



As we document in a new report published by St. Thomas University, the \$4.5-billion in public funds spent to date on SMR activities in Canada have produced underwhelming results. Continued government funding for SMRs is a waste of public resources, write Susan O'Donnell and M.V. Ramana. *Image courtesy of Pixabay*

More wishful thinking about nuclear energy on path to net zero

Let's get real: nuclear energy is by far the most expensive way to generate electricity, and SMRs will not get us to net zero by 2050. The perils of wishful thinking include fuelling false hope, leading to bad decisions about energy choices across Canada.

Susan O'Donnell & M.V. Ramana

Opinion



On March 16, the federal energy regulator released Canada's Energy Future 2026, its second report that

explicitly modelled a scenario to achieve net-zero emissions.

Canada's Clean Electricity Regulations require electrical utilities to reduce emissions by 2035 and aim for net-zero electricity by 2050. In 2021, then-natural resources minister Jonathan Wilkinson tasked the Canada Energy Regulator to produce a scenario to reach that target.

Both the regulator's 2023 and 2026 reports envision Canada deploying small modular nuclear reactors (SMRs). But the latest scenario is less optimistic about these technologies.

The reduced optimism is warranted, but still unrealistic. As we document in a new report published by St. Thomas University, the \$4.5-billion in public funds spent to date on SMR activities in Canada have produced underwhelming results. Continued government funding for SMRs is a waste of public resources.

The 2018 official roadmap for SMRs "expected" that "one or more SMR demonstration [projects would be] constructed and in operation by 2026." That hasn't happened. In 2024, the company leading the first SMR demonstration project filed for bankruptcy

protection in the United States, leaving unpaid debts, including \$641,307 to the Canadian Nuclear Safety Commission.

In New Brunswick, the federal government gave more than \$97-million to two companies to develop SMR designs; the provincial government added another \$31-million. Yet, in late 2025, New Brunswick's energy minister said the government would no longer wait for these SMR designs because these first-of-a-kind reactors were risky.

Contrast this with the scenarios envisioned in Canada's Energy Future 2026; its net-zero scenario involves SMRs operating in five provinces by 2050: Ontario and New Brunswick, both of which currently operate nuclear power reactors, as well as Alberta, Saskatchewan and Quebec, which don't. In the corresponding scenario in the 2023 report, Manitoba, British Columbia, and Prince Edward Island also deployed nuclear power by the 2030s.

Although Saskatchewan and Alberta joined Ontario and New Brunswick in 2019 to collaborate on developing and deploying SMRs, the likelihood of the

two Prairie provinces actually building SMRs is questionable. Late last year, the Government of Saskatchewan called upon the federal government to pay three-quarters of the cost of the province's first reactor. And a study in Alberta by the oil company Cenovus concluded that "from a business perspective ... SMRs are not economic or commercially feasible at present or in the near future. The capital costs are high, the timelines are long and uncertain, and technology and supply chains lack maturity."

Of the 10 SMR designs in Canada we reviewed, only one is being built. This reactor design, the BWRX-300, has received most of the public funding for SMRs—\$4.025-billion. In September 2025, the federal government referred the Darlington New Nuclear project to the Major Projects Office.

Four billion dollars is a lot of money, but it's vastly inadequate for building four BWRX-300 reactors planned for the site. Even the first BWRX-300 reactor is expected to cost more—\$6.1-billion—and the whole project will cost at least \$20.9-billion. It could cost far more—the vast

majority of nuclear power projects have historically overrun initial cost estimates. Perhaps for these reasons, there is little interest among banks and other sources of private capital in investing in SMRs.

The high costs for the Darlington SMR means that any electricity it produces would be expensive. Estimates by Australia's Commonwealth Scientific and Industrial Research Organization show that each unit of electrical energy from SMRs would be far more costly than a corresponding unit from solar and wind power plants, even when the cost of measures to deal with the variability of renewables are included.

Let's get real: nuclear energy is by far the most expensive way to generate electricity, and SMRs will not get us to net zero by 2050. The perils of wishful thinking include fuelling false hope, leading to bad decisions about energy choices across Canada. Nevertheless, if the federal government continues to squander public funds on building SMRs, the reactors will also introduce more risks of severe accidents and produce more hazardous radioactive waste, for which there is no demonstrated safe solution.

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