

Submission for CNSC hearings Jun. 10, 2021 on behalf of Canadian Association of Physicians for the Environment – by Cathy Vakil MD

CAPE is a non-profit public interest organization of physicians, other health professionals and citizens whose goal is to ensure good health for all Canadians by ensuring the health of the planet, through education and advocacy.

Nuclear energy poses significant threats to human health, whether it be through low level exposure to residents living near nuclear facilities, risk of major accident, its link to nuclear proliferation, or the ongoing dilemma of dealing with the highly toxic radioactive nuclear waste. CAPE continues to lobby for protection of health and safety regarding the issue of nuclear energy.

Ontario, unlike anywhere else in the world, has chosen to locate its nuclear reactors in the most densely populated region in the country, on the largest body of fresh water in the world. This poses extraordinary risk to health and safety of much of the Canadian population as well as the millions of Canadians and Americans who rely on the Great Lakes for their drinking water. The CNSC must be mindful of this unusual situation when granting approval for nuclear activities to proceed at the Darlington location.

OPG has not yet chosen a reactor type that it will use on the DNNP site. In fact, no functioning SMR exists worldwide, and the designs OPG is considering are only models, yet they say in their submission “New nuclear generation at the DNNP site would not pose any unreasonable risk to the public, personnel or environment.” How can they claim this when these SMRs do not yet exist and therefore there is no historical data as to the risks their proposed SMRs pose? How can the CNSC judge whether the site is suitable when it is not known what the site will be used for? OPG plans to select a reactor type in 2021 and its present licence remains valid

until August, 2022. There is no reason to grant a licence now, before OPG announces its chosen reactor. Waiting until the reactor type is known would give the CNSC the ability to decide with full information if the site is appropriate, as well as offering the public an opportunity to comment on the reactor type as well as suitability of the site. Different reactors carry with them different requirements for the site, different environmental challenges and different risks to safety of workers, the public and the environment. The public deserves much more detail about reactor specifics (like design, type and volume of nuclear waste including the radionuclide inventory and accident risk with potential radioactive doses to the public). A ten year licence would ensure that the public has absolutely no input as to the reactor type that OPG will choose, which is unacceptable. Because the proposed SMRs have never been built or used anywhere in the world, and OPG proposes to build them in the most populated area of the country, on the largest body of fresh water in the world, this can be considered a giant experiment, with citizens of the region, downwind and downstream as the guinea pigs, so they deserve input into the choice of reactor at public hearings.

In addition, it is of concern to CAPE that the Provincial Nuclear Emergency Response Plan (PNERP) Technical Study from the Office of the Fire Marshall and Emergency Management (OFMEM) has still not been released to the public despite repeated requests from the Canadian Environmental Law Association since 2019. This document is of huge importance, as it includes accident modelling, and could provide information that would contribute to determining the appropriateness of placement of different types of nuclear reactors at a given site. In particular, it is critical to outline a plan to provide an alternative drinking water source should Lake Ontario become contaminated with radionuclides from a nuclear accident. Appropriate contingency plans must be outlined and made public in order for intervenors to provide input as to the suitability of the DNNP site for a new nuclear reactor. The PNERP has significant implications for public health and safety, as evacuation of a large population in the event of a significant radioactive release will depend on the emergency preparedness of the local community. Clearly, the public is unprepared for a nuclear accident, which was made obvious when there

was an announcement in error of a nuclear accident in Jan. 2020. This resulted in much confusion for the public who did not know how to proceed or whom to look to for guidance, showing that the public is not aware of protocols and emergency preparedness plans in the event of such an occurrence.

It is clear from previous statements from OPG that it plans to use the site for small modular nuclear reactors (SMRs). OPG states that the original site licence application from Sept. 30, 2009 still applies. However clearly the region has changed in terms of population, traffic flow and climate change-induced weather events. The original site licence application from 2009 should also take into account projected changes in population, traffic and weather events up to the lifespan of the proposed reactors, which would be decades from now, which it does not do. In particular, predicting weather events into the 2050s is impossible as we are not on track to avoid catastrophic climate change. Weather disasters are increasing yearly in frequency and severity at unprecedented and unpredictable rates. In view of this, using nuclear energy at all is more dangerous as time goes on, and a document from 2009 is unable to address changes that will occur decades into the future.

In addition, there are many different SMR designs that would require different parameters for the site that is different from the original reactor designs considered in 2009 and until the SMR design is chosen, the suitability of the site for it cannot be thoroughly examined and approved. Because there is no precedent or experience anywhere worldwide with SMRs, there is no data to assess implications of an accident and its radioactive exposures to the public. This makes the choice of site for perhaps Canada's first SMR all the more crucial. In addition, because SMRs use enriched fuel rather than CANDU fuel, the nuclear waste radionuclides may be quite different and may need modification of present nuclear waste treatment methods, especially if the high level nuclear waste is to be stored on site until another solution is found as to its "disposal". Until new waste management is described in detail, as well as

decommissioning plans for the proposed SMR, a licence should not be granted by the CNSC.

Historically, all nuclear reactors have gone hugely over budget, sometimes severalfold. Canadian and provincial governments have already spent hundreds of millions of taxpayer dollars that have been gifted to private nuclear companies to design SMRs, with no doubt huge amounts of public money yet to come. This is money that could be put towards cleaner alternatives that already exist, and are not only cheaper but whose cost continues to decrease unlike nuclear energy which is manyfold more expensive. In addition, SMRs have no place in the mitigation of climate change, as they will not be functioning for at least ten years, which is far too late for our climate emergency clearly making SMRs irrelevant as a solution to our climate crisis. There is no reason to spend vast amounts of public money on this new untested technology that carries with it health and nuclear proliferation risks that cleaner renewable energy does not. Now, when Ontario's nuclear energy facilities are ready to be closed down and decommissioned, we should phase out this outdated mode of electricity generation, and move forward to implement forms of clean cheaper renewable energy. In the least, the CNSC should deny the licence and require that OPG choose a site far away from large populations and fresh bodies of water.

It is abundantly clear that the CNSC does not have enough information to declare the DNNP site suitable for a new nuclear reactor, and that granting this licence would assure no public input as to the type of nuclear reactor that OPG will choose. The CNSC's mandate is to only grant a licence to a company if the public and the environment's health and safety are assured. For this reason CAPE recommends that the CNSC not approve OPG's request for licence renewal until:

- 1)The CNSC releases to the public the Provincial Nuclear Emergency Response Plan (PNERP) Technical Study from the Office of the Fire Marshall and Emergency Management (OFMEM), and the OPG licensing

application addresses the issues that the study elucidates, with particular attention to the issue of clean drinking water in the event of contamination of Lake Ontario.

2) OPG decides on the specific reactor it plans to use, with details about the risk to the environment and human health and safety that their chosen reactor design entails, and gives adequate mitigation plans for these risks, as well as historical information about how the reactor has performed elsewhere with detailed data, and the public has an opportunity to comment on this information at public hearings.

3) OPG provides an updated site licence application to replace the 2009 one that reflects its reactor selection, with details of site configuration including waste storage plans.

4) The CNSC considers that OPG choose another site for its DNNP that is far away from large populations and fresh bodies of water.