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Written submission from Chris Corey

Mémoire de Chris Corey

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

Canada

From: chris corey
Sent: November 2, 2024 7:58 PM
To: Interventions / Interventions (CNSC/CCSN)
Subject: Re: OPG plan for more reactors at Darlington

EXTERNAL EMAIL – USE CAUTION / COURRIEL EXTERNE – FAITES PREUVE DE PRUDENCE

Nov 2, 2024
Thank you for the opportunity to comment on Darlington project description. The elimination of nuclear weapons is an urgent medical, humanitarian, and public health imperative. Nuclear weapons and nuclear energy are inextricably linked. Without nuclear energy there would be no nuclear weapons. For this reason the NB environmental coalition is opposed to the Darlington nuclear project and is in favour of the phaseout of all nuclear power in Canada. We are opposed to heavy government subsidization of the nuclear industry using tax dollars in order to build or refurbish any more reactors in Canada. The promotion of the nuclear power industry is based on the faulty assumption that Canada cannot attain its carbon emission targets without nuclear energy. This is not only false, but it is clear that Canada cannot reach its targets without phasing out and eventually eliminating nuclear power from its grid. According to David Suzuki, Canada can phase out use of fossil fuels and nuclear power, and attain net zero by 2035 without any new nuclear projects (https://davidsuzuki.org/wpcontent/uploads/2022/05/Shifting-Power-Zero-Emissions-Across-CanadaBy-2035-Report.pdf , p. 22). Many other countries are far ahead of Canada in their support of renewable clean energy sources using multiple storage methods. Spending money on nuclear power instead of renewable energy and storage is a step backwards for Canada and will not only delay but will make impossible our attainment of net zero carbon emissions in time to have an impact on climate change. With respect to the Darlington Nuclear Project, a definitive reactor design must be required from Bruce Power with a detailed description. The Bruce Power New Nuclear Project Initial Description document describes a nonexhaustive list of five possible very different reactor technologies (p.32), a list that they say could change at any time. An initial project description cannot be approved without a defined reactor design as an initial step. Nuclear power is unsuitable for meeting Canada's climate targets for many reasons, as described below. A Cost Comparison Nuclear power is firstly far too expensive as is evident in the above chart from Ontario Clean Air Alliance (https://www.cleanairalliance.org/wpcontent/uploads/2024/03/options2024-march.pdf), where new nuclear builds are severalfold more expensive than renewables. Nuclear project and refurbishment costs historically balloon to severalfold the initial estimate (https://www.worldnuclearreport.org/IMG/pdf/wnisr2023-v5.pdf , p. 358). With the rapidly declining cost of renewables, it does not make sense to spend billions of taxpayer dollars on this expensive technology. First and foremost, our governments of all levels should emphasize the need for energy efficiency, as it is the least expensive and most environmentally sound way to attain net zero, as seen in the above chart. Nuclear reactors take many years to build and regularly take many years more to build than initially projected. The climate crisis requires that we deploy clean non-emitting technologies such as wind and solar immediately. Nuclear power is too slow to address our climate emergency. The National Academies of Science states in a 2022 report that "Most of the advanced reactors, especially the non–light water reactors, will confront significant challenges in meeting commercial deployment by 2050" (https://nap.nationalacademies.org/download/26500 , Summary, p. 7). The Flamanville-3 EPR reactor is an

example of a nuclear reactor that took many years longer than expected to be completed (https://www.worldnuclearreport.org/The-World-Nuclear-Industry-StatusReport-2022-HTML.html#_idTextAnchor034 , under France Focus, and The Flamanville-3 IPR Saga Continued). Renewable energy projects take far less time to develop. An example is the Burchall Wind Farm in New Brunswick that took less than four years from inception to completion (https://sjenergy.ca/go-green/zero30/burchill-wind-project#timeline). The timeline for the Darlington project, predicted to go on line in 2045 (p. 34), is far too long to have any impact on our climate crisis. The risks of nuclear power cannot be overstated. An accident similar to Fukushima at the Darlington Power Nuclear Generating Station, the largest nuclear facility in the world, would be catastrophic. A severe accident would also contaminate the Great Lakes which provide drinking water to millions of people. In addition, all nuclear reactors emit toxic radioactive substances on an ongoing basis. We still do not have, after 70 years of producing nuclear power, a solution to the dilemma of the highly toxic radioactive spent fuel that nuclear reactors create daily. It is unconscionable to continue adding to this accumulated toxic waste, burdening generations to come, who do not benefit in any way. In addition, some elements in this spent fuel can be used to make nuclear weapons, constituting a constant existential threat to planetary survival. Some types of SMRs, such as the Moltex design planned for New Brunswick, include using plutonium that is extracted from CANDU fuel. This increases the risk of nuclear weapons proliferation, as plutonium is used in nuclear bombs. Other potential fuel types such as high-assay low-enriched uranium (HALEU) introduces yet more risk of nuclear weapons proliferation ("The weapons potential of high-assay low enriched uranium", Science 384:1071-1073. 2024). The federal and several provincial governments have already spent millions of taxpayer dollars on developing small modular reactors (SMRs). The BWXT-300, an SMR, is one of the reactor technologies being considered for Darlington, and there may be others in the future that will be under consideration according to the document (p. 32). Since the 1940s attempts to develop and build SMRs have resulted in many failures, due to cost and schedule overruns, and technical difficulties. The exceptions to this are one SMR in Russia and one in China, both of which have suffered large cost and schedule overruns, and are functioning poorly.
(https://www.worldnuclearreport.org/IMG/pdf/wnisr2023-v5.pdf , p. 316, 320, 324). SMRs will also produce a variety of radioactive waste products that will require different types of short and long term management due to their more difficult to manage properties. The Deep Geological Repository planned for Ontario is not designed for SMR waste, so waste from these theoretical reactors will have to be managed differently. A recently published scientific study done at Stanford University concluded that proposed SMR designs would actually increase the amount of nuclear waste produced by a factor between 2 and 30 times more than the existing types of nuclear reactors (Nuclear Waste from Small Modular Reactors. Krall L.M., MacFarlane A.M. and R.C. Ewing. Proceedings of the National Academy of Sciences. 2022 Vol. 119 No. 23 e2111833119). It is irresponsible for governments to spend taxpayer dollars on developing SMRs rather than on proven less costly clean alternatives that already exist. Our governments should not be wasting tax dollars on any nuclear project whether it be a large reactor, an SMR, a new build or a refurbishment. Canada must change its trajectory in technologies that will take it to net zero as soon as possible, redirecting money away from nuclear power and towards renewable energy and a smart grid. Increasing nuclear power capacity locks Canada into a centralized grid instead of a modernized distributed grid. Many other countries are far ahead of Canada in their support of renewable clean energy sources using multiple storage methods and innovative technologies, without the use of fossil fuels or nuclear power. Spending money on nuclear power is a step backwards for Canada and will not only delay but will make impossible our attainment of net zero carbon emissions in time to have an impact on climate change. Summary In summary, Canada needs the quick deployment of proven clean inexpensive technologies such as renewable energy, and a stable diversified grid with ample storage, in order to attain net zero by 2035. Nuclear power is too costly, slow and risky, with the significant problems of toxic waste and nuclear weapons proliferation. All levels of government should plan to phase out nuclear energy, with no plan for new builds or refurbishments. They should be redirecting taxpayer dollars from nuclear power to renewable alternatives that are cheaper and fast to build and deploy, and must

spend research dollars on improvements in these technologies. Darlington Nuclear Project should not be supported. In the least the Darlington project must describe which reactor design it is planning to use, and until it does, the initial project description should not be approved. Chris Corey, NB environmental coalition