Executive Summary

Canada's Renewable Energy Market Outlook 2025

Wind. Solar. Storage.

Canadian Renewable Energy Association
WIND. SOLAR. STORAGE.

dunsky
Energy + Climate

Executive summary

"Canada's Renewable Energy Market Outlook: Wind. Solar. Storage." is a joint publication of the Canadian Renewable Energy Association and Dunsky Energy + Climate. This inaugural, 2025 edition of the report provides an outlook for the cost and market potential of onshore wind, utility-scale solar and utility-scale battery energy storage in Canada, with a focus on five key markets: British Columbia, Alberta, Ontario, Quebec and Atlantic Canada. The report provides electricity sector stakeholders, renewable energy developers, investors and analysts with market intelligence and insights, grounded in the Canadian context that can support informed decisions.

What this report is–and isn't

While this report considers the utility-scale deployment of onshore wind, utility-scale solar and utility-scale battery energy storage technologies, future reports may include the deployment of additional clean energy technologies (e.g., offshore wind), alternative energy storage technologies and behind-the-meter (BTM) resources. References in this report to wind, solar and storage refer only to onshore wind, utility-scale solar energy and utility-scale battery energy storage.

State of the market

Globally, Canada ranks 9th for installed wind energy capacity (17+ GW), 20th for installed utility-scale battery energy storage capacity (~ 1 GW) and 24th for installed utility-scale solar energy capacity (2.3 GW) as of July 2025. Figure ES-1 illustrates the current deployment of wind, solar and storage in different regions of Canada.

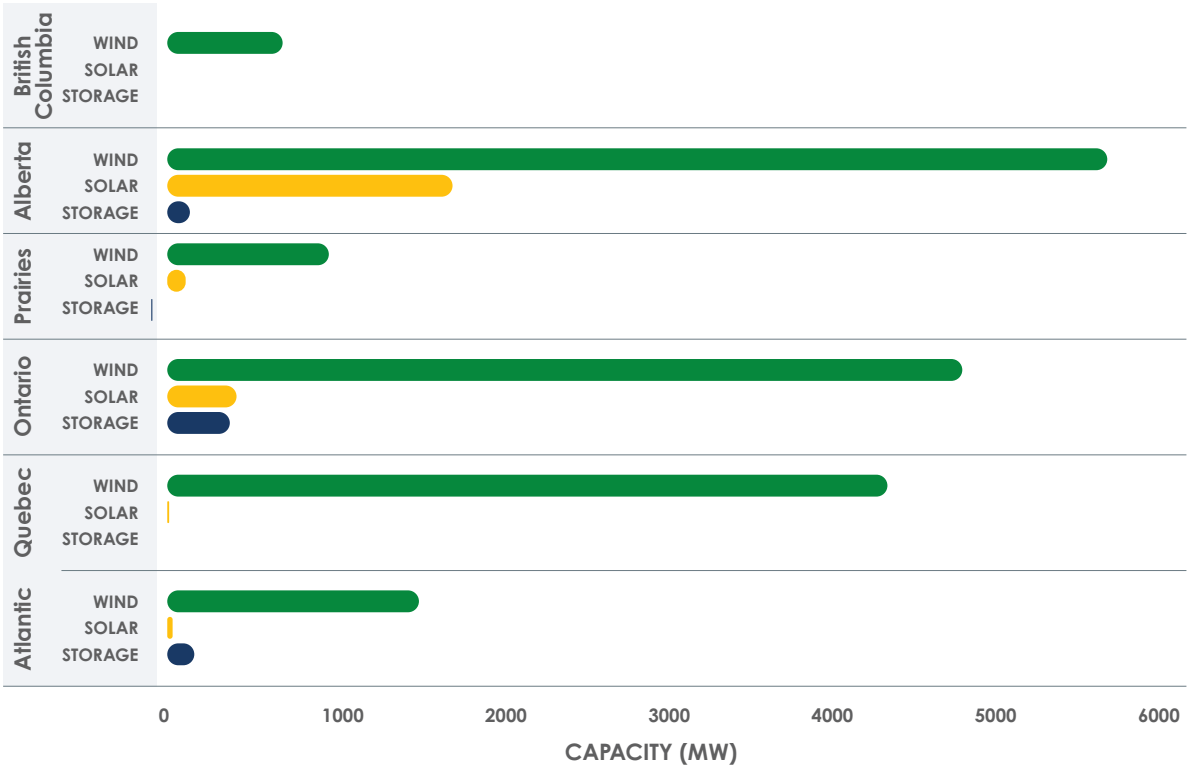

Figure ES-1: Installed wind, solar and storage capacity in 2025

In addition to the existing installed capacity, there are currently active procurement opportunities in Canada, totaling 600 MW of solar, 2.8 GW of wind, 3.4 GW of storage and an additional 11.5 GW of technology-agnostic or mixed wind/solar projects, as tracked in CanREA's Clean Energy Procurement Calendar. These procurements represent the tip of the iceberg.

This report describes the unique approaches different regions of Canada are taking to meet significant growth in electricity demand and provides an overview of the mix of procurement policies, electricity regulatory and market reform, transmission investment, financial incentives and new partnerships between project developers, utilities, corporate customers and Indigenous Peoples being implemented to support increased deployment of wind, solar and storage projects across Canada.

Included in the report: Latest updates on deployment, policy development & provincial procurements.

Cost outlook

What this report is—and isn't

This report provides a price outlook for wind, solar and storage technologies across Canadian markets. It presents projections of costs assuming certain standardized contract structures, offering a consistent benchmark for evaluating resource competitiveness.

It is not a forecast of future market prices or project revenues. Actual market outcomes will depend on a wide range of variables, including project-specific factors, policy changes and evolving market conditions that this report does not seek to predict.

Unlike the commonly used approach of applying U.S. industry benchmarks adjusted by currency exchange rates, this report presents Canada-specific cost projections for wind, solar and storage. The forecasts are developed using a scenario-based, bottom-up assessment of key system and installation components for each technology, with attention to region-specific cost drivers such as transportation, labour, interconnection, taxes and land leasing. Revenue requirements are calculated for typical project deployments, incorporating Canadian-specific policy and financing considerations. The model is calibrated using recent procurement results, project announcements and targeted industry engagement.

In particular, the report focuses primarily on three key metrics associated with "standard" archetype projects: a 200 MW wind project, a 100 MW DC solar project and a 100 MW/400 MWh battery energy storage project.

1. **Overnight Capital Costs:** This report presents projected overnight capital costs in real 2025 dollars. Results show meaningful declines in costs across all jurisdictions in the medium-term (2025-2035), followed by stabilization or slight increases in most regions through to 2050 due to rising costs (for labour, transportation, land leasing and property taxes) outpacing technology gains.

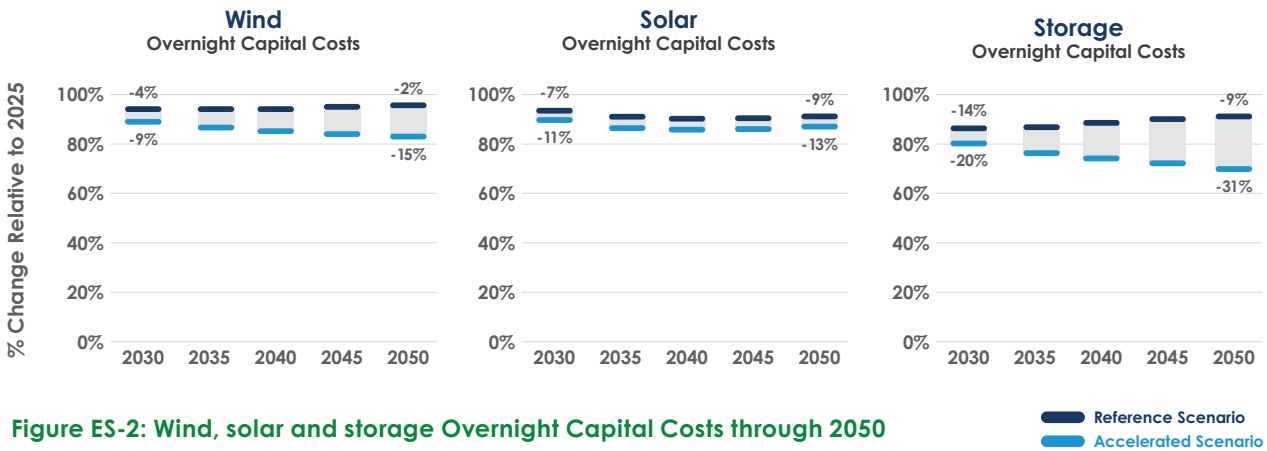

Figure ES-2: Wind, solar and storage Overnight Capital Costs through 2050

2. **Levelized Cost of Energy (LCOE):** LCOE reflects the average cost to produce electricity over the lifetime of a project and is predominantly used for comparing the cost of generation technologies, particularly for system planning. The report presents the projected LCOE for wind and solar projects in the medium-term (2025-2035). For both technologies, there is a steady decline in LCOE through 2033 and then subsequent increases associated with the phase-out of federal investment tax credits (ITCs) in 2035. In the full report, modelled results extend to 2050.

3. **Equivalent Power Purchase Agreement (PPA) pricing:** The report provides an equivalent PPA metric that estimates the contract price a developer would need to recover costs and target returns through a single, bundled revenue stream[1]. This data is provided in the report for each of the five modelled markets in Canada.

While there is important variation across regions due to the differences in overnight capital costs, quality of the wind and solar resources and target returns given varying levels of market risks, equivalent PPA price ranges in all regions are projected to decline for all three technologies between 2025 and 2030 but subsequently increase and exceed 2025 levels by 2035 as federal ITCs expire are phased out. In the full report, modelled results extend to 2050.

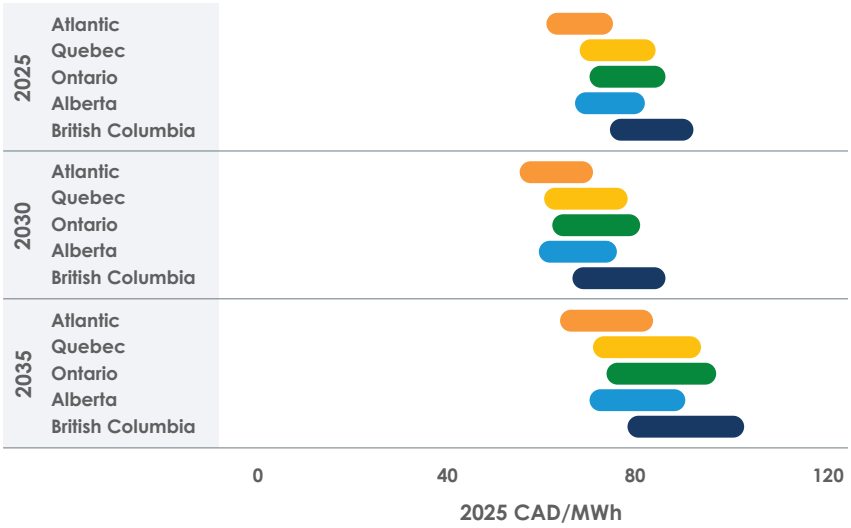

Figure ES-3: Wind equivalent PPA pricing in 2025, 2030 and 2035

In addition to forecasting the cost of solar, wind and storage under status quo conditions through the metrics described above, the report also includes an import tariff sensitivity scenario for overnight capital costs and LCOE to reflect the risk of US-driven tariff policies, as well as indirect costs stemming from market disruptions and readjustments to tariff policies (e.g., retaliatory tariffs).

Included in the report: Forecasted annual capital (OCC), O&M, LCOE and/or equivalent PPA or storage contract pricing for wind, solar and storage for British Columbia, Alberta, Ontario, Quebec and Atlantic markets from 2025-2050. Detailed assumptions, methodology and supporting context for these results are provided throughout the report and in Appendix B.

[1] For more, see the "LCOE vs. Equivalent PPA" box on page 20.

Market outlook

What this report is—and isn't

This report presents a market outlook for the deployment of wind, solar and storage in each focus market, based on modelling of cost-optimal portfolios calibrated to current policies, system needs and regional constraints. Where possible, the modelling aligns with the latest utility or system operator plans, adjusted for recent market or policy changes.

Two scenarios (Reference and Accelerated) capture uncertainty in load growth, technology costs and resource development. While we use industry-standard production cost and capacity expansion tools to ensure affordable, reliable system outlooks, the modelling does not include every possible resource or replicate the detailed reliability assessments conducted by utilities and system operators.

Although this outlook focuses on wind, solar and storage, the framework allows other generation types (e.g., gas, hydro, nuclear) to be selected where cost-effective or policy-driven.

Both the Reference and Accelerated Scenarios envision wind, solar and storage accounting for more than 70% of all new electricity supply capacity built out in Canada between 2025 and 2050.

Canada currently has approximately 150 GW of installed electricity generation capacity, of which there are 17 GW of wind, 2.3 GW of solar and 1 GW of storage. Over the next decade, our analysis projects that Canada will deploy 30 to 51 GW of new wind power, 17 to 26 GW of new solar power and 12 to 16 GW of new energy storage. Between 2035 and 2050, total installed capacity for all these technologies will grow by another 50% or more in the Reference Scenario, and by a further 60% in the Accelerated Scenario.

This dramatic growth in installed capacity will lead wind and solar energy to become a significantly more important part of Canada's electricity supply over time. From 10% of Canada's total electricity supply today, wind and solar energy grow to 21% of supply in 2035 and 25% in 2050 in the Reference Scenario. This contribution grows to 29% by 2035 and 33% by 2050 in the Accelerated Scenario.

The full report breaks down all this information for each of the three technologies across five markets within Canada, highlighting the projected deployment levels between 2025 and 2050.

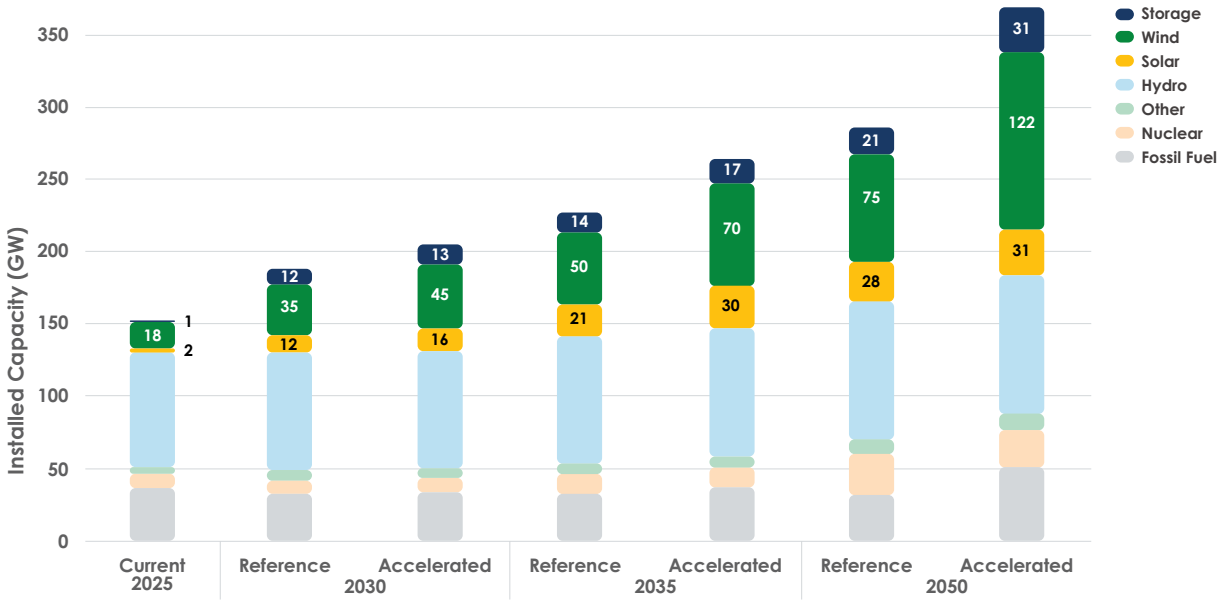

Figure ES-4: Installed capacity of wind, solar and storage across Canada through 2050

Included in the report: Annual deployment and generation from wind, solar and storage for British Columbia, Alberta, Ontario, Quebec and Atlantic Canada from 2025-2050

Impacts

The forecasted deployment represents an average annual investment of $14B to $20B per year across Canada between 2025 and 2035. This represents a **total investment opportunity of $143B to $205B** for wind, solar and storage in Canada in the next 10 years. This investment level is expected to create approximately 250,000 to 350,000 direct and indirect full-time equivalent (FTE) job-years cumulatively in the same time period.

Between 2025 and 2035, the rapid growth in deployment of wind, solar and storage leads to a significant decline in the greenhouse gas (GHG) emissions intensity of electricity production in Canada, falling from more than 90 gCO2/kWh in 2025 to 27.4 gCO2/kWh in the Reference Scenario and only 16.1 gCO2/kWh in the Accelerated Scenario. By 2050, the GHG intensity of the grid falls to 10gCO2/kWh or lower in our two scenarios.

Included in the report: Annual and cumulative investment ($B) in British Columbia, Alberta, Ontario, Quebec and Atlantic Canada (2025, 2035, 2050); Direct, indirect and induced FTE job-years by technology and market (2025, 2035, 2050); Electricity sector emissions intensity for all markets (2025-2050).

Table of contents

Table of contents

List of tables

List of figures

7 Acknowledgments

This report was prepared by the Canadian Renewable Energy Association (CanREA) and Dunsky Energy + Climate. The project team expresses gratitude to CanREA members who provided crucial insights and data in support of this project.

Canadian Renewable Energy Association
WIND. SOLAR. STORAGE.

dunsky Energy + Climate

About CanREA

The Canadian Renewable Energy Association (CanREA) is the voice for the wind energy, solar energy and energy storage industries in Canada. CanREA represents more than 300 companies active in these industries across the country, including manufacturers, installers, developers, service providers and supply-chain partners. Through stakeholder advocacy and public engagement, CanREA works to create the conditions for a modern energy system, in which clean, low-cost, reliable, flexible and scalable solutions play a central role in transforming Canada's energy mix. For more information about CanREA, please visit renewablesassociation.ca

About Dunsky

Founded in 2004, Dunsky Energy + Climate Advisors works with leading governments, utilities, corporations and others across North America in their efforts to accelerate and scale the transition to clean, resilient and affordable energy. With deep expertise across the Buildings, Mobility, Industry and Energy sectors, we support our clients in two ways: through rigorous Analysis (of technical, economic and market opportunities) and by designing or assessing Strategies (plans, programs and policies) to achieve success. Dunsky is proudly Canadian, with offices and staff in Montreal, Toronto, Vancouver, Calgary, Ottawa and Halifax. Visit www.dunsky.com for more information.

For more information

For questions or comments about the 2025 edition of "Canada's Renewable Energy Market Outlook: Wind. Solar. Storage.," or to reserve your copy of the 2026 report, please contact us at: sales@renewablesassociation.ca