

Time to Put Ontario’s Planning for Low-Carbon Energy Security into High Gear



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The impacts of a “once in a generation” North America-wide storm and continuing geopolitical conflicts provide stark reminders of the growing importance of low-carbon energy security. Without it, governments around the world recognize the impossibility of achieving net zero, critical for the fight against climate change, while ensuring economic competitiveness in the global marketplace. As a result, developed countries around the world are acting aggressively to plan for this future. Ontario urgently needs an energy action plan that maintains its competitiveness and, more importantly, addresses the low-carbon electricity shortfall facing the province from now to 2050, and beyond.

Before Christmas, Ontario’s Independent Electricity System Operator (IESO) released its Cost-Effective Energy Pathways to Decarbonization Study. Several of its findings are worth highlighting.

In 2050, most of Ontario’s current low-carbon electricity resources, primarily large refurbished nuclear and hydroelectric generation, will still be operating. Almost all of the province’s existing wind generation will have reached end of life and require replacement. The Pathways Study reveals that Ontario will need 68,000 megawatts (MW) of new low-carbon electricity including 17,600 MW of new wind generation, 6,000 MW solar, and increased imports of 3,800 MW. It also suggests Ontario’s natural gas generation will be phased out and replaced by 2,000 MW of storage capacity and 15,000 MW of new hydrogen technologies.

Most significantly, the Study indicates that 17,800 MW of additional low-carbon nuclear supply will be required before 2050. That means planning, siting, approving, and building more than the equivalent of five new Darlington Nuclear Generating Stations in just over 25 years.

Yet, several independent analyses indicate that the IESO’s forecasts have underestimated future growth in electricity demand. In 2022, the IESO substantially increased its capacity procurement goal, including 1500 MW of new natural gas generation, because of unaddressed reliability risks and increased probability of brownouts. The IESO’s latest Annual Planning Outlook shows a larger capacity gap in 2030 than had been forecasted the previous year. It also sets the IESO’s procurement requirement for 2023, which does not include the implications of its Pathways to Decarbonization Study, casting doubt on the veracity of next year’s forecast. Such a short-term focused approach to procuring a long-term, affordable, low-carbon electricity supply for Ontario will not help the province achieve its net zero or economic competitiveness goals.

The Pathways Study identified “no regret actions” that could be taken as the province moves to decarbonize. These three deserve immediate action: accelerate efforts to acquire non-emitting supply; begin planning and siting work for nuclear, storage,

hydroelectric, and transmission projects which require long-lead times to develop; and galvanize collaboration amongst stakeholders. The Pathways Study stated, “sector partners should begin planning and siting work to identify potential new projects, including hydroelectric and nuclear. To enable this work, the Ministry should work with the Ontario Energy Board (OEB) and the IESO to develop a process to recover pre-development costs for OEB-regulated and IESO-contracted projects respectively, as applicable”. Acting on these elements right away would help Ontario mitigate the significant risks inherent in its current planning assumptions.

For over sixty years, Canada’s CANDU nuclear technology has provided safe, reliable, and affordable low-carbon electricity as well as other domestic economic and social benefits. Today, this “Ontario-centric” nuclear industry generates about \$6 billion (B) annually in revenues

and supports more than 200 supply chain companies and about 76,000 direct and indirect jobs. The uranium comes from Saskatchewan. The ongoing economic stimulus generated by Ontario’s multi-billion-dollar nuclear refurbishment program demonstrates that building 17,800 MWs of new nuclear reactors will generate tens of thousands of high-skilled jobs, revenues for government, and domestic economic prosperity.

Ontario’s need for affordable, low-carbon energy security and what this means for the province’s economic competitiveness is clear. So is the solution — build new, made-in-Ontario large-scale nuclear generation complimented by new Small Modular Reactors. The challenge is great, but the potential benefits are even greater. Achieving them requires shifting the prerequisite planning into high gear. Canada’s nuclear industry is proven, “galvanized” and ready to work with others to make it happen.

Nuclear Generation Needed Now for Ontario’s Transition from Fossil Fuels

The IESO’s *Cost-Effective Energy Pathways to Decarbonization Study* calls for more than 68,000 MW of new low-carbon electricity generation by 2050

- The underway renewal of Ontario’s existing nuclear and hydroelectric resources provides the foundation
- The Study calls for an additional 17,800 MW of low-carbon nuclear generation and identifies it as the most cost-effective option
- That means building and operating the equivalent of five new Darlington Nuclear Generating Stations in the next 27 years

A significant challenge with substantial rewards that include:

- ✓ Tens of thousands of high-skilled jobs
- ✓ Billions in government revenues
- ✓ Long-term, low-carbon energy security
- ✓ “Made-in-Ontario” economic prosperity

Now - It’s time for Ontario to shift the plan into high gear.

FROM THE PEOPLE WHO HELP KEEP THE LIGHTS ON.

