

Time to Accelerate Building New Low-carbon Nuclear Generation in Ontario



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For over sixty years, safe, affordable, low-carbon nuclear energy has been the foundation of Ontario's electricity system and the drivers that made Ontario the center of Canada's nuclear industry are even more relevant today than they were in the 1950s. Sustaining and growing environmental and economic benefits for Ontario's future requires kickstarting the province's planning for new nuclear reactors immediately.

Canada's successful nuclear industry has been vision driven by a three-way partnership - the federal government, Ontario, and the private sector. In the early 1950s, Ontario's electricity demand was growing rapidly. Our province had developed most of its "white gold" hydroelectric potential by that time and needed much more electricity to supply a growing economy. It had two long-term options—import more fossil fuels to generate electricity or become a nuclear technology leader. For decades it did both, however as the advantages of nuclear generation became more and more evident, nuclear has been relied upon as Ontario's 24/7/365 low-carbon baseload workhorse.

However, the short-term planning focus of Ontario's Independent Electricity System Operator (IESO) is now leading us down a path to higher carbon emissions. Independent analyses show that the IESO has underestimated climate change related electricity demand growth for over a decade. Now, facing increased reliability risks including a higher probability of brownouts, the IESO has announced that it will increase production from existing natural gas plants and build new ones because new gas plants can be planned and built in less time than large-scale, low-carbon generation facilities like nuclear and hydroelectric.

Even more troubling is the IESO's failure to include in its planning, the significant electricity demand growth identified in its own December 2022 Pathways to Decarbonization Study. The Study forecasts that overall Ontario will require 68,000 megawatts (MW) of new low-carbon supply by 2050. It recognises nuclear as Ontario's most cost-effective low-carbon option and identifies the need for new nuclear generation to provide 17,800 MW of that additional supply.

Ontario's secure, low-carbon, baseload nuclear energy compares favourably to other generation sources across a range of internationally accepted economic benchmarks. Using more natural gas generation means higher carbon emissions; eliminating the reductions achieved from closing Ontario's coal stations; and exposure to price and supply volatility in North American natural gas markets. Building more intermittent renewables that require IT controlled, battery storage backup can provide some low-carbon energy but not like 24/7 baseload nuclear. Canada's nuclear industry has a solid

foundation: robust and internationally admired complete life-cycle regulatory and monitoring oversight; high-quality reactor designs; and a highly-trained workforce. And unlike, other energy options, Canada has a responsible, highly-regulated, monitored, and funded waste management plan in place.

The economic benefits of this Ontario-centric industry are evident and verifiable, generating annual revenues of over \$6 billion (B) and supporting 240 supply companies and about 76,000 direct and indirect jobs. It has made Ontario a major player in the \$17B global marketplace for life-saving medical isotopes. The ongoing and highly successful refurbishment programs at Ontario Power Generation and Bruce Power show that we can anticipate tens of thousands more high-skilled jobs, more revenues for government, and more domestic economic prosperity generated from building and operating 17,800 MWs of new low-carbon nuclear supply.

Recently, the federal government announced clean energy tax credits for some forms of low-carbon energy production and carbon capture technologies but has yet to decide if those incentives will be made available to large-scale conventional nuclear projects. This step is crucial for achieving Net Zero.

Ontario has a solid, proven nuclear industry that provides 60 percent of the electricity we use today. New nuclear facilities take time to plan, site, approve and construct. The IESO Pathways to Decarbonization Study acknowledged this reality and called for accelerating the acquisition of non-emitting supply and the associated planning and siting work for nuclear, storage, hydro, and transmission projects. Sage advice in support of Ontario's Net Zero, affordable, low-carbon energy security and economic prosperity aspirations.

Electrifying Ontario's Economy Is the Best Pathway to Decarbonization & Economic Prosperity

- Ontario will require 68,000 MW of new low-carbon supply by 2050
- Using more natural gas generation means higher carbon emissions
- Intermittent renewables require back up generation and storage
- **Nuclear is Ontario's most cost-effective low-carbon option**

FROM THE PEOPLE WHO HELP KEEP THE LIGHTS ON.

