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THE SATURDAY DEBATE

OPINION

# The Saturday Debate: Is nuclear energy just too risky?

Two sets of Canadian doctors square off on the danger of nuclear energy during a time when war rages around nuclear reactors in Ukraine.

By Special to the Star



SATURDAY DEBATE Chloe Cushman illustration for May 14 Saturday Debate Uploaded by: Colby, Scott  
Chloe Cushman illustration

# YES

**Drs. Cathy Vakil, Nancy Covington and Charles King**  
International Physicians for the Prevention of Nuclear War

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As physicians, our interest in nuclear dangers stems from long-standing concerns about nuclear weapons and proliferation and the risks to human and planetary health caused by radioactive

contamination. Chronic exposure to atomic radiation has the potential to cause cancer, genetic disease, birth defects, infertility and other illnesses.

Our federal government and four provincial governments are keen to site small modular nuclear reactors (SMNRs) in remote areas, including the oilsands, the far north, and Indigenous lands. Plans are to build SMNRs on the grounds of aging nuclear reactors, including Darlington (east of Toronto in a densely populated area), and Point Lepreau, N.B. on the ecologically sensitive Bay of Fundy.

The nuclear industry, hoping to reverse its worldwide decline of recent decades, has persuaded government officials and the public that these unbuilt, untested reactors, based on previously unsuccessful designs, qualify as “green energy” and will solve our climate crisis. But nuclear energy is not the answer to our climate emergency. It is just too risky. Here are a few reasons:

- Nuclear projects consistently run many years behind schedule, making them irrelevant to our urgent climate crisis. They routinely exceed budgets by billions, making them far too expensive. Public dollars spent on renewables could sustainably address the climate crisis right now. Additionally, nuclear off-site damage is uninsurable — the taxpayer bears the costs of leakage, accident and cleanup, costing billions more.
- The dilemma of what to do with highly toxic radioactive nuclear waste remains unsolved. This deadly legacy persists for longer than humankind has walked the earth. Presently, there are 57,000 tons of high-level radioactive waste in storage at Canadian nuclear reactor sites, increasing every day. The proposed solution of burying it deep in the ground, hoping that it won't contaminate local drinking water, soil and air, is fantasy. These projects have not succeeded anywhere. It is unconscionable to burden future generations with more of this toxic waste and no safe method for disposal.
- Proponents of molten salt SMNRs use the words “recycling nuclear waste” to describe the process of removing the tiny fraction of plutonium in CANDU waste for fuel, and to “reduce nuclear waste.” However, this process leaves harder-to-handle radioactive waste of approximately the same volume, increasing the complexity and cost of radioactive waste management. Clearly, this is not a solution to our nuclear waste dilemma.
- Reprocessing or extracting plutonium is known to be a risky, dirty business, legally banned in U.S. in the 1970s. Canada followed suit with a voluntary plutonium extraction ban. Has recent government support for SMNRs unwittingly changed Canada's position against plutonium extraction? In 1974, India utilized Canada's gift of a research nuclear reactor to make its first nuclear weapons.

Will Canada now approve industry's aspirations to export SMNRs to countries who may become intent on acquiring nuclear weapons? This would implicate Canada in the scary new age of a "plutonium economy" just when we are hearing overt threats of nuclear weapons usage in the Ukraine war. Plutonium extraction poses unbridled risk; it is an invitation for proliferation and nuclear terrorism.

- Catastrophic nuclear accidents, though rare, do happen — think Fukushima, and Chernobyl. Contrary to industry claims, SMNRs would be equally susceptible to such accidents since all nuclear plants depend on engineering to keep irradiated fuel constantly cooled and contained. Loss of containment can occur, whether from meltdowns, explosions or external events, causing widespread contamination from radioactive poisons. An accident like Fukushima occurring in Toronto would cause population displacement and radioactive exposure of possibly millions of people.
- The current conflict in Ukraine has shown that nuclear power installations can act as nuclear weapons ready to explode if struck, or melt down if their electrical power supply is interrupted. The Zaporizhzhia reactor in Ukraine suffered a near direct hit, luckily escaping a massive radiation release similar to Chornobyl's 1986 accident, which led to the large exclusion zone in the heart of Ukraine's wheat belt. SMNRs might pose a bigger risk, as there would be more reactors to strike.

As physicians, we know that our health depends on a clean and peaceful planet. Why exacerbate the known dangers of nuclear technology with many small new reactors? SMNRs are too slow to help with the climate crisis. They create more toxic waste while being at risk of devastating accidents and widespread nuclear proliferation. In keeping with the precautionary principle, and when we have cleaner cheaper sustainable alternatives, why would we choose nuclear energy? It is just too risky.

**Drs. Cathy Vakil, Nancy Covington and Charles King** are members of International Physicians for the Prevention of Nuclear War.

# NO

**Dr. Christopher Keefer, Dr. Mark Walker and Dr. Douglas Boreham**  
Physicians

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As physicians we explain the risk and benefits of treatment plans on a daily basis. The risk/benefit profile of nuclear energy is clear. Nuclear is extremely safe, it is our lowest CO2 energy source and

is essential to reaching our climate goals.

After the terrorist attacks of 9/11, many Americans felt that flying was too risky and started driving instead. An analysis by the U.S. Department of Transportation revealed a significant rise in fatal crashes in the final three months of 2001: an extra 353 deaths compared to previous years due to increased traffic on the roads.

After Fukushima, many countries felt that nuclear energy was too risky. As a result of the earthquake and tsunami 20,000 people died; as a result of radiation released from the meltdown of three large reactors, zero people died. Yet around the world non-emitting nuclear plants were closed and replaced not by renewables but fossil fuels, whose air pollution resulted in tens of thousands of deaths.

Nuclear has potential risks, but they are much smaller than we have been led to believe. In fact, outside of the Soviet Union, at most one person, a Japanese plant worker, died as a result of radiation from a nuclear power plant accident. According to the UN Scientific Committee on the Effects of Atomic Radiation, the accident at Chernobyl — the result of an obsolete reactor design not used in the West — has caused fewer fatalities than a single major aviation accident. Scientific analysis demonstrates that nuclear power has saved more than 1.8 million lives by displacing air polluting fossil fuels.

Despite concerns over Russia's capture of Ukrainian nuclear plants, these facilities have continued to operate safely. Nuclear plants are some of the most hardened structures ever built. Both the reactors and spent fuel pools are within a 1.2 meter thick steel-reinforced containment. According to experts, breaching it would require intentional strikes with specialized bunker buster bombs, not stray artillery shells.

Due to inherent physical principles, plants cannot blow up like nuclear bombs. What happened at Chernobyl — a power excursion followed by a graphite fire — cannot happen at water-moderated reactors like Ukraine's Zaporizhzhia, or any of Canada's nuclear power plants. If a military were seeking to cause maximum harm by targeting energy infrastructure they would target hydro dams causing devastating floods. Should we phase out hydroelectricity, Canada's number one source of low-carbon energy as a result of this potential risk?

Why are we so scared of nuclear energy? In a word, radiation — specifically its association with nuclear war. After all, we do not fear radiation when the doctor sends us for an X-ray.

We live on a naturally radioactive planet and our bodies are well adapted. Every single second 4,300 radioactive decays of the naturally occurring radioisotope Potassium-40 occur inside our cells. Much of the state of Kerala, India has a naturally occurring radiation rate higher than the most contaminated sites in Fukushima, without any appreciable increase in cancer rates.

When it comes to artificial radiation things get more surprising. The medical tests and treatments we order as physicians produce almost the entire amount of artificial radiation that the average person receives. Radiation is, of course, dangerous at high doses but, excluding Chernobyl with its obsolete reactor design, nuclear plant accidents do not result in high enough doses to members of the general public to cause harm.

A recent whole-genome sequencing study definitively demonstrates that even amongst the Chernobyl cleanup workers exposed to high doses of radiation, no radiation related transgenerational effects can be observed in their children.

Nuclear energy creates the zero-carbon, ultrareliable power we need to get off fossil fuels. In Ontario, nuclear provided 90 per cent of the energy required to phase out coal, which the Ontario Medical Association estimates has saved 1,000 lives every single year. It was also North America's greatest greenhouse gas reduction measure.

Opponents of nuclear energy say we can decarbonize with renewables, instead. However, the wind doesn't always blow and the sun doesn't always shine. Germany, the world's leader in renewables deployment, with €550 billion spent so far, has failed to phase out coal, the top source of German electricity in 2021, and remains critically dependent on Russian gas that is financing the war in Ukraine.

It is too risky to ignore science and make poor decisions based on unsubstantiated fears. Around the world nuclear energy has saved millions of lives from avoided air pollution and it is our most scalable tool to fight climate change.

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