

Global PV Storage Insights

Expected ROI of large scale battery storage project in Canada 2025



Overview

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The installed capacity of energy storage larger than 1 MW—and connected to the grid—in Canada may increase from 552 MW at the end of 2024 to 1,149 MW in 2030, based solely on 12 projects currently under construction 1. There are an additional 27 projects with regulatory approval proposed to come.

The Hagersville Battery Energy Storage park, located in Haldimand County, Ontario, Canada, will be the largest battery energy storage system (BESS) project to date in Canada. The project is expected operational in Q4 of 2025. Financing for the project was obtained from a banking syndicate composed.

The Oneida Energy Storage Project, Canada's largest grid-scale battery storage facility and one of the largest globally, has officially begun commercial operations. Located in Haldimand County, Ontario, the 250-megawatt (MW) / 1,000-megawatt-hour (MWh) facility is powered by 278 Tesla Megapacks. At.

Energy storage deployment across North America broke records in 2024, driven by falling battery prices, increased system efficiencies, and growing market opportunities. Globally, energy storage deployment increased by 53% last year. As we look ahead to 2025, the North American energy storage sector.

Oneida Energy Storage facility is a 250 MW/1,000 MWh lithium-ion battery energy storage facility, representing the largest grid-scale battery energy storage facility in Canada and within the top five clean energy storage projects in the world. It delivers critical capacity and improved efficiency.

Ontario's latest move saw the province finalize Canada's largest battery

storage procurement, with the Oneida Energy Storage project as its centerpiece. Set to begin operations in 2025, this facility will store energy during off-peak times and release it when demand spikes, enhancing grid. What is Ontario's largest battery storage project?

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Where is the largest battery energy storage system in Canada?

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Are battery storage projects gaining traction in Canada?

Battery storage projects are gaining traction across Canada, driven by federal incentives and increasing provincial investments. For instance, Alberta's recent 60 MW battery facility and Saskatchewan's utility-scale battery storage installation signal a strong nationwide commitment to supporting renewable energy sources like wind and solar.

What is a battery energy storage system?

Battery Energy Storage Systems (BESS) are tools that store electrical energy. Within Canada, all energy storage projects currently under construction are BESS. Proposed and under-construction projects have a power range between 1 MW and 411 MW, with an average storage capacity range of 0.5 hours to 6 hours.

What is the fastest growing energy storage technology in Canada?

BESS is the fastest growing energy storage technology in Canada and is also the dominant storage technology in terms of capacity and number of sites. All but four projects proposed to be commissioned by 2030 are battery storage, with two CAES and two PHS projects also proposed.

How does battery storage affect grid resilience?

Battery storage also has significant implications for grid resilience, particularly

in areas with more intermittent renewable energy sources. By storing excess energy generated from renewables, these systems provide backup power, reduce dependency on fossil fuels, and maintain grid stability even during extreme weather events or outages.

Expected ROI of large scale battery storage project in Canada 2025



Oneida Energy Storage Project Commences Commercial ...

The Oneida Energy Storage Project has officially commenced commercial operations, becoming the largest grid-scale battery energy storage facility in operation in ...

CAISO: The state of grid-scale battery energy storage ...

Another 5.6 GW is set to come online in 2025, driven by large-scale hybrid projects. Subscribers to Modo Energy's Research will also find out: How SP15 dominates CAISO's battery buildout and why its solar resources drive price ...



Enabling renewable energy with battery energy ...

These developments are propelling the market for battery energy storage systems (BESS). Battery storage is an essential enabler of renewable-energy generation, helping alternatives make a steady contribution to the ...

Boralex closes financing for Canada's largest BESS

The Hagersville Battery Energy Storage park, located in Haldimand County, Ontario, Canada, will be the largest battery energy storage system (BESS) project to date in Canada. The project is

expected operational ...



Global Energy Storage to Hit 94 GW in 2025, Says BNEF

The global energy storage sector is on track for another record year in 2025 as utility-scale projects expand into new regions. BloombergNEF (BNEF) forecasts that ...

Battery Innovation

Battery innovation is needed to help meet global demand for battery electric vehicles, which exceeded 10 million in 2022, representing 14% of passenger vehicles sold worldwide. In the same year, global stationary storage capacity ...



Battery Energy Storage Roadmap

This EPRI Battery Energy Storage Roadmap charts a path for advancing deployment of safe, reliable, affordable, and clean battery energy storage systems (BESS) that also cultivate equity, innovation, and workforce ...

Understanding the Return of Investment (ROI): battery energy storage ...

Several key factors influence the ROI of a BESS. In order to assess the ROI of a battery energy storage system, we need to understand that there are two types of factors to keep in mind: ...

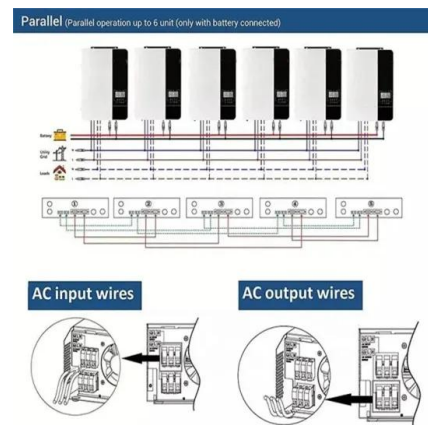


Utility-Scale Battery Storage , Electricity , 2024 , ATB , NREL

The battery storage technologies do not calculate levelized cost of energy (LCOE) or levelized cost of storage (LCOS) and so do not use financial assumptions. Therefore, all parameters are ...

Residential battery storage skyrockets in record ...

While the final quarter of 2024 saw a 20% dip in grid-scale battery storage compared to Q4 2023, this decline was mainly due to the delayed completion of 2 GW worth of projects, now pushed into 2025.



Unlocking the Potential of Grid-Scale Battery Storage Business

Despite the growing attention to grid-scale battery storage, large-scale deployment began globally in the late 2010s and in Japan around 2023. As such, the sector is still in its early stages of ...

Tesla Signs \$557 Million Deal to Build First Grid-Scale Megapack ...

The station will be located in Shanghai, adjacent to Tesla's new Megapack manufacturing facility, which began full-scale production in February 2025. Tesla's Megapacks ...

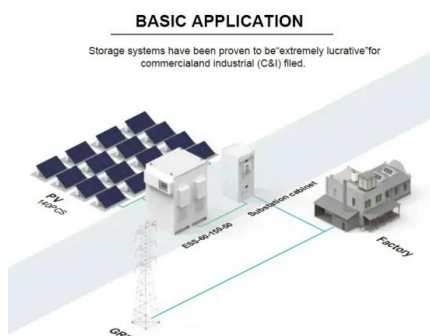


Battery storage capacity in the UK: the state of the ...

The UK's total battery storage project pipeline currently contains a total of 127GW of capacity. Figure 1 demonstrates the amount of capacity at each development stage as a proportion of the total pipeline. 8% of ...

Top five energy storage projects in Canada

Global energy storage capacity was estimated to have reached 36,735MW by the end of 2022 and is forecasted to grow to 353,880MW by 2030. Canada had 138MW of ...



Oneida Energy Storage Project Commences ...

The Oneida Energy Storage Project has officially commenced commercial operations, becoming the largest grid-scale battery energy storage facility in operation in Canada and one of the largest globally.

LCOE of grid-scale solar expected to drop 2% globally

...

A report from BloombergNEF said fixed-axis solar levelized cost of energy is expected to fall to \$0.035/kWh, while battery energy storage LCOE is expected to decrease 11%.



Energy storage safety and growth outlook in 2025

A notable trend in battery energy storage systems (BESS) is the integration of early thermal runaway detection and containment mechanisms, which are crucial for preventing and mitigating safety incidents associated with

...

US battery storage boom extends into 2025; nearly 19 ...

US developers of large-scale battery storage stations have 18.7 GW of new capacity under construction, according to S& P Global Commodity Insights Market Intelligence data, indicating another strong year for the grid's electrochemical ...

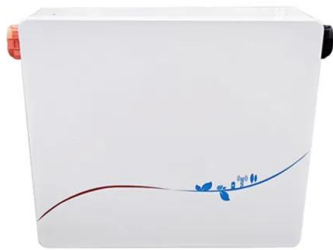


BESS in North America_Whitepaper_Final Draft

Total project costs for utility-scale BESS are expected to fall by another 16% between 2021 and 2025. These battery cost reductions will be driven by increasing battery demand from the ...

Australia: The 2025 NEM Battery Energy Storage Pipeline Report

Australia has a massive pipeline of grid-scale battery energy storage projects. 16.5 GW of new battery projects could arrive in the NEM in the next 3 years.



The World's 6 Biggest Grid Battery Storage Systems

That cost reduction has made lithium-ion batteries a practical way to store large amounts of electrical energy from renewable resources and has resulted in the development of extremely large grid-scale storage systems. ...

Chart: US is set to shatter grid battery records this year

Last year was fantastic for battery storage. This year is poised to be even better. The U.S. is set to plug over 18 gigawatts of new utility-scale energy storage capacity into the grid in 2025, up from 2024 's record-setting ...



CAISO: The state of grid-scale battery energy storage in 2024

Another 5.6 GW is set to come online in 2025, driven by large-scale hybrid projects. Subscribers to Modo Energy's Research will also find out: How SP15 dominates CAISO's battery buildout and ...

Oneida Energy Storage

Oneida is expected to reduce emissions by between 1.2 to 4.1 million tonnes, the equivalent to taking up to 40,000 cars off the road and support grid reliability across Ontario.



Energy Storage in 2025: What's Hot and What's Next?

The energy storage landscape is changing quickly as scientists work to create better and longer-lasting storage solutions. Experts are focused on improving smart grids to ensure that electricity systems work well and are.

US utility-scale energy storage to double, reach 65 ...

Large-scale battery storage resources in the commercial and industrial sectors are expected to rise from about 100 MW to about 300 MW across the same time frame.



European Market Outlook for Battery Storage 2025-2029

European Market Outlook for Battery Storage 2025-2029 7 May 2025 The report explores trends and forecasts across residential, commercial & industrial (C& I), and utility ...

U.S. battery storage capacity will increase significantly ...

The remarkable growth in U.S. battery storage capacity is outpacing even the early growth of the country's utility-scale solar capacity. U.S. solar capacity began expanding in 2010 and grew from less than 1.0 GW in ...



Millions invested in big batteries amid net zero transition

Investment in large-scale battery storage is on the rise. The projects store up renewable energy generated during the day that can be used during peak periods. A surge in investment in large

Utility-Scale Battery Storage in the U.S.: Market Outlook, Drivers, ...

Utility-Scale Battery Storage in the U.S.: Market Outlook, Drivers, and Opportunities in 2025 and Beyond Introduction As the U.S. accelerates its transition toward a ...



Cost Projections for Utility-Scale Battery Storage: 2023 ...

Executive Summary In this work we describe the development of cost and performance projections for utility-scale lithium-ion battery systems, with a focus on 4-hour duration ...

Energy storage: 5 trends to watch in 2025 , Wood ...

The scene is set for significant energy storage installation growth and technological advancements in 2025. Outlook and analysis of emerging markets, cost and supply chain risk, storage demand growth ...



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