Nuclear Energy – Why Ontario doesn't need it

By Martin Bush, Sept 2024

Seniors for Climate Action Now! (SCAN!)

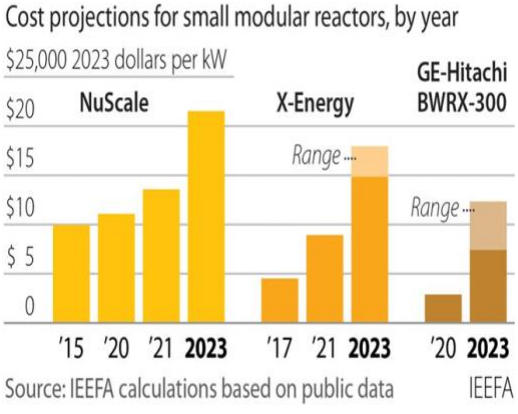
With the growing adoption of electric vehicles and the switch from fossil gas to electricity heating and cooling buildings, how should the provincial government meet the need for additional electrical power?

The urgency of the climate crisis and the need to reduce emissions of greenhouse gases is also an important consideration. Fossil fuel power generation should be phased out as Canada moves towards net zero emissions by the middle of the century.

The generation of electricity must therefore transition to technologies that produce no carbon emissions: either renewable energy technologies like solar energy, wind power, hydropower, and geothermal; or nuclear power. Measures to increase energy efficiency are also absolutely essential.

The choice among these technologies should be relatively straightforward. **One of them, nuclear energy, is *several times more expensive* than the others. Moreover, *it takes years longer* to bring a nuclear station from design concept to power generation.**

Small Modular Reactors (SMRs) are neither small nor modular. The model favoured by Ontario Power Generation is the GE-Hitachi BWRX-300 model, a design that has yet to be constructed, let alone come into operation anywhere in the world. There is absolutely no doubt that the cost of electricity from SMRs will be several times higher than the cost of electricity generated by renewables. This is fact, not fiction. It is inherent in the complexity of nuclear power that cost and time overruns are the norm, not the exception.



This chart from the US Institute for Energy Economics and Financial Analysis shows actual cost over- runs for three SMR designs including two (X-Energy and G-Hitachi BWRX-300) that are under consideration in Ontario.

The NuScale design went so far over budget that its construction was halted then cancelled in Idaho, USA, in November 2023.

When discussing renewable sources of energy, the pro-nuclear advocates like to point to the supposedly intractable problem of intermittency. But large-scale photovoltaic plants and wind farms are now routinely coupled with energy storage systems. Even with this increment in

capital costs, **solar and wind plus storage are still several times less expensive than small modular reactors and they get built and start up in half the time.**

One problem that the pro-nuclear lobby doesn't want to talk about is radioactive waste. All nuclear reactors generate high-level radioactive waste. This must be stored on site, sometimes for years, until it can be safely removed. This means that every location where an SMR is operating will become a nuclear waste storage site. The predictable response from most of the public (and definitely from First Nations) is *Not-in-my-back-yard*. It's not hard to see why.

Finally, **peak electricity demand in Ontario has been on a downward trend since 2011.** The province currently has more generating capacity than it needs. There is absolutely no need to add more capacity to the Portlands Energy Centre in Toronto.

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