on the progress of cooperation activities to the CNSC's Executive Vice-President and Chief Regulatory Operations Officer (EVP-CROO) and Chief Science Officer (EVP-CSO) and ONR Advanced Nuclear Technologies sub-division board and regulatory review meeting.

2. Project teams will:

- initiate, plan, coordinate, and report on the activities at an agreed upon schedule
- prepare work plans and seek approval as necessary of specific cooperative activities under the MOC

Issue Resolution

Issues will be resolved as contemplated under Article VIII of the MOU. Where issues fail to be resolved amicably through mutual consultation or negotiation within the conduct of cooperative activities, disagreements will be raised and addressed in the following manner:

- the project team will send supporting documentation to the ART-SMR Committee to resolve the issue and document the resolution. If the issues cannot be resolved at this level; then
- the supporting documentation will be sent to the CNSC's EVP-CROO and the ONR Advanced Nuclear Technologies sub-division board and regulatory review meeting to resolve the issue and document the resolution.

Guiding Principles

1. Cooperative work on any specific reactor design will be most effective and valuable when the reactor design developer engages with the regulators in both countries in a similar time frame to allow synergy in the efforts.
2. Both ONR and the CNSC will supply the appropriate expertise to contribute effectively to cooperative activities and ensure that the views of the organization are represented.
3. Both ONR and the CNSC will endeavor to share their regulatory experiences and lessons learned within the scope of the MOC.
4. The cooperative activities will appropriately control proprietary, sensitive, pre-decisional, and export-controlled information in accordance with Article III of the MOU, and applicable laws of both countries.
5. The cooperative activities will abide by any agreements with reactor design developers or proponents (licence applicants or licensees) on the sharing of their information.
6. The issues to be addressed under this cooperation may be proposed by either Participant's members.
7. The ART-SMR Committee members will strive to maintain awareness of the other organizations' work and align its own tasks accordingly where appropriate.
8. The cooperative activities will seek to draw information from existing sources where possible.

Communications between the Participants

Communication between Participants will be through a common and secure information-sharing platform. The platform will facilitate information sharing of the cooperative activities and will be restricted to authorized individuals and password protected.

The location of the ART-SMR Committee meeting may be held using online virtual meeting software or through face-to-face meetings.

Communications to Third Parties about Cooperative Activities

Communications about cooperative activities under the MOC to third parties will be in accordance with Article III of the MOU. Each Participant will consult the other on communications it prepares on the results and outcomes of the cooperative activities, with a view towards mutually satisfactory communications. Communications to third parties by a Participant will be provided to the other Participant through the appropriate platform or channel. Communication plans will be included in work plans where appropriate.

Recognising that the UK Generic Design Assessment (GDA) is a process jointly undertaken by ONR and the Environment Agency of England, ONR will involve the Environment Agency in technical discussions where the topic covers matters of mutual interest, such as radioactive waste management, decommissioning and impacts to the environment.

Financial Aspects

Each Participant continues to be solely responsible for its own participation costs under the MOC, as per Article VI of the MOU, including the costs each Participant incurs for maintaining and updating a common and secure information sharing platform.

Review of Terms of Reference

This Terms of Reference may be revised from time to time to reflect changes to the scope, objectives, governance, and structure of the cooperative activities under the MOC.

Attachments (2)

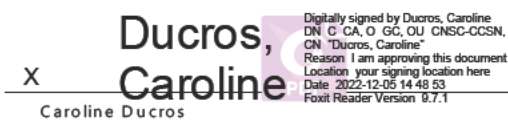

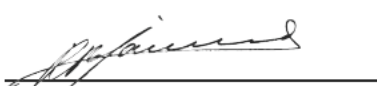

Annex A: Potential Cooperative Activities

Annex B: Sample Work Plan

References

1. Memorandum of Understanding For Cooperation and Exchange of Information in Nuclear Regulatory Matters Between the Canadian Nuclear Safety Commission and the United Kingdom Office for Nuclear Regulation (CNSC eDocs 6394684 /ONR CM9 2020/319939).
2. Memorandum of Cooperation on Advanced Reactor and Small Modular Reactor Technologies Between the United Kingdom Office for Nuclear Regulation and the Canadian Nuclear Safety Commission (CNSC eDocs 6396753/ONR CM9 2020/319939).

Document Approval

Prepared by:	Advanced Reactor Technologies and Small Modular Reactors Committee	
	<p><i>for CNSC</i></p> <p>Dr. Caroline Ducros, Director General, Directorate of Advanced Reactor Technologies</p> <p style="text-align: center;">  Ducros, Caroline <small>Digitally signed by Ducros, Caroline DN: c, CA, O, GC, OU, CNSC-CCSN, CN "Ducros, Caroline" Reason: I am approving this document Location: your signing location here Date: 2022-12-05 14:48:53 Foxit Reader Version 9.7.1</small> </p> <p>X Caroline Ducros</p> <hr/> <p>Signature/Date</p>	<p><i>for ONR</i></p> <p>Tim Parkes, Head of Advanced Nuclear Technologies</p> <p style="text-align: center;">  <u>15-June-2022</u> </p> <p>Signature/Date</p>
Approved by:	<p><i>for CNSC</i></p> <p>Ramzi Jammal, Executive Vice President and Chief Regulatory Operations Officer</p> <p style="text-align: center;">  <hr/> <p>Signature/Date</p> </p>	<p><i>for ONR</i></p> <p>Donald Urquhart, Deputy Chief Nuclear Inspector & Executive Director of Regulation</p> <p style="text-align: center;">  <hr/> <p>29 November 2022</p> <p>Signature/Date</p> </p>

Annex A: Potential Cooperative Activities

This is a proposed list of cooperative activities that may be carried out under the MOC and will align with the scope of this cooperation. A work plan is to be prepared to describe the specific activities, purpose, expected outcomes, deliverables, organizational responsibilities, and schedule.

1. Development of shared advanced reactor and SMR technical review approaches that facilitate resolution of common technical questions to facilitate regulatory reviews that address each party's national regulations. Potential projects include:
 - Common review of reactor technologies that are in ONR GDA and CNSC Vendor Design Review (VDR) projects at the same time.
 - Exchanging review results of reactor technology reviews.
 - Sharing of common review reports on selected areas or technical topics, with the goal of assessing the submission once to reduce regulatory burden.
2. Collaboration on pre-application activities to ensure mutual preparedness to efficiently review advanced reactor and SMR designs. Potential projects include:
 - ONR staff participation in the CNSC's VDR review for certain portions of an advanced reactor design.
 - CNSC staff participation in ONR's review for certain portions of pre-application interactions on an advanced reactor design.
3. Collaboration on research, training, and the development of regulatory approaches to address unique and novel technical considerations for ensuring the safety of advanced reactors and SMRs. Potential projects include:
 - Sharing training resources.
 - Sharing scope of research projects that are of common interest.
 - Documenting understanding of each party's regulatory framework based on technical discipline.
 - Documenting differences in terminology to facilitate communication and understanding for all areas of collaboration.
 - Comparing key existing guidance documents to identify similarities and differences.
 - Consider harmonization of guidance documents, to the extent practicable.
 - Joint review of previously developed guidance to identify differences and commonalities between each party's advanced reactor review approaches in certain areas (e.g., licensing basis event selection and classification of structures, systems, and components).
 - Compare key CNSC and ONR licensing documents (e.g., safety evaluations) to identify similarities and differences. Explore harmonizing document structure, to the extent practicable.

- Collaborate on the development of computer codes for use in reviewing advanced reactor designs.
- Collaborate on review of new ASME codes and standards.
- Sharing information, knowledge, and experience in reviewing and regulating fusion activities.

Annex B: Sample Work Plan

For each cooperative activity that may be carried out under the MOC, the ART-SMR Sub Committee will ensure that a work plan is developed, reviewed, and approved. The work plan should describe the specific activities, purpose, expected outcomes, deliverables, organizational responsibilities, and schedule. A sample work plan follows.

Advanced Reactor Technologies and Small Modular Reactors Sub Committee	
Project Title	Cooperation on ...
Objective/Scope	CNSC and ONR staff will work together to ...
Context/Background	
Relevance to Memorandum of Cooperation	This project is supportive of MOC ...
Expected Outputs	Issuance of ...
Work Process	The CNSC and ONR will form a working group to accomplish this project. The topic areas to cooperate on ...
Schedule/ Milestones	Define tasks and milestones
Resources	The CNSC and ONR will independently fund efforts for this project. ONR – CNSC -
Staffing	ONR – X (work plan co-lead), other individuals CNSC - X (work plan co-lead), other individuals
Identification and status of potential ongoing international activities on a similar topic	
Interaction with Others	The Working Group will interact with ...
Approved by Sub Committee	Enter information