
From: Judith Fox Lee <email address removed>
Sent: Friday, July 11, 2025 11:21 PM
To: Bruce C Nuclear Integrated Assessment / Évaluation Intégrée Bruce C Nucléaire (IAAC/AEIC)
Subject: Judith Fox Lee Comments on the Bruce C draft guidelines and public participation plan
Categories: Add to DL

To Whom It May Concern,

I, Judith Fox Lee of Perth Ontario hereby submit my comments on the draft Integrated Guidelines and the draft Public Participation Plan for the Bruce C Nuclear Project, its current expansion proposal. I will appreciate it if my comments are fully tracked, posted and shared with all concerned members of the Proponent's team, the related IAAC and CNSC staff, the Review Panel members, and the Governor in Council, to assist them in making a reasonable determination on this Integrated Assessment process, in deciding whether the project is in the public interest . I also hereby ask to be added to the distribution list at this same email address, <email address removed>.

To wit:

I fully recommend that the Review Panel and the Governor in Council in its IA decision **reject** the Proponent's request for licencing to prepare site (LTPS) decision under the NSCA, as well as all further future potential pursuits for subsequent licences to construct, operate, decommission at later stages, should the Project receive a positive IA decision and an LTPS at this stage.. Here are my reasons:

This proposal is NOT in the best public interest, nor therefore, in the interest of the CNSC in its highest mandate to regulate the use of nuclear energy and materials in Canada to protect the health, safety, security of Canadians and our environment on behalf of all Canadians.

It will be too expensive and put too much further nuclear debt on future generations. This is not a moral way of functioning, and simply puts the onus on unborn individuals to pay for frivolous spending to be undertaken now. Our future generations are not present to participate in this decision and to object to the high costs which will absolutely be put on **their** public tax fund resources.

The often privatized owners of a number of nuclear agencies are more than happy to have access to the public purse strings through this very cosy and under-monitored state of affairs. This is my blunt assessment. They are more than willing to burden future generations with the unfathomably large nuclear debt, which will only be increasing as more attempts at nuclear waste management are experimented with. I am not personally willing to do that at all. I think we need to stop the nuclear bleeding now... but I don't truly have any true hope for it, unless the Commission suddenly takes the reins and puts its foot down, along with members of the IAAC. and the Review Panel. I am asking each one of you, "Are you prepared to do this?" We truly need independent officials willing to take bold responsibility in this age of profiteering and greed ruling over so many dangerous decisions!

This moral obligation to consider the full, on-going costs for current and future generations should not be ignored and diminished in importance. There is bona fide evidence that current alternative sources of energy are significantly cheaper and much less complex technologically speaking, more efficient, with shorter timeframes for building and no toxic radioactive wastes produced by solar, wind, water and new storage systems. I posit that **the Review Panel must consider all these alternatives to the same depth and degree that they will study in the proposal itself.**

A fulsome consideration of Canada's current energy realities and how to transition to a Zero Carbon status by 2050 has already been prepared for Canada by Dr. Mark Z. Jacobson, Professor of Civil and Environmental Engineering at Stanford University, Director, Atmosphere/Energy Program in that Department (2004 - Present), and Senior Fellow at the Woods Institute for the Environment and at the Precourt Institute for Energy. See web page: <http://web.stanford.edu/group/efmh/jacobson>

Professor Jacobson's career has focused on better understanding air pollution and global warming problems and developing large-scale clean, renewable energy solutions to them. Toward that end, he has developed and applied three-dimensional atmosphere-biosphere-ocean computer models and solvers to simulate air pollution, weather, climate, and renewable energy. He has also developed roadmaps for over 140 states and countries, including Canada, with specific, pragmatic details on exactly how to attain 100% clean, renewable energy for all purposes, using computer models to examine grid stability in the presence of high penetrations of renewable energy.

The implicated staff for this project from the IAAC, CNSC, and Review Panel Members are all required by law to study all possible alternatives, and are tasked to do so. Toward that end, I suggest that if we are to not only survive this time of global climate emergency, but turn it around, and return to be able to thrive as a species, and enable other species to thrive, resurrect our many greatly destroyed environments and habitats, and clean up our global messes. And to be frank, nuclear wastes are a serious concern because of their EXTREMELY long-lived natures, their strong natural potential to damage living cells, and cause cancers and other genetic disruptions. Not to imply it is the only mess we need to contend with, but it is a unique and particularly dangerous one, among many others. And given that it is now widely acknowledged that we must eliminate 80% of carbon emissions by 2030—a short time away, to avoid the very worst of climate disasters, then many current, established practices need to change now. **While it is obviously true that nuclear power is not carbon-based, still, with a little discernment, we can see that that characteristic alone is not sufficient to guarantee it is a safe and advisable approach. Please read on!**

Here are comments taken from Dr. Jacobson's personal email communication with me from January 2025, in which he provides links to his documents providing specific, highly detailed facts about Canada's current energy supplies, **and showing how Canada can transition right NOW, off of both carbon-based and nuclear power.**

His main point is that given the long lead time to new and refurbished nuclear builds, and their excessive costs of **3 -4 times greater than current wind, water and solar (WWS) installations, (levelized, and not even including the humongous costs of waste storage) that nuclear is actually slowing down the needed global transition to net zero emissions in energy sourcing.** Of course, we know that nuclear is not a carbon-based energy source, but it *is* based on an ionizing radiation-source of energy and that is not worth it, nor needed, as he proves:

. "Here is our plan for Canada to go to 100% clean, renewable energy for all energy purposes while saving money, **improving health and climate, and using little land.**

<https://web.stanford.edu/group/efmh/jacobson/Articles/I/149Country/24-WWS-Canada.pdf>

It has been published in this paper:

<https://web.stanford.edu/group/efmh/jacobson/Articles/Others/24-Firebricks.pdf>

Also, here are the reasons nuclear is not needed or helpful and the seven main problems associated with it, in detail:

<https://web.stanford.edu/group/efmh/jacobson/WWSStillNMN/SNMN-WhyNotNuclear.pdf>

That is from his latest book, *Still No Miracles Needed*. .

<https://web.stanford.edu/group/efmh/jacobson/WWSNoMN/NoMiracles.html> “

In case you are not going to open the paper on the reasons nuclear is not needed or helpful and the seven main problems associated with it, in detail, I present to you here the index of what it covers, in case you realize how important this information is—and hopefully decide to read it:

“8.10. Why Not Nuclear Electricity?

8.10.1. Risks Affecting Nuclear’s Ability to Address Global Warming and Air Pollution

8.10.1.1. Delays Between Planning and Operation and due to Refurbishing Reactors

8.10.1.2. Air Pollution and Global Warming Relevant Emissions from Nuclear

8.10.1.3. Nuclear Costs

8.10.2. Risks Affecting Nuclear’s Ability to Address Environmental Security

8.10.2.1. Weapons Proliferation Risk

8.10.2.2. Meltdown Risk

8.10.2.3. Radioactive Waste Risks

8.10.2.4. Uranium Mining Health Risks and Land Impacts

8.10. Why Not Nuclear Electricity?

In evaluating solutions to global warming, air pollution, and energy security, two important questions that arise are

(1) should new nuclear electricity-producing plants be built to help solve these problems,

and (2) should existing, aged nuclear plants be kept open as long as possible to help solve the problems?”

So I am not being facetious in the least when I recommend this paper and also, most importantly, his other paper which outlines in complex detail how this urgent transition can realistically be achieved here in Canada, how the newest large scale solar and wind installations complement each other and how two different very improved energy storage systems would provide all the ‘gap’ coverage that a modern society such as ours would require. **I hope that each of you consider his body of work to be ‘required reading’ to be a responsible nuclear safety commissioner, review panel member, and Integrated Assessor for Ontario and Canada today.**

At so many nuclear power project hearings, the CNSC has heard from so many dedicated citizens who espouse and attempt to communicate this alternative viewpoint to the Commission. Many, like myself, are life-long environmental activists, scientists, and others who simply care so deeply about our dear earth. The vast majority of us receive zero compensation for our activities in this field. We just care that much about our environment and about what we are leaving for all future generations, and accept the inconvenience of the moral imperative to act on what we see. Even the previous CNSC President, Madam Velchi agreed when it was pointed out in a hearing that, almost exclusively, the intervenors who were speaking in support of various nuclear projects were either paid employees, students studying to become nuclear engineers, or business owners and others who directly benefit from the nuclear industry! I hope you will ask yourself why is there such a credibility gap and such a difference of opinions between us?

Worth mentioning, too, are the numerous top level nuclear developers, engineers, scientists, and doctors from the past 75 plus years who were first leaders in this field and then wound up as dissenters and deserters once they fully comprehended and honestly evaluated the field they had made significant contributions in, including some of the top engineers and others on some of Canada's historic nuclear developments. Also noted are Dr. John Gofman, co-discoverer of the nucleotide Uranium-233 and its fissionability along with other isotopes of uranium and protactinium. Dr Rosalie Bertell of Canada studied the health effects of ionizing radiation deeply as an internationally recognized environmental epidemiologist, cancer researcher and public health advocate. These people, and so many others, who first believed in the nuclear dream, were willing to publicly adjust their allegiances once they fully saw what nuclear was delivering to the world.

I hope you can read Dr. Jacobson's papers and consider in your own hearts exactly why you think the nuclear option is so right and safe and health-promoting! And maybe consider starting to make decisions which can at least give way to a future with more options that are way gentler to the earth and all its living creatures, its water and air quality, and the safety of our food and land. Especially now that it has been clearly demonstrated by Dr. Jacobson and others that ***we do not need nuclear to move to net zero, and in fact it turns out to be an outrageously expensive hindrance and health risk to us all.***

The powerfully vested financial interests of the past decades and the current global nuclear power industries have worked hard to keep this truth hidden and make false projections that nuclear energy is clean, green and safe. **How can something that remains so dangerous to living cells for so long (tens of thousands and even millions of years, as you know) that has to be kept out of our environment all that time (an impossible task) and guarded from terror risks from violent aggressors— be considered 'safe' in any sense? Why, why, why burden ourselves in this hopeless way, I truly ask you all. I would very much welcome hearing your personal answers to these honest and critical questions by email to my address on record there. I would appreciate that!**

That brings me to **one critical point about the potential effects of Bruce C on the Great Lakes and other local bodies of water. Indigenous and other citizens at all nuclear project consultations and hearings repeatedly mention the sacredness of our precious bodies of water.** During numerous hearings to date about proposed facilities at Bruce and also Darlington, and Pickering, and Chalk River, among others, these admonitions have not been heeded by the CNSC or the operators and planners of these installations and sites.

Even when absolutely no nuclear materials are *planned* to be emitted to any body of water, and even when radioactive water in contact with fuel is kept totally separate from the lake water which is used to cool parts of the plant. ***this is still not any meaningful reassurance, for two reasons:***

First of all, there is always the potential for *unplanned* emergency radiological leaks of tritium or carbon 14 or gases such as iodine 131 or the noble gases – Of course, the plants are designed to keep these and many, many other radiological substances produced in the internal reactions – out of the environment, but as we all have noted in life, unplanned and un hoped for accidents, including major nuclear accidents, do occur! And they bring risks to our health.

And secondly, very commonly, in the operation of nuclear plants, there are regular water releases from the plant which are *not radiological* in content, but are still dangerous to our precious water of life: These releases are an example of ***thermal pollution:***

Thermal pollution from nuclear power plants can severely impact aquatic life by altering water temperatures, reducing dissolved oxygen, and changing the composition of ecosystems. Warm water from these plants can create habitats unsuitable for native species, leading to biodiversity loss and potential species extinction.

A few examples of how thermal pollution damages aquatic life:

- **Reduced oxygen levels:**
Warm water holds less dissolved oxygen than cool water, leading to hypoxic (low oxygen) conditions. This can suffocate fish and other aquatic organisms.
- **Algae blooms:**
Warm water can promote rapid algae growth, leading to algal blooms that consume oxygen and block sunlight, further harming aquatic life.
- **Habitat changes:**
Thermal pollution can alter the composition of aquatic communities, with native species being replaced by more heat-tolerant species. This can disrupt food chains and ecosystem function.
- **Direct mortality:**
Some organisms are particularly sensitive to temperature changes and may experience direct mortality from the heated water.
- **Impact on plankton:**
Plankton, which form the base of the food web, can be significantly affected by thermal pollution, leading to changes in their abundance and community structure.
- **Altered metabolism:**
Increased water temperatures can accelerate the metabolism of aquatic animals, leading to increased energy consumption and potentially reducing their overall health.
- **Migration and distribution changes:**
Some species may migrate away from areas affected by thermal pollution, leading to changes in their distribution and abundance.

And in an entirely other way, these thermal releases are notable contributors to global warming trends which we can ill afford now.

So despite all their sincere assurances, creating thermal pollution is not respecting the sacredness of our aquatic life, our water systems, nor our climate forces, which are subtly balanced in composition, (or at least used to be), and clearly are not fully understood by modern industrial cultures and societies such as ours.

Brief Summary of My Other Major Concerns:

The Guidelines **must** include:

- the need for the project and alternatives to the project (already discussed in detail above)
- detailed reactor description and design details-- It is outrageous that the proponent has come this far with only the scantest description of the reactor design it *may select or not*. Bruce Power should have been required to select and present their preferred reactor design in detail *at this stage*, for the true consideration of the public and all concerned bodies who will be responsible for the decision. Later is too late!
- the radioactive waste management plan for Bruce C must be included, listing the detailed waste inventories expected and provide the waste characterization for all waste categories in the short, medium and long term
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 - - their plan for transportation of nuclear materials
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 - - the impact of the project on the local environment, including the Great Lakes
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 - - potential radioactive releases to air, soil, water, e.g. tritium and other radionuclides

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- - the subsequent increases in operations at the Western Waste Management Facility, including incineration or radioactive wastes, and releases from the incinerator and other waste management activities as a result of all phases of Bruce C.
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- -impacts on fish and fish habitats, water use of the plants
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- - the specifics of the as yet proposed cooling systems (water or air cooling)
- - project impacts on the local social landscape, including demographic and population surges, the potential for increased urban development for the region
- - the clear need to address the duty of the Crown for free, prior, and informed consent from First Nations.

In closing, I sincerely hope that the CNSC, the IAAC and the Review Panel will take a much more conservative approach to protecting Canadian health, safety and concern for our environment as is your mandate, and not simply be the rubber stamp that the current nuclear industries here in Canada are strongly encouraging and, indeed, planning for and counting on.

I thank you very much for your time and serious consideration of my intervention.

Judith Fox Lee
Perth, ON
July 11, 2025
For the Public Record