

## Nuclear reactor(s) on Peskotomuhkati homeland

The Passamaquoddy Recognition Group Inc. (PRGI) represents the interests of the [Peskotomuhkati Nation in Canada](#). The only nuclear reactor in the Atlantic provinces is in Peskotomuhkati homeland, with 600 more megawatts (MW) planned, so PRGI is actively interested in and engaged with nuclear power issues.

Chief Hugh Akagi is a collaborator in the research project, *Contesting Energy Discourses Through Action Research* ([CEDAR](#)) at St. Thomas University in Fredericton, New Brunswick. CEDAR's research on the energy transition includes reviewing the existing and proposed new nuclear reactors at Point Lepreau on the Bay of Fundy. Nuclear power experts on the CEDAR team include Dr. Gordon Edwards and Dr. M.V. Ramana. CEDAR project leader Dr. Susan O'Donnell is collaborating with PRGI and studying nuclear power located in New Brunswick and Canada. Chief Akagi is also a *Champion* associated with the group Coalition for Responsible Energy Development ([CRED](#)) in New Brunswick.

**Where are Canada's nuclear power reactors? How long have they been operating?** Canada has one of the oldest nuclear power fleets in the world. Ontario has 18 nuclear power reactors on Lake Ontario and Lake Huron. New Brunswick's one nuclear reactor at Point Lepreau opened in 1983, it is a CANDU reactor (cooled with heavy water, generates approximately 600MW of electricity). Quebec's nuclear power reactor on the St. Lawrence River was shut down in 2012. On average, the power reactors in Canada are more than 40 years old. Globally, the advanced age of power reactors is a big problem for the industry because every year, more reactors shut down than new ones start up.

**Why is the Point Lepreau reactor a money loser?** For a few years after it opened in 1983, the reactor was making money for NB Power but then it began performing poorly, so NB Power refurbished (rebuilt) the reactor earlier than originally planned. The refurbishment ran years over schedule and after it started up again in 2012, the reactor performance continued to be poor. NB Power loses money almost every year because the reactor performs poorly, and the reactor is responsible for \$3.6 billion of NB Power's current \$5 billion debt. In response, there is currently discussion about a new out-of-province management and ownership arrangement.

**Is nuclear power needed for medicine?** No, although radiation and medical isotopes are routinely and increasingly used to diagnose and treat many diseases, these medical devices do not depend on nuclear power reactors. Medical isotopes can be produced in a nuclear research reactor. Even if all power reactors were shut down, the supply of medical isotopes would still be met by traditional alternative means such as particle accelerators and a handful of research reactors scattered around the world, including in Canada.

**Is more nuclear power needed for the climate crisis?** Countries need to generate electricity using power sources that do not emit greenhouse gasses (GHGs). Nuclear reactors do not emit GHGs when operating but nuclear is a very expensive way to make electricity, with waste that remains radioactive for hundreds of thousands of years. Renewable energy such as wind and solar farms also do not emit GHGs when operating, they are much less expensive than nuclear energy and can be built now.

Although renewable energy is more affordable and quicker to build, Canada wants to keep the nuclear industry going for political reasons. The industry's plan is to develop smaller reactors, claiming they will cost less (Small Modular Nuclear Reactors – SMNRs). However, it seems any new reactor development will need massive public subsidies because private investors are putting their money into renewable energy, not nuclear energy. So no, we do not need to build more nuclear power because renewable energy is ready to roll out now.

**Will small nuclear reactors be better than the existing reactor?** NB Power wants to build experimental nuclear reactors at Point Lepreau and chose two different small reactor designs. The ARC design from the U.S. is cooled with liquid sodium metal. The Moltex design from the U.K. is cooled with molten salt. Sodium-cooled and molten salt reactors have never operated successfully on an electrical grid, anywhere. Nuclear experts in the U.S. say they will struggle to be ready by 2050, even if NB Power can find the billions of dollars it will take to build them.

**What radioactive waste does the Point Lepreau reactor create?** An expert report prepared for PRGI found that the Point Lepreau reactor emits much higher levels of radioactive tritium into the air than other nuclear reactors in Canada. Ingesting and breathing in tritium increase the risk of cancer in humans and other animals.

The reactor's used fuel, called high-level waste, is one of the most toxic and dangerous radioactive elements on the planet. NB Power and Canada eventually want to move it from storage at Point Lepreau to Indigenous territory in Ontario. However, no First Nation in Ontario has stated that they would accept it in their territory. There are other types of waste called low and intermediate level radioactive wastes, currently NB Power and Canada's plan for these wastes, is that they will remain in our homeland forever.

Small Modular Nuclear Reactors would create high, intermediate and low-level wastes which would be different from current Point Lepreau CANDU wastes, and they will create new kinds of storage problems.

**What about 'recycling' the nuclear waste at Point Lepreau?** NB Power is claiming that the proposed SMNR, Moltex, will reduce the nuclear waste at Point Lepreau that was made by the existing nuclear reactor. However nuclear experts in Canada, the U.S. and many other countries say that plan is a fantasy, and dangerous, because it will create more waste problems. In addition, the plan involves extracting plutonium from the existing waste, which is currently not allowed in Canada because plutonium is used for nuclear weapons.

**What about the marine impacts?** PRGI is concerned about the direct impact of the current and proposed nuclear reactors on the marine environment through impingement, entrainment, the thermal plume and the fish and marine mammals that get drawn into the forebay of the reactor. We are also very concerned about repercussions of a potential of a nuclear accident on the Bay. As well, PRGI has asked NB Power for information on the planktonic species affected by the reactor. The Bay of Fundy, one of the most productive marine locations on the Atlantic coast, requires planktonic species as the essential element that allows this diversity to thrive.

Nuclear also impacts freshwater both on the Lepreau peninsula and onsite through water draws. As well, in the case of the proposed SMNRs, freshwater wetlands and streams on site may also be redirected, filled in, and otherwise impacted.

**What about potential accidents?** We believe that the emergency planning zones used by NB Power for a potential accident at Point Lepreau do not follow international best practice.

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Download it and more information here: <https://cedar-project.org/PRGI>