



environmental  
defence

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# The Real Costs of Ontario's Nuclear Gamble

How Ontario's Nuclear Bet Could Cost Ratepayers  
\$117 Billion More Than Renewable Energy



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## About Environmental Defence

Environmental Defence is a leading Canadian advocacy organization that works with governments, industry, and individuals to defend clean water, a safe climate, and healthy communities.

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# Executive Summary

**Ontario has an electricity plan that will shape ratepayer costs and greenhouse gas emissions for the next 50 years.** The province plans for nuclear power to supply over 70 per cent of electricity by 2050, while renewable power growth flatlines. Ontario is also planning to use record amounts of polluting natural gas fired generation while the nuclear build is underway. This plan affects every household and business – and our ability to afford future electrification.

**A new Power Advisory LLC analysis reveals the price tag of this choice compared with an alternative scenario: \$221 billion in capital costs for the high nuclear power scenario versus \$104 billion for a renewable energy alternative – a \$117 billion gap.**

The nuclear path delivers electricity supply at \$143/MWh under Reference Demand or \$168/MWh under Low Demand scenarios, compared to \$114/MWh for the renewable pathway. For the average household, that's \$240-\$456 more per year (depending on the electricity demand scenario) in generation costs alone.

**The nuclear cost risk is real.** The new reactors Ontario is planning aren't proven designs. New nuclear designs, including Wesleyville and Bruce C, are expected to be first-of-a-kind reactors which carry high levels of uncertainty.<sup>1</sup> The only recent North American experience with a new nuclear power plant is Georgia's Vogtle project, which ballooned from \$14 billion to \$36-37 billion, and was completed 15 years late. In Ontario, the last time the province built a new nuclear plant was the Darlington Nuclear Generation Station that went from a \$3.9 billion estimate to \$14.4 billion by completion – nearly four times the original estimate. The analysis from Power Advisory assumes that the projects are delivered on time and on budget, and yet the costs are over \$100 billion more compared to a renewable growth pathway.

**Ontario also has a gas pollution problem.**

Gas-fired power generation is projected to grow from 19 per cent to 25 per cent of electricity supply by 2030,<sup>2</sup> with roughly 70 per cent of gas used in Ontario being imported from the United States.<sup>3</sup>





**The renewable energy alternative is cheaper, and faster to build and put into operation.** Renewable power, like wind and solar, along with battery storage are proven technologies at scale that are shaping global energy markets, and the economics have shifted dramatically in their favour. Ontario's most recent energy auction (Long-Term 2) delivered renewables as the cheapest new energy source (at \$87.80/MWh) with no gas offered contracts. Battery storage costs dropped 90 per cent since 2010. Globally, renewables met 99 per cent of electricity demand growth in 2025. Ontario built an average of over 770 MW of wind per year from 2013 to 2015 – yet Ontario hasn't contracted any significant wind or solar projects for close to a decade, despite renewables being the cheapest electricity option.

**Ontario needs to change course now.** We recommend that Ontario cancel the proposed new nuclear builds at Wesleyville and Bruce C, scale renewable procurement instead with escalating annual targets, launch a dedicated energy storage procurement, and significantly expand energy efficiency programs, while phasing out gas generation by not renewing contracts beyond current terms, and finally, commission an IESO feasibility study to reconsider the Great Lakes offshore wind moratorium.

The evidence is clear, the nuclear scenario is more costly, and riskier, especially if electricity demand doesn't materialize. Ontarians deserve a thorough consideration of the alternatives.

# 1. Introduction

**Ontario is planning for a significant expansion of its electricity infrastructure. After a long period of flat demand, the province is now projecting electricity demand to surge by 65 per cent by 2050.**

How Ontario meets this demand will determine what families pay on their power bills, how much pollution the province creates, and whether electrifying our economy remains affordable. Right now, Ontario is betting big on nuclear power – a choice that has not been justified and is unlikely to be the most cost effective way forward.

To get a sense of what's at stake, Environmental Defence commissioned Power Advisory LLC – one of Canada's leading electricity consulting firms – to model the costs of Ontario's nuclear power heavy plans versus a renewable energy scenario. Power Advisory's modeling finds that Ontario's

planned nuclear expansion could require \$221 billion in capital investment through 2050, compared to \$104 billion for a renewable alternative. That \$117 billion difference will show up on electricity bills for decades.

**Power Advisory's analysis – *Ontario's Electricity Supply Pathway* – can be found [here](#). This companion report is intended to provide some context for that analysis and to discuss the choices before us.**

Ontarians deserve transparency and accountability from their government when it comes to making massive and expensive plans regarding essentials such as electricity. The analysis shows that Ontario has a cleaner, more affordable choice than the nuclear heavy pathway the province is currently pursuing.



## 1.1 Report Overview

Environmental Defence Canada commissioned Power Advisory LLC – one of Canada’s leading electricity consulting firms – to model what Ontario’s electricity pathway could cost through to 2050. The resulting technical report, *Ontario’s Electricity Supply Pathway*, compares the province’s current nuclear power heavy expansion plan against a renewable energy growth pathway. Their analysis also examines the impacts of lower electricity demand growth than currently projected.



### How their analysis works

Power Advisory modeled Ontario’s electricity system from 2035 through to 2050 – the horizon over which major infrastructure decisions made in the coming years will play out. The 2035 baseline assumes that nuclear energy projects and procurements already underway are completed: the Darlington Small Modular Reactors (SMRs), the Pickering refurbishment, as well as the Long-Term 2 (LT2) procurement, (although there are possibilities that the Pickering Refurbishment and Darlington SMRs are not completed if cost overruns and or significant delays materialize).

### The four scenarios

Power Advisory compared four scenarios, varying two factors: how much new nuclear Ontario builds, and how fast electricity demand grows:

- **Scenario 1:** High Nuclear, Reference Demand – This is the baseline reference case, where in addition to the Darlington Nuclear Small Modular Reactors (SMRs) and the refurbishment of the Pickering Nuclear Generating Station, Ontario builds a new large-scale nuclear complex at Wesleyville, and new nuclear reactors at the Bruce Power facility (Bruce C), and proceeds with the full refurbishment and life extension of the nuclear reactors at Bruce A (Units 1 and 2) – while electricity demand grows by 65 per cent, as currently forecast by the Independent Electricity System Operator (IESO).

- Scenario 2:** High Nuclear, Low Demand  
 – This scenario models the same large nuclear buildout, but electricity demand grows more slowly than the reference forecast. According to Power Advisory, this lower demand growth could result from energy efficiency programs reducing overall electricity consumption, or from demand simply not materializing as projected. For example, if anticipated data centres do not locate in Ontario or other demand-side factors do not play out as expected.
- Scenario 3:** Renewable Scenario, Reference Demand (low nuclear) – In this scenario, Ontario keeps its refurbished nuclear plants running and the Darlington SMRs, but replaces the proposed Wesleyville and Bruce C expansions by building the required amount of wind, solar, and battery storage instead. Electricity demand grows as forecast.
- Scenario 4:** Renewable Scenario, Low Demand (low nuclear) – This is the same renewable-first approach as above, combined with stronger energy efficiency gains to lower electricity demand. This is the lowest-cost scenario in the analysis.

## Scenarios Modelled

	2026 APO Reference Demand Growth	2026 APO Low Demand Growth
<b>High Nuclear Expansion</b>	Scenario 1: High Nuclear/Reference Demand	Scenario 2: High Nuclear/Low Demand
<b>Renewable Scenarios</b>	Scenario 3: Renewable Scenario/ Reference Demand	Scenario 4: Renewable Scenario/Low Demand



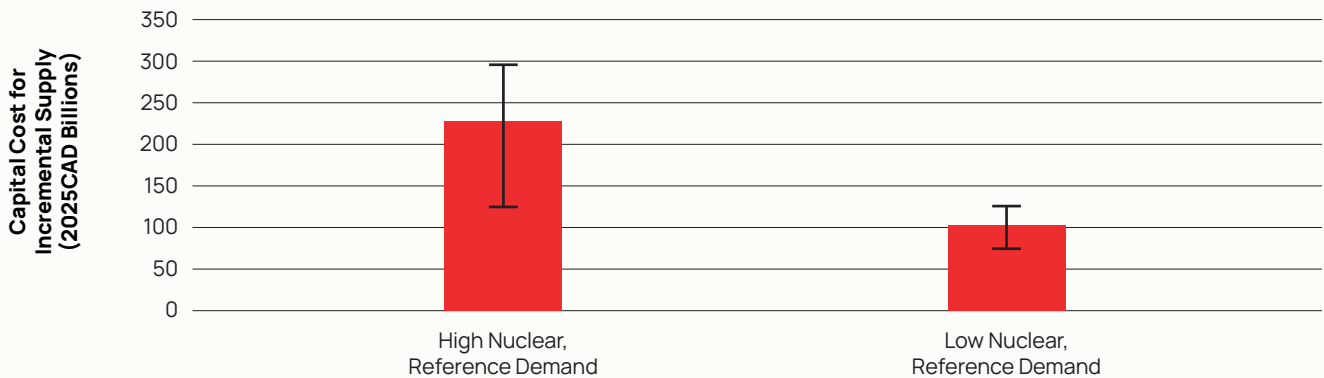
## Key findings

Ontario’s planned nuclear expansion will cost ratepayers dramatically more than a renewable energy alternative – with the cost gap reaching \$117 billion under base case assumptions.

Power Advisory’s analysis reveals a stark difference between Ontario’s current high nuclear power pathway and a renewable energy alternative:

- Base case capital costs:** The high nuclear scenario (scenario 1) requires \$221 billion investment, in base case capital, through 2050, compared to \$104 billion for the renewable scenario – a \$117 billion difference.
- Cost sensitivity analysis:** If nuclear costs are on the higher end, for high nuclear scenarios (depending on demand), capital costs could reach approximately \$294 billion (compared to \$221 billion base case), widening the gap with the renewable scenario to \$168 billion (\$294 billion vs \$126 billion high-end renewable sensitivity).
- Electricity generation costs:** By 2050, electricity generation costs range from \$143/MWh (High Nuclear, Reference Demand) to \$168/MWh (High Nuclear, Low Demand), compared to \$114/MWh for renewable energy scenarios. The high end costs 47 per cent more than renewables.

**Figure 1: The comparative Costs of the high nuclear and low nuclear scenarios**



Resource Type	Average Capital Cost per Unit (\$/kW)	Capital Cost for High Nuclear Buildout, Reference Demand Scenario (\$Billions)	Capital Cost for Low Nuclear Buildout, Reference Demand Scenario (\$Billions)
<b>Nuclear</b>	14,980	216	0
<b>Solar</b>	1,776	0	27
<b>Wind</b>	2,770	0	56
<b>Storage and Non-Emitting Peak Resources</b>	2,016	5	21
<b>Total</b>	<b>N/A</b>	<b>221</b>	<b>104</b>

- **Household impacts:** For the average household using 700 kilowatt-hours per month, this translates to roughly \$100/month under Reference Demand (Scenario 1) or \$118/month under Low Demand (Scenario 2) versus \$80/month in renewable scenarios (Scenarios 3 and 4). The high nuclear scenario results in approximately up to \$456 more per household per year (depending on demand scenario) in electricity generation costs alone.

It's important to note that these figures represent generation costs only — just one portion of what households actually pay on their electricity bills, which also include transmission, distribution, regulatory charges, and other fees. Even accounting for this distinction, the cost difference remains clear: Ontario's nuclear-heavy plan will cost ratepayers far more than an alternative scenario focused on accelerated renewable energy deployment.

**Methodological Note:** All cost figures are expressed in 2025 Canadian dollars, and the generation cost projections (\$143/MWh, \$168/MWh, \$114/MWh) represent forecasted costs for electricity generation in the year 2050 specifically, not averages over the 2035 to 2050 period.

## 1.2 What is Ontario planning?

**Ontario is doubling down on costly nuclear power at a time when the rest of the world is rapidly shifting to affordable renewable energy.**

Ontario's nuclear heavy plan is already expensive — but Ontarians have had little say on these choices, and even less on those that are planned for the future. Electricity rates have already climbed by 30 per cent to finance approximately \$25 billion in nuclear refurbishments at Darlington and Bruce and \$26.8 billion for Pickering.<sup>4</sup> The Darlington Small Modular Reactor projects are estimated to add \$21 billion more.<sup>5</sup> And Ontario Power Generation is seeking approval to increase rates even further. These costs are mounting, but it may not be obvious to electricity



consumers – the government is already subsidizing electricity rates to the tune of \$8.5 billion per year.<sup>6</sup> As a result, power subsidies now account for the majority of Ontario’s provincial deficit, which is projected to reach \$13.5 billion this year.<sup>7</sup>

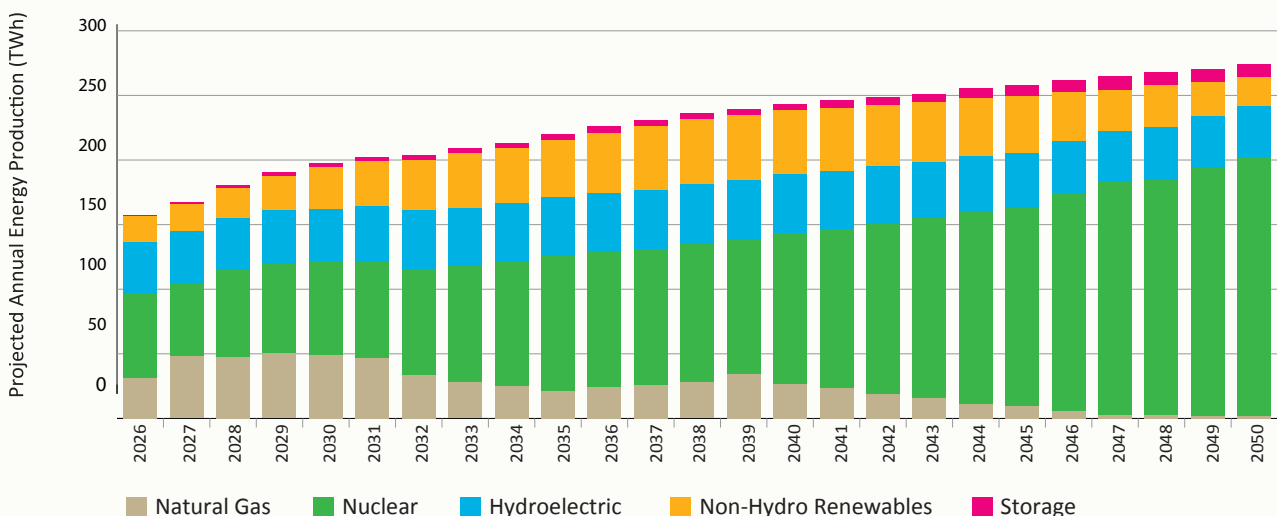
But the Power Advisory analysis focuses on the decisions and costs beyond 2035. The province’s current plan centres on building new large-scale nuclear reactors at Wesleyville and Bruce C – a multi-decade, multi-hundred-billion-dollar commitment on top of what’s already largely locked in.

The question isn’t whether Ontario needs more electricity or whether nuclear is part of the mix. With rising electric vehicle adoption, widespread deployment of heat pumps, and industrial electrification all driving demand growth, it seems clear that Ontario will need more power generation. And nuclear power is and will continue to be a significant source of electricity in this province. The question is: what’s the optimal way to grow the electricity

supply to meet demand and keep prices low? Ontario’s official answer is laid out in the province’s Energy for Generations plan and the Independent Electricity System Operator’s (IESO) 2026 Annual Planning Outlook (APO).<sup>8</sup> Together, they project electricity demand rising 65 per cent by 2050 – from roughly 154 TWh in 2025 to more than 250 TWh – driven by what the IESO calls a “customer-driven shift” toward electrifying transportation, home heating, and industrial electrification.<sup>9</sup>

To meet that demand, Ontario is planning to rely on nuclear power heavily. The IESO projects nuclear power generation rising to more than 200 TWh per year by 2050, supplying over 70 per cent of the province’s electricity. That depends on refurbishments already underway, four SMRs at Darlington, and 14,400 MW of additional new nuclear capacity, including major projects at Wesleyville and Bruce. Altogether, Ontario’s nuclear fleet would nearly double electricity production by mid-century.

**Figure 2: Projected Future Electricity Supply Mix**



Government of Ontario. *Energy for Generations*. July 2025, p. 65.



## 2. Nuclear Power's Costly History

**Ontario has a consistent history of nuclear cost overruns, and the most recent North American nuclear project confirms the pattern continues – raising serious questions about whether current planning assumptions reflect the financial risks ratepayers actually face.**

Nuclear power has been central to Ontario's electricity system for decades. But the province's track record shows that nuclear projects consistently exceed their budgets, often by tens of billions of dollars. The original Darlington Nuclear Generating Station, estimated at \$3.9 billion in 1978, ultimately cost \$14.4 billion when completed in 1993 – nearly four times the original budget.<sup>11</sup> The current Darlington refurbishment carries a \$12.8 billion price tag,<sup>12</sup> while the Bruce Nuclear Generating Station refurbishment is proceeding at \$13 billion.<sup>13</sup>

This nuclear-heavy approach impacts greenhouse gas emissions as well. Natural gas generation was expected to decline sharply after 2035 under federal clean electricity rules. However, recently proposed flexibility changes could allow some gas plants to continue operating through the 2035 – 2050 period.<sup>10</sup> The use of gas plants is discussed in greater detail below. But there is a risk that Ontario may end up relying on gas even more if major nuclear projects run late.

Ontario is once again, after a long hiatus, contracting new wind and solar power. But the province is doing so in a very limited way. In the province's plan, renewable growth largely flatlines after 2035, and Ontario is projected to have less renewable capacity in 2050 than in 2035. This is going against the prevailing trends globally. Ontario is betting overwhelmingly on expensive, high-risk nuclear projects – with polluting gas as the backup plan while other countries are installing clean energy at record pace.



# \$14.4 Billion

**Darlington's Original Cost:**  
\$3.9 billion (1978 estimate).

**Final Cost:** \$14.4 billion (1993),  
nearly 4x over budget.

These are not small numbers. The Darlington and Bruce refurbishments alone represent more than \$25 billion in capital investment – money that could have built tens of thousands of megawatts of wind and solar capacity, along with the storage needed to firm them up to ensure reliable back-up energy to the grid.

The Darlington SMR project – included as a baseline assumption in all scenarios analyzed – now carries an estimated total cost of \$20.9 billion, with the first unit alone at \$7.7 billion,<sup>14</sup> already far above original projections from GE-Hitachi. This cost escalation occurred before construction even began, underscoring the uncertainty surrounding first-of-a-kind nuclear technologies.

On top of these projects, the Power Advisory analysis shows that Ontario's nuclear heavy plans may come at a considerable additional cost. Given past cost overruns, there is a potential that the total cost of supply from the proposed nuclear buildout will be higher than current forecasts used in the Power Advisory analysis.

## 2.1 The Vogtle Reality Check

Recently completed nuclear power plants are few and far between, so it's difficult to accurately predict what the real costs may be.

Power Advisory's nuclear cost estimates include a sensitivity analysis showing costs could reach \$295B under higher cost

assumptions compared to a \$221B base case, reflecting the inherent uncertainty in long-range infrastructure cost modeling for large-scale projects. But the most recent evidence from the United States is a cautionary tale. Georgia's Vogtle nuclear expansion – the first new nuclear reactors built in the U.S. in decades – was approved in 2009 with an estimated cost of approximately \$14 billion and an expected completion date in the mid-2010s.<sup>15</sup> The project was finally completed in 2024, fifteen years after it began, at a final cost of \$36-37 billion.<sup>16</sup>

Vogtle delivered 2,200 MW at approximately \$22,989 per kilowatt<sup>17</sup> – **53 per cent higher than the \$14,980/kW assumption Power Advisory uses for large nuclear plants in Ontario.**



### 15 Years

**Vogtle Nuclear Plant:** Started 2009, completed 2024 (15 years late).

**Final Cost:** \$36-37 billion vs. ~\$14 billion estimate, more than double the original budget.

If Ontario's proposed Wesleyville and Bruce C projects face similar overruns, actual costs could be dramatically higher than the \$221 billion capital investment estimated under the high nuclear pathway (scenario 1). Ontario's proposed nuclear expansion is expected to use new reactor models – not the CANDU technology Canada has decades of experience with – making them first-of-a-kind (FOAK) projects at commercial scale. The same structural risks that drove Vogtle's overruns apply here: unproven reactor designs, limited construction experience with new technologies, and supply chain constraints in a sector with few active projects globally. FOAK projects carry significant uncertainty and cost risk that proven technologies do not.

## 2.2 Nuclear's Optimistic Assumptions

Beyond capital cost assumptions, several other planning assumptions may underestimate the total costs of Ontario's big nuclear build out.

### Project Scope

Ontario Power Generation (OPG) is seeking a license for up to 10,000 MW at Wesleyville – 25 per cent more than the 8,000 MW modeled – potentially billions in additional costs not reflected in Power Advisory's estimates.

### The 60-Year Lifespan

Power Advisory assumes a 60-year operating life for new nuclear assets, that is more common in U.S. reactor designs which allows capital costs to be amortized over that full assumed lifetime when calculating levelized costs. The most recent nuclear unit in Ontario – the Darlington Nuclear Generating Station – required significant refurbishment after around 30 years of operation, as stated in the Power Advisory analysis. That refurbishment cost \$12.8 billion – and OPG's latest OEB filing identifies nearly \$3.3 billion more in Darlington capital projects needed to keep the station operating to 2055.<sup>18</sup> If Ontario's new nuclear plants require major refurbishment after 30 years, rather than spreading costs smoothly over 60 years of operation, the true lifecycle costs could be much higher.





## The Capacity Factor Question

Power Advisory assumes a 90 per cent capacity factor for new nuclear plants. But as they note: “Historically, a number of nuclear facilities had lower capacity factors than we assumed (90 per cent) – utilizing a lower capacity factor would increase the cost of the nuclear scenario.”

**Each factor pushes in the same direction: real costs of a high nuclear pathway could potentially be significantly more expensive than estimated. In contrast, the costs of renewable energy are relatively simple to predict based on widespread deployment around the world, and recent procurements here in Ontario.**



# \$12.8 billion

The most recent nuclear unit in Ontario – the Darlington Nuclear Generating Station – required significant refurbishment after around 30 years of operation that cost \$12.8 billion.

### 3. The Gas Problem

While the province's plan focuses on building new nuclear for the long term, gas-fired generation is expected to nearly double in the next decade – from a record 27.3 TWh in 2025 to over 50 TWh per year in some years before 2035.<sup>19</sup> Ontario could reduce the reliance on polluting gas power by accelerating renewable energy procurement beyond current IESO plans, potentially building twice as much wind capacity per year as currently planned – a rate Ontario has achieved during the 2013-2015 buildout.

Gas power plants have been fired up more in recent years than at any point in Ontario's history and the IESO projects that gas generation will grow from 19 per cent of Ontario's electricity mix in 2025 to 25 per cent by 2030.<sup>20</sup> **The nuclear heavy plan is generating more greenhouse gas emissions in the near term by relying on gas while the refurbishments and new builds are underway, and it runs the risk that even more gas will be burned than planned if projects are delayed or plans are changed.**

This sustained and growing reliance on gas-fired power generation poses serious energy security questions, as geopolitical tensions grow with looming trade tariffs and wars. Enbridge's 2025 Gas Supply Plan shows that only about 27 per cent of its planned 2024/25 sales-service supply comes from the Western Canadian Sedimentary Basin, while roughly 70 per cent comes from U.S. imports,<sup>21</sup> including Appalachia, Chicago, Niagara, the

U.S. Mid-Continent and Dawn. In other words, Ontario's gas system is heavily exposed to U.S. gas markets – creating vulnerability to price shocks and supply disruptions. This runs counter to Canada's stated goal of strengthening economic sovereignty, as Ontario continues to deepen its reliance on gas-fired electricity.

Gas is not a low-carbon or clean fuel. It's a potent greenhouse gas, over 80 times more powerful than CO<sub>2</sub> over a 20 year period.<sup>22</sup> Fracked gas leads to significant amounts of methane being released directly into the atmosphere, and though Canada is moving forward with regulations to limit fugitive methane emissions, the U.S. has weakened and delayed their rules.<sup>23</sup>



## 28%

In 2024, Greater Toronto Area greenhouse gas emissions jumped 28 per cent in a single year, according to The Atmospheric Fund – driven largely by increased gas generation.

## 4. The Renewable Power Alternative

The global energy transition reached a historic turning point in 2025. According to Ember's Global Electricity Review 2026, clean power met all global electricity demand growth for the first time – causing fossil fuel generation to fall globally even while electricity demand was rising.<sup>25</sup> This marks a fundamental shift: the world is now adding electricity demand while reducing polluting emissions.

Renewables reached 33.8 per cent of the global electricity mix in 2025 – overtaking coal (33.0 per cent) for the first time in over a century.<sup>26</sup> This milestone signals that renewable energy has become the default choice for new power generation worldwide.

The investment flows confirm the momentum. Global energy transition investment hit a record \$2.3 trillion in 2025, up eight per cent from 2024.<sup>27</sup> Clean energy supply investment outpaced fossil fuel supply investment for a second straight year.<sup>28</sup>



# 33.8%

33.8 per cent – Renewables' share of global electricity in 2025, surpassing coal for the first time in over a century.

### 4.1 Ontario's Renewable Advantage

**Ontario has already shown it can build renewable energy quickly and in large volumes.** Between 2013 and 2015, the province added an average of more than 770 MW of wind capacity per year.<sup>30</sup> With today's better technology and lower costs, Ontario could go further – if policy supports it.

Ontario's earlier experience with renewables was controversial. Though the true costs of clean energy have been overstated by critics, Ontario did pay a premium for wind and solar to attract manufacturers to set up shop in the province, and many did, until the policy was challenged at the World Trade Organization.<sup>31</sup> But 2026 isn't 2009, and the first window of Ontario's Long-Term 2 procurement speaks to how affordable clean energy has become. Despite being opened up to gas, the IESO selected 1,115 MW of wind and solar at a competitive price of \$87.80/MWh, with no gas projects selected.<sup>32</sup>

Energy efficiency should also be treated as a core resource. The IESO's 2026 Annual Planning Outlook finds efficiency programs could reduce electricity demand by eight per cent by 2050 and save \$12.2 billion in system costs.<sup>33</sup> Every unit of electricity saved is cheaper than building new supply.

Ontario also has major untapped renewable potential in the Great Lakes. Offshore wind could provide tens of thousands of megawatts of clean power – potentially enough to meet a large share of today’s electricity demand – at costs far below new nuclear.<sup>34</sup> The barrier is not technical potential; it is a political choice. Ontario has had a moratorium on Great Lakes offshore wind since 2011.

**65 per cent demand growth by 2050: IESO projects massive electricity needs, making cost and affordability critical to successful electrification.**



## 5. The Affordability Imperative

**Growing electricity demand makes affordability more critical than ever.**

Ontario’s electricity needs are projected to grow dramatically over the coming decades. The IESO’s 2026 Annual Planning Outlook projects 65 per cent demand growth by 2050,<sup>35</sup> driven by three major factors:

- **Electric vehicles:** With over 1 million EVs expected on Ontario roads by 2030,<sup>36</sup> the IESO projects that transportation electrification alone could add 20 TWh of annual electricity demand by 2035.<sup>37</sup>
- **Building electrification:** As homes and buildings shift from gas furnaces to electric heat pumps, electricity demand for heating will grow substantially.
- **Industrial electrification:** Manufacturing and industrial processes shifting away from fossil fuels could add 23 TWh of demand by 2035.<sup>38</sup>

This creates a critical challenge: **if electricity becomes too expensive, electrification becomes less attractive.**

Homeowners won’t install heat pumps if running them is more expensive than gas furnaces, as well as industries won’t electrify if electricity prices make them uncompetitive.

At \$143 – \$168/MWh for the high nuclear pathway (scenarios 1 and 2), electrification becomes economically challenging. At \$114/MWh for either renewable scenario (scenario 3 or 4), it becomes more achievable.

This is why the electricity planning decisions being made today matter so much. They don't just affect electricity bills – they affect our ability to electrify our economy, address climate change, improve air quality, and build a sustainable economy.




## 6. Conclusion

**Ontario stands at a crossroads.** The electricity decisions made in the next few years will shape energy costs and greenhouse gas emissions for the next half century. Once nuclear megaprojects are committed and gas contracts renewed, reversing course becomes nearly impossible.

**The evidence is clear, the renewable energy pathway meets Ontario's electricity needs at less than half the capital cost of the province's current nuclear-heavy path.** For the average household, electricity generation costs could be up to \$456 more per year under the nuclear plan if projected demand growth does not materialize. For businesses and industries, the gap is even larger. This is in a "best case" scenario. And this assumes nuclear projects are completed on time, within budget, and perform as projected – a relatively favourable treatment given Ontario's track record with large nuclear builds.

**The global evidence is overwhelming. In 2025, clean power met all global electricity demand growth for the first time in history, overtaking coal in the global electricity mix.**<sup>40</sup> North America added a record 11.9 GW of battery storage in 2024 alone.<sup>41</sup> The Canadian Climate Institute has shown that Canadians will spend 12 per cent less on energy – not more – as we transition to clean electricity.<sup>42</sup> Nuclear power is part of Ontario's supply mix today, and it will be in the future. That's not in question. The question is how much nuclear power should Ontario build, and what role should other types of generation play in the province's supply mix.

Power Advisory's analysis shows that the renewable energy path has the lower expected supply cost. It is the path the rest of the world is already taking. **Ontario can choose to pay attention – or choose to actively fall behind.**



**Every year of delay on renewables means more gas generation, higher greenhouse gas emissions, and deeper lock-in to costly infrastructure.**

# Recommendations

Environmental Defence recommends the Ontario government and the IESO take the following actions:

- 1. Cancel Wesleyville and Bruce C New Nuclear Projects:** Ontario should immediately cancel plans for the Wesleyville and Bruce C nuclear projects and redirect those resources to an accelerated renewable energy buildout. Every year spent pursuing higher-risk, higher cost energy is greater financial risk to ratepayers, and delayed emissions reductions. The data shows these projects will cost Ontarians far more than available alternatives.
- 2. Scale Renewable Energy Procurement to Meet 2050 Demand:** Power Advisory's low nuclear scenarios demonstrate Ontario can meet 2050 electricity demand with 14-22 GW of wind and 11-19 GW of solar (depending on demand growth) – replacing 14.4 GW of nuclear capacity while simultaneously displacing gas generation that currently supplies 30+ TWh annually. This requires escalating procurement targets: 1,000-1,300 MW of wind and solar combined annually through 2035, ramping up to 1,100-2,200 MW annually from 2035-2050. The IESO must publish an ambitious multi-year procurement schedule with capacity targets by milestone year (2030, 2035, 2040, 2050) and long-term contracts (20+ years) to give developers and supply chains the certainty needed to

scale delivery. Unlike nuclear megaprojects that lock in billions regardless of whether demand materializes, renewable procurement can be ramped up or down in response to realized demand – avoiding stranded costs while still achieving the build rates needed to meet Ontario's climate and reliability goals. This flexibility to calibrate procurement to actual demand growth is a key advantage of renewables over inflexible nuclear commitments.

- 3. Launch a dedicated energy storage procurement:** Meeting Ontario's 2050 electricity needs with more renewables and less new nuclear requires substantial energy storage capacity to provide firm, non-emitting power during low wind and solar periods. Storage costs are projected to decline significantly through 2050, making battery storage increasingly cost-competitive. The IESO should expand storage procurement targets beyond 2035 and into 2050, prioritizing eight-hour batteries in the near term while supporting longer-duration technologies as they mature commercially.
- 4. Significantly expand energy efficiency programs:** The IESO's own analysis projects that efficiency programs can reduce demand by eight per cent by 2050 and save \$12.2 billion in system costs.<sup>43</sup> Every kilowatt-hour saved is cheaper than any kilowatt-hour generated. Ontario should set an ambition to exceed that

eight per cent target through expanded residential, commercial, and industrial programs – reducing the total amount of new generation needed from any source.

- 5. Phase out gas reliance by not renewing contracts beyond current terms:** The IESO APO 2025 is projecting that 25 per cent of Ontario's electricity supply will be met with gas by 2030, as nuclear refurbishments take capacity offline – with sector emissions potentially tripling before a single new nuclear unit comes online.<sup>44</sup> Renewing gas contracts locks in that pollution and leaves ratepayers exposed to volatile U.S. gas prices: roughly 70 per cent of Ontario's gas is imported from U.S.<sup>45</sup> The province should commit to not renewing gas contracts beyond their current terms, and establish a clear phase-out timeline as renewable and storage capacity scales up.
- 6. Reconsider the Great Lakes offshore wind moratorium:** The IESO should undertake a preliminary feasibility study on the potential locations (near shore and far offshore) and costs and benefits of wind power in the Great Lakes, in the interest of lifting the province's outdated moratorium. Offshore wind is now a proven, cost-competitive technology deployed at massive scale globally, yet this policy barrier prevents Ontario from accessing a large-scale clean energy source.

# Endnotes

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