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Standing Committee on Science and Research
Sixth Floor, 131 Queen Street
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To members of the Standing Committee on Science and Research:

Re: Small Modular Reactors

I am writing to provide input into your study of Small Modular Reactors. I strongly object to the use of federal climate change funding to support this technology.

Climate change is an emergency, as you are quite aware. It is having major impacts already on every region of this country. While Canada has set a goal of "Net Zero by 2050", this path must begin with the government's commitment to reduce our GHG emissions by 40 to 45% by 2030. *That gives us approximately 90 months, or just over 360 weeks.* The clock is ticking.

We must do everything possible to ensure that 2030 target is met. That means supporting, encouraging and implementing non-emitting technologies that are *available and ready today*. How fortunate we are to have those technologies at our fingertips, namely wind, solar, geothermal, efficiency and storage. It is even more fortunate that these are shown in study after study to be the most cost-effective modes of energy generation to replace fossil fuels for electrical generation, and for other uses. Not only that, they can be sized appropriately to meet the needs of different communities, they do not carry the risk of catastrophic accidents, and they do not emit routine radioactive elements into the air and water, as is the case with nuclear plants.

To its credit, the government has seen fit to budget funds to combat climate change and to move Canada to a low carbon future. That money must be spent prudently to bring these *currently available* technologies to all Canadians as quickly as possible, and to continue to develop them. There is no scenario in which any nuclear technology can compete on a financial basis now or in the near future. The old argument that "the sun doesn't always shine and the wind doesn't always blow" is obsolete given the storage and smart grid technology also available now. Even post-2030, there will not be a place for nuclear generation on the smart grids that we can construct to ensure consistent energy availability. Nuclear generation is

uniquely unsuitable for switching on and off when it might be needed. Doing so only increases the cost of energy generated.

The so-called new generation of Small Modular Reactors (SMRs) are not available currently. Even the most optimistic predictions for the development of the technology gives close to the end of the decade for any of the proposed models to be built and then only with huge inputs of government funding. To imagine that they would have any impact on greenhouse gas reductions by 2030 or even 2040 is fantastical. Add to that the fact that recent studies are demonstrating that the kinds of reactors being proposed would produce *more radioactive waste per energy unit generated* than conventional large-scale reactors. Canada's nuclear waste problem is already a major liability, and while the industry would like us to believe that burying the waste deep in the Canadian Shield or under the farmland of Southwestern Ontario will be the answer to this problem, many Canadians do not agree that this "out of sight, out of mind" proposal is an adequately safe solution, particularly those who live along the transportation routes that would see multiple radioactive shipments every day for decades into the future.

Quite aside from the usual irradiated fuel waste that all SMRs will produce is the prospect of reprocessing waste from the SMR model being proposed by Moltex in New Brunswick. Canada has never before carried out reprocessing of nuclear waste to be used as fuel, and there are excellent reasons why this is the case. Reprocessing is decidedly NOT "recycling". It is a process by which plutonium is extracted from spent fuel by dissolving the fuel rods in nitric acid, creating a whole new stream of toxic and radioactive liquid waste - demonstrably more problematic to store and manage than conventional fuel rods. It reduces the original waste by only 1% so claims that it reduces nuclear waste are misleading. Because plutonium is the key ingredient in nuclear weapons, Canada stands to jeopardize international agreements on nuclear weapons proliferation by conducting plutonium extraction. Doing so will add to the global nuclear weapons threat and will necessitate even higher levels of security at any location where this is carried out. It is quite simply irresponsible in the extreme.

While the nuclear industry and its proponents paint an enticing picture for the role of SMRs in addressing Canada's greenhouse gas emissions, there is NO EVIDENCE to show that this technology will work as promised. And, as noted, there is plenty of evidence to show that even if these proposed reactors eventually do work, they will be more expensive, more polluting, more dangerous, and produce more waste than proven technologies that can be implemented today to start reducing emissions and helping to avert climate catastrophe immediately.

Allocating any federal funding to nuclear development is a high-risk gamble with taxpayers' money that will worsen climate change by diverting attention and support from real climate solutions.

In the interest of submitting this brief before your study concludes, I have not included citations or footnotes. However, all of the statements contained herein are entirely defensible in documented studies. Thank you for the opportunity to provide input to your study.