



**Written submission from  
X-energy Canada Inc.**

**Mémoire de  
X-energy Canada Inc.**

In the Matter of the

À l'égard de

**Darlington New Nuclear Project**

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**Projet de nouvelle centrale nucléaire de  
Darlington**

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Application to renew the nuclear power  
reactor site preparation licence for the  
Darlington New Nuclear Project

Demande de renouvellement du permis de  
préparation de l'emplacement d'une centrale  
nucléaire pour le projet de nouvelle centrale  
nucléaire de Darlington

**Commission Public Hearing**

**Audience publique de la Commission**

**June 10, 2021**

**10 juin 2021**

May 3, 2021

Commission Secretariat  
Canadian Nuclear Safety Commission  
280 Slater Street  
P.O. Box 1046, Station B  
Ottawa, Ontario  
K1P 5S9

**Re: Commission Public Hearing, Darlington New Nuclear Project Ref. 2021-H-04**

Dear Commission Secretariat,

Please accept this letter as X-energy Canada's strong support for Ontario Power Generation's (OPG) application for a 10-year renewal of its Nuclear Power Reactor Site Preparation Licence for the Darlington New Nuclear Project (DNNP). The current licence is a significant asset for the Province of Ontario and provides OPG the opportunity to conduct site preparation activities for the future construction and operation of a new nuclear generating station, namely a Small Modular Reactor (SMR). The development of such a facility is key to Ontario and Canada meeting our stated goals of net-zero by mid-century, and by 2040 for OPG.

X-energy, LLC with its subsidiary X-energy Canada Inc, is a developer of Generation IV High Temperature Gas Reactors (HTGR) and the highly robust Tri-structural Isotropic (TRISO) fuel that powers them. X-energy Canada is a growing company with a strong vision to develop a Canadian ecosystem capable of deploying our SMR technology, which is poised for worldwide deployment. We envision our Canadian industries, academia and utilities being at the forefront of this technology's development and benefitting from its early global distribution for decades to come.

To fulfill this vision, X-energy Canada is investing in Canada to develop HTGR infrastructure, knowledge and expertise. With less than a year of operation, we currently have over 40 FTEs developing our technology here in Canada, and that number is growing. Our programme activities support our technology's deployment in Canada as well as projects outside the country, providing an opportunity for Canadian commercial and academic partners to benefit from our international activities. Furthermore, our efforts are naturally consistent with our commitments under Canada's SMR Action Plan, in which we pledged to engage with Canadian nuclear industry's regulatory bodies, standards associations, utilities, industry partners, and local and Indigenous communities.

X-energy Canada is committed to establishing a healthy and respectful relationship with First Nations. We are proud members of the Canadian Council for Aboriginal Business (CCAB) and are excited to be part of the CCAB Progressive Aboriginal Relations (PAR) programme. We are taking steps to provide Indigenous cultural awareness training for our staff and to ensure Indigenous access to employment opportunities within our company. As a member of OPG's Indigenous Opportunities Network Working Group, we are also supporting efforts to recruit and place Indigenous candidates in career-building positions within the wider energy sector. This collaboration with the utility is a natural extension of our efforts in Canada and demonstrates our alignment with OPG's commitment to growing long-term, mutually beneficial working relationships with Indigenous communities near current and future operations.

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X-energy's mission is to develop clean energy solutions to address the world's energy needs sustainably and responsibly. We aim to alleviate energy poverty while mitigating the world's pressing need to decarbonize energy use, both electrical and process heat. We share OPG's vision of a healthier energy infrastructure and believe a grid-scale SMR at the DNNP site will:

- benefit Ontario and its energy infrastructure by providing the province with clean baseload electricity that can also effortlessly load-follow. Currently, renewables are often paired with carbon-emitting natural gas to provide back-up. This project provides the opportunity to make renewables truly green by pairing them with clean nuclear SMRs, improving the dynamic between nuclear power and renewables.
- benefit Canada in meeting its net-zero goals. The deployment of a grid-scale SMR in Ontario in the near-term will provide the foundation for other provinces to use SMRs, enabling their timely transition to a net-zero energy infrastructure.
- benefit Ontario's and Canada's economy by developing infrastructure, knowledge and home-grown capability for manufacturing, operations, design and construction for the deployment of SMRs that are poised for deployment worldwide. The window of opportunity to be at the forefront of these developments is limited. The construction and operation of an SMR at the DNNP site will provide a strong and stable foundation, generating multiple benefits for years to come.

X-energy Canada has been working cooperatively and transparently with OPG since April of 2020, when X-energy presented the design of our Xe-100 SMR design and proprietary TRISO-X fuel to a group of approximately 100 experts assembled by OPG and its utility partners. In September 2020, OPG selected three technologies, including the Xe-100, for further assessment through advancing design and engineering work. The rigour of OPG's due diligence throughout these activities is representative of the level of scrutiny the utility continues to apply as we work to gain their confidence for final selection.

OPG's interactions with our team have been professional, thorough, and deliberate. We continue to be impressed by OPG's commitment to its strong safety culture, quality work and respect at all levels. OPG not only holds its own team to the highest standards but expects its vendors to meet those same expectations as well. We are confident in OPG's capability to utilize the Site Preparation Licence in a manner that is consistent with Canada's regulations and international commitments and is responsive to the needs of local and Indigenous communities in Ontario.

Based on our direct experience with the utility, X-energy Canada is submitting our firm support for OPG's application for the renewal of their Nuclear Power Reactor Site Preparation Licence for the DNNP. If you have any questions or need clarification on any aspect of this submission, please do not hesitate to contact me at [kmcole@x-energy.com](mailto:kmcole@x-energy.com) or 416-560-7020.

Sincerely,



Katherine Moshonas Cole  
President  
X-energy Canada Inc.