



**Written submission from the
Canadian Association of
Physicians for the Environment**

**Mémoire de
l'Association Canadienne des
Médecins pour l'Environnement**

In the Matter of

À l'égard de

**Decision on the scope of an environmental
assessment of the proposed Micro Modular
Reactor Project at the Canadian Nuclear
Laboratories Ltd., in Chalk River**

**Décision sur la portée de l'évaluation
environnementale pour le projet de
microréacteur modulaire aux Laboratoires
Nucléaires Canadiens Itée, à Chalk River**

Hearing in writing based on written
submissions

Audience par écrit fondée sur des mémoires

June 2020

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**SUBMISSION BY THE CANADIAN
ASSOCIATION OF PHYSICIANS FOR THE ENVIRONMENT
TO THE CANADIAN NUCLEAR SAFETY COMMISSION ON THE
SCOPE OF FACTORS FOR GLOBAL FIRST POWER'S MICRO MODULAR REACTOR
ENVIRONMENTAL ASSESSMENT**

Jun. 1, 2020

Introduction

I am writing on behalf of the Canadian Association of Physicians for the Environment (CAPE), an organization of physicians, other health professionals and citizens, that advocates for environmental protection in order to protect human health. I am a family doctor working in Kingston, Ontario and am an Assistant Professor at Queen's University. I have been involved with environmental issues for many years, and have many concerns about the proposed micro modular reactor at Chalk River. It is absolutely mandatory that this proposed project meet strict environmental standards and it must undergo a full, detailed environmental assessment (EA) that includes a hearing with independent panel members, participant funding, a transparent and open process, and a timeline that supports public participation. Most importantly, this technology is untested and has been

unsuccessful elsewhere, and to implement it here in Canada without a full environmental assessment would be dangerous and irresponsible.

This document is a submission in response to the CNSC's public notice inviting public comments on Global First Power's Micro Modular Reactor Project at Chalk River. I will describe my concerns with the scope of factors that are to be addressed in an environmental assessment of Global First Power's proposal to build a small modular nuclear reactor at Chalk River. The document prepared by the CNSC staff dated April 29, 2020 (CMD 20-H102) recommends that Global First Power be required to address the scope of factors outlined in section 19 (1) (2.5.1 in the CMD 20-H102), without any additional factors. I find that the description of these factors lack detail, which is extremely important when proposing a project such as a nuclear reactor, as the risk to human and environmental health could be substantial if a narrower and more detailed focus is not applied to each of these factors and if specific requirements are not outlined. The EA should also tailor the particular factors in the EA to the specific issues of the designated project as they apply to the proposed use ie. in remote communities and for extractive resource industries.

In general, nuclear energy is an unnecessary and expensive method of producing electricity. Because humans are part of the environment, not separate from it, any small increase in the radiation levels in the vicinity of any nuclear reactor, even a small reactor, can affect the health of people living nearby, and possibly farther away. All nuclear reactors add to local radioactive contamination of water, air, soil, plants and wildlife due to their ongoing leaks and spills, and in the event of a major accident, this contamination can be widespread, affecting people far away. The decommissioning of reactors and transportation of fuel and nuclear waste also poses a contamination risk to local communities and adds to the unresolved dilemma of nuclear waste disposal. In addition, nuclear energy contributes to the problem of nuclear arms proliferation, creating an environmental and security risk for Canadians and all citizens of the world.

All these issues should be discussed when addressing the scope of factors for the EA for the designated project. They should be considered as well in the context of the targeted eventual application of this technology which is to provide electricity to remote First Nations communities and industries such as mining. In particular, an emergency response plan in the event of an accident needs to be

appropriately described in detail in the EA as it pertains to remote communities, as well as a detailed description of air, water and soil monitoring for radionuclides.

As a physician, I have noted that nowhere in the document is the risk to human health discussed despite the fact that human health and environmental health are inextricably linked. Radioactivity is dangerous to the health of every living thing at any dose. Even small exposures can cause cancer and other serious and fatal diseases. The effects are cumulative, making it particularly dangerous for children.

Recommendation by CAPE to the Commissioners

CAPE recommends that because the scope of factors for the EA for the Global First Power's Micro Modular Reactor Project at Chalk River described in the CNSC staff CMD 20-H102 dated April 29, 2020 is deficient in detail as to how these factors will be applied to the designated project, the CNSC should require its staff to resubmit a more detailed description of the scope of factors to be addressed by Global First Power, in order to fully protect the environment and human health.

CAPE's comments on the CNSC dated April 29, 2020 (CMD 20-H102) regarding scope of factors for an EA for Global First Power's Micro Modular Reactor Project at Chalk River

With respect to the factors described in section 19 (1) (2.5.1 in the CNSC CMD 20-H102 dated April 29, 2020, a) to j)) they do not provide enough detail to ensure the safety of the public and health of the environment.

For (a):

- a) *the environmental effects of the designated project, including the environmental effects of malfunctions or accidents that may occur in*

connection with the designated project and any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out

The list should include specific descriptions of possible environmental effects, such as radioactive contamination of air, water and soil, and subsequent deleterious effects on plants and wildlife (aquatic and terrestrial), as well as humans (due to ingesting or inhaling the radionuclides). The effects should include effects on children, adults and fetuses, in local populations and in populations farther away and downstream, such as the city of Ottawa. Environmental effects should include the effects on the environment from building the reactor and supporting structures, operation of the reactor, decommissioning of the reactor, transport of radioactive materials to the site, transport of waste from the site to its destination, as well as a description of the purported destination of the nuclear waste produced by this project, all of which could cause local or widespread radioactive contamination. The scope should also require a description of the proposed radionuclide monitoring of air, water and soil surrounding the facility including a technical plan of monitoring (outlining number of testing sites, their location and the frequency of testing) as well as subsequent actions if elevated radionuclide levels are detected.

For (d):

d) mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project

This does not specify any specific mitigation measures at all, and does not refer to any particular significant adverse environmental effects. It does not describe what “technically and economically feasible” means, which is important, as the public will be covering healthcare costs caused by radiological environmental effects that adversely affect human health. An intervention that costs Global First Power money to implement may be deemed “economically unfeasible” (ie. too costly for

the company) but may be necessary to protect environmental and human health. If the public is to pay for the resulting health and environmental effects, the proposal becomes economically unfeasible for the public. These terms should be strictly defined and the document should emphasize that any mitigation plan should be strictly adhered to. In addition, when for-profit private companies cause environmental pollution, they should be required to pay clean-up costs. It should be clearly mandated and stated in the EA that Global First Power be responsible for clean-up costs of any pollution it causes with respect to the designated project.

For (e):

e) the requirements of the follow-up program in respect of the designated project

These should be clearly stated and described, including a regular analysis of the environmental monitoring of air, water and soil near the facility and at various distances from the facility. If there are any concerns about elevated radionuclide levels, a detailed health study should be required by Global First Power to assess whether there are adverse human health effects resulting from the functioning of the SMR.

For (g):

g) alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means

Global First Power should be required to explain why development of these SMRs is necessary and how SMRs are superior to renewable energy development in the applications the SMRs are proposing. This superiority should apply to environmental protection and human health effects, always considering ongoing and downstream costs, and full life cycle analysis. The document should be specific about these requirements.

Conclusion

The CNSC staff document CMD 20-H102 on the scope of factors for the EA for Global First Power's Micro Modular Reactor Project at Chalk River is incomplete and inadequate and CAPE recommends that the CNSC require its staff to resubmit an appropriate document with the additions and changes described in this submission.

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