



**Written submission from
Fermi Energia AS**

Mémoire de Fermi Energia AS

In the Matter of the

À l'égard d'

Ontario Power Generation Inc.

Ontario Power Generation Inc.

Application for a licence to construct one BWRX-300 reactor at the Darlington New Nuclear Project Site (DNNP)

Demande visant à construire 1 réacteur BWRX-300 sur le site du projet de nouvelle centrale nucléaire de Darlington (PNCND)

**Commission Public Hearing
Part-2**

**Audience publique de la Commission
Partie-2**

January 8, 2024

8 janvier 2024

Request for Public Hearing Intervention Regarding Licensing of a New Nuclear Reactor in Canada: Darlington New Nuclear Project (DNNP)

Dear Members of the Canadian Nuclear Safety Commission,

This letter is to formally express the support and request an intervention in the public hearing regarding the licensing of the BWRX-300 reactor at the Darlington New Nuclear Project (DNNP) on behalf of Fermi Energia AS. As a strong advocate for safe, clean, and reliable energy solutions, Fermi Energia AS is keenly interested in the deployment of the innovative BWRX-300 in Canada and in the rigorous licensing review process that accompanies it.

Fermi Energia AS is a privately owned company established by a group of nuclear and energy experts in 2019 in Estonia. Fermi Energia AS aim is to provide reliable decarbonizing solution for Estonian energy sector. Fermi Energia AS has selected BWRX-300 technology to be suitable and deployed in Estonia after a robust technology selection process based on in depth review and official Request of Information process including three most mature SMR technologies available on the market. This is the primary reason we are closely following the DNNP licensing progress and would like to intervene in the upcoming public hearing.

Support and Interest in the DNNP and BWRX-300

The BWRX-300 represents a significant step forward in nuclear technology, offering a low-carbon solution that can support both national and global decarbonization efforts. As Canada moves toward achieving its climate and energy goals, the deployment of modern small and medium size reactors like the BWRX-300 positions the country as a leader in next-generation nuclear energy. We are eager to see the DNNP move forward on time and within budget meeting the highest safety and operational standards, ensuring that it serves as a model for international deployment.

Emphasis on Safety

Safety is, of course, paramount in any nuclear project. As part of the reactor technology selection process, Fermi Energia AS carried out a preliminary yet comprehensive safety review of the BWRX-300 in cooperation with our partners from Sweden (Vattenfall AB) and Finland (Kind Atom OY). The most important outcomes from that review process include the following. The reactor's passive safety features, including isolation valves integrated to the RPV, lack of SRVs, natural circulation for cooling and gravity-driven emergency core cooling systems, provide basis for robust protection against potential accidents, even in the absence of active systems or human intervention. Furthermore, the low core damage frequency and simplified design, which reduces the number of components, highlight its commitment to operational safety.

We are also particularly appreciative of the innovative steel-concrete composite solution employed in the subterranean reactor building's design. This novel construction approach offers potential benefits in terms of both safety and efficiency.

Appreciation for International Standards Application and Transparency of the Process

Fermi Energia AS appreciates highly CNSC for maintaining transparency throughout the licensing process and for adhering to international safety and regulatory standards that are aligned with the

IAEA requirements and guidelines. This approach not only strengthens the confidence in the DNNP but also ensures that the project is set for a successful deployment in other countries and regulatory regimes. Transparency is crucial to maintaining public trust, and we hope that this high standard will continue throughout the construction, commissioning and operation phases of the project and that these practices would also serve as a role model for the Estonian regulator in the future.

The DNNP's Potential for Safe and Efficient International Deployment through Standardized Licensing Process

The DNNP's siting, design, and operational framework seem to make it well-suited for international deployment, particularly in countries pursuing small modular reactors to meet their energy needs. We believe that the deployment of the BWRX-300 reactor at Darlington can serve as a blueprint for other nations looking to adopt standardized, safe, and efficient nuclear power solutions.

Question 1. *Has CNSC, in its review, considered the potential for international application of the Safety Analysis Report (and other documentation pertaining to the safety case demonstration) in other countries/regulatory regimes for more efficient, standardized and streamlined deployment and licensing? If yes, then how and to what extent?*

Low Personnel Requirements – Request for Clarification

One of the most appealing features of the BWRX-300 design is its ability to operate with a reduced personnel requirement, which has substantial economic and operational benefits. However, we would like to better understand how this low staffing model will be balanced with the need for stringent safety monitoring and operational control. Fermi Energia is collaborating on the BWRX-300 operating team training with the KSU who has been supporting Swedish NPPs (incl BWRs) with personnel training since 1972.

Question 2. *Please provide further details on what are the staffing requirements (e.g., minimum number of personnel necessary to operate the plant) for the first BWRX-300 unit and how they are met? Are there contingencies in place to address scenarios where additional personnel may be needed, such as in the case of maintenance, unexpected shutdowns, or emergencies?*

Supply Chain Adequacy

We would also like to commend the DNNP's approach to utilizing a strong domestic and international supply chain. Maintaining a robust, high-quality supply chain is crucial for ensuring the timely delivery and safety of reactor components. Together with the DNNP main construction partner Aecon, Fermi Energia has started to prepare Estonian manufacturing industry (e.g. largest shipyard in Baltics BLRT, heat exchanger and pressure vessel manufacturer Estanc) to participate in the Estonian and European BWRX-300 projects.

Question 3. *What is the level of detail in the assessment of the adequacy of supply chain planned to be used in the DNNP project? How deep in terms of main and subcontracted suppliers of systems, structures and components has been the CNSC's review in the License to Construct process. Particularly in the context of manufacturing standards, quality assurance, and long-term maintenance.*

Conclusion

Fermi Energia AS as potential future customer of the BWRX-300 would like to express full support for the DNNP project. We regard the rigorous oversight critical to ensure that safety remains the top priority as Canada continues to lead in nuclear innovation. From international deployment, and Fermi Energia AS's perspective, it is vital that the FOAK deployment in Canada continues to be on schedule and remains within the estimated cost. We look forward to your response on the matters raised and to participating in the public hearing process.

Thank you for your attention on these important considerations and looking forward to hearing your response on the matters raised and to participate in the public hearing process.

Sincerely,



Marti Jeltsov

Member of board
Head of Technology
Fermi Energia AS