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Written submission from The CEDAR Project Environment & Society Program

In the Matter of the

Ontario Power Generation Inc.

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

Commission Public Hearing Part-2

January 2025

Mémoire du CEDAR Project Environment & Society Program

À l'égard d'

Ontario Power Generation Inc.

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

Audience publique de la Commission Partie-2

Janvier 2025

Canada

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Commissioners
Canadian Nuclear Safety Commission
Submitted via email: interventions@cnsc-ccsn.gc.ca

October 29, 2024

Re: Comments on OPG's application for a licence to construct one BWRX-300 reactor for its Darlington New Nuclear Project

I am writing to ask the CNSC to investigate the suggestion, made in a recent (2015) University of Toronto PhD thesis, that the seismic testing for the Darlington site was inadequate, and that expected ground motions may exceed the design limits for nuclear generating facilities. If this is true, it may raise safety concerns considering that the BWRX-300 design includes considerable underground infrastructure.

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CEDAR (Contesting Energy Discourses through Action Research) is a five-year research project, funded by the Social Sciences and Humanities Research Council of Canada, based in the Environment and Society Program at St. Thomas University in Fredericton. The focus of our research is to amplify marginalized voices and perspectives that are often sidelined in discussions about the energy transition in Canada.

The CEDAR project is known for critical commentary about nuclear power. In that context, I was approached by a New Brunswick resident originally from Ontario who was involved some decades ago in mapping the geology of eastern Ontario during a search for limestone aggregate. That search identified a fracture zone that would appear to run under the Darlington nuclear site.

The former Ontario resident had heard of the Darlington New Nuclear Project and was concerned that this geological information might be unknown to OPG and the CNSC. He asked me to investigate and bring it to the CNSC's attention.

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For disclosure, I am a social scientist with no geological expertise and my colleagues on the CEDAR project also do not have that expertise. However, as a university researcher I consider myself ethically bound to act on the concerns brought to me, investigate to the extent I am able, and report my findings to the CNSC.

I contacted a friend in Ottawa, a geologist working for the federal government, and passed on the documents given to me by the concerned New Brunswick resident. My friend investigated and found several references in papers from 2009 indicating that OPG was indeed aware of this geological fault at that time but had determined that the risk of an earthquake was within the safety threshold.

However, my geologist friend also found a more recent (2015) University of Toronto PhD thesis:

GEOLOGIC RECORD OF INTRAPLATE SEISMICITY IN SOUTHERN ONTARIO
Katherine Ellen Wallace, Doctorate of Philosophy, 2015, Graduate Department of Physical and Environmental Sciences, University of Toronto Scarborough

Available at:
https://tspace.library.utoronto.ca/handle/1807/79716

This is a quote from Dr. Wallace's thesis: "Expected ground motions are modelled to exceed the design limits for nuclear generating facilities at Pickering and Darlington along the northern shore of Lake Ontario near Toronto." My geologist friend told me: "The PhD is saying that both Darlington and Pickering have not been assessed correctly for fault movement and potential risk of earthquake."

In conclusion, I recommend that the CNSC review the information in the PhD thesis and investigate the suggestion made by Dr. Wallace that the seismic testing for the Darlington site was inadequate and that "expected ground motions are modelled to exceed the design limits for nuclear generating facilities." If this assertion is accurate, it may raise safety concerns considering that the BWRX-300 design includes considerable underground infrastructure.

Sincerely,

(signed)

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Adjunct Research Professor
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