

FAQs: The Memorandum of cooperation between the U.S. Nuclear Regulatory Commission, the Canadian Nuclear Safety Commission, and the United Kingdom's Office of Nuclear Regulation on Small Modular Reactors and Advanced Reactors

Q1. What does the CNSC–U.S. NRC - ONR memorandum of cooperation mean for the NRC and to Americans?

A1. On March 12, 2024, the Canadian Nuclear Safety Commission (CNSC), the United Kingdom Office of Nuclear Regulation (ONR), and the United States Nuclear Regulatory Commission (U.S. NRC) signed a trilateral memorandum of cooperation (MOC) on advanced reactors and small modular reactor technologies. This MOC is intended to supplement and strengthen the existing memorandums of understanding between the NRC and CNSC (signed in March 2023), the NRC and ONR (signed in October 2020), and CNSC and ONR (signed in October 2020).

This trilateral MOC supersedes the bilateral MOCs between CNSC and NRC that was signed on August 15, 2019, and the bilateral MOC between the CNSC and ONR that was signed on October 6, 2020.

This trilateral MOC will help us ensure the safe development of small modular reactor and advanced reactor technologies in the U.S. and the efficient deployment of these technologies, now and in the future. It is a testament to our successful relationship with our Canadian and UK counterparts and our mutual commitment to excellence in nuclear safety regulation. The NRC is strongly committed to engaging in international cooperation activities that foster relationships, strengthen frameworks, and help share best practices to improve safety. The CNSC, ONR, and the NRC are mature and agile nuclear regulatory bodies that recognize the need for leadership to ensure the efficient and effective oversight of activities that involve advanced reactor technologies.

Q2. How will this cooperation enhance future and ongoing reviews in all countries?

A2. CNSC–ONR–NRC cooperation will provide opportunities for all three agencies to share scientific information about technical matters that could support more efficient reviews of small modular reactors and advanced reactor technologies. The CNSC or ONR may take NRC review

results into account when an applicant proposes to build and operate a reactor design that is currently under review or that has been previously reviewed by the U.S. NRC. Likewise, the U.S. NRC may consider insights gleaned from the CNSC's pre-licensing vendor design reviews and the ONR's Generic Design Assessment Process. The CNSC, ONR and the NRC could leverage information to streamline the review process. For example, they could:

- develop shared approaches to conducting technical reviews of small modular reactors and advanced reactors in order to resolve common technical questions and facilitate regulatory reviews that address our respective national regulations
- collaborate on pre-licensing activities to ensure mutual preparedness to efficiently review small modular reactor and advanced reactor designs
- cooperate on research, training and the development of regulatory approaches for unique or novel technical considerations to ensure the safety of small modular reactors and advanced reactors

Q3. How do the NRC and CNSC decide which designs will be subject of collaborative work with both regulators?

A3. The decision to propose cooperative activities is that of the vendors, made with consideration for their commercial plans in each country. Vendors have their own commercial timelines for completing regulatory interactions and activities in each country. As a result, these timelines and the scope and depth of their interactions with the regulators may differ considerably. In addition, cooperation must acknowledge the differences in the Canadian, U.K. and U.S. regulatory frameworks and licensing processes but leverage the fundamental scientific and engineering findings in other reviews to the extent that it is practical to do so.

In general, a request by vendors to participate in regulatory cooperation is made because they have already substantially engaged with at least one of the regulators and they have known plans to engage with another regulator on the same design. Cooperation may involve all three countries, or just two countries. The decision to cooperate in activities that concern specific reactors is not a statement of technology selection or preference. The decision will depend on the design and be based on the following factors which the vendor must address in a proposed work plan that all regulators accept:

1. To what extent is the vendor engaging in meaningful pre-licensing activity with each regulator?
2. How are the vendor's engagement activities in each country similar, such that the outcome of cooperation will be useful? For example, the objectives of the CNSC's vendor design review process are different than those of the ONR's Generic Design Assessment, or the U.S. NRC's certification and pre-licensing engagement processes, yet opportunities exist for leveraging information between the three regulators.
3. What are the timelines for engaging with each regulator?
4. How is the vendor sharing information about their design with the three regulators to enable cooperation to occur?

Q4. How are additional regulators chosen to participate in collaborative activities under the MOC?

A4. We're aware of interest from other regulators for greater collaboration on reviews, and we've developed criteria to determine when to expand our activities under the MOC to include additional countries. However, we recognize that these efforts are most effective with a smaller group of collaborators with comparable regulatory maturity. To become a full participant in cooperative activities, we would confirm that a country has appropriate agreements in place for information sharing, that they are at a comparable stage of licensing for the design, and that they have sufficient resources to support the collaborative review schedules. We would encourage regulators who do not yet meet the criteria to adopt the decisions of trusted regulatory partners with some confirmatory reviews. In addition, while the joint reports resulting from the MOC are specific to our regulatory frameworks, they can be used by other regulators to the extent that the conclusions are relevant to that country's regulations. For example, the NRC and CNSC report on TRISO fuel qualification was based on guidance from an NEA document on fuel qualification. Vendors and regulators in other countries can use this information in addressing fuel qualification for TRISO fuel.

Q5. What are the benefits of cooperation?

A5. The NRC has had mutually beneficial engagement with the CNSC to collaboratively address challenging topics in licensing advanced reactor and small modular reactor designs that are under review in both of our countries, and we anticipate continuing these benefits with our collaboration with ONR. We've realized tangible benefits from this initiative in the form of joint products that can be utilized in our licensing decisions. For example, to date we've issued eight NRC-CNSC joint reports including generic products that provide benefit to a wide range of end-users as well as cooperative reviews of white papers and topical reports as part of pre-application interactions for specific reactor designs. We've directly incorporated the joint findings in these reports in our responses to the vendors to further pre-application reviews. Our feedback to vendors has the benefit of CNSC technical expertise and experience on novel design features and regulatory approaches.