HIF Portfolio

HIF Portfolio Table | Projects and Studies

All projects were contracted in 2023.
This report covers the period ending April 31st, 2025.

Proponent	Project Title	Project Description	Category	Amount Awarded	Total Budget	Status
Atura Power	Halton Hills Hydrogen Blending	This project will explore the performance of an existing large natural gas turbine when blended with natural gas and hydrogen (up to 15% hydrogen) impacts on operations, equipment functionality, turbine responsiveness, and market participation continuing to provide wholesale grid services such as energy, and operating reserve.	New Facility	$4,179,700	$12,641,900	Active
Capital Power	Hydrogen Blending – Goreway Power Station, East Windsor	This study assesses the financial and technical viability of blending and co-firing hydrogen and natural gas (NG) at three	Research/ Feasibility Study	$206,300	$525,700	Completed

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	Cogeneration Centre and York Energy Centre	of Capital Power's existing natural gas generating facilities East Windsor, Goreway and York Energy Center) using various mixes of hydrogen (from 5% to 15%) as well as the blending impacts on natural gas turbine's performance, maintenance, operability, emissions and safety.				
Capital Power	Kingsbridge Green Hydrogen and Storage Assessment	This study investigates the economic and technical feasibility of creating green hydrogen via electrolysis from wind and storing it in underground storage units located in depleted gas reservoirs. The study explores fueling a hydrogen-methane turbine and using hydrogen for natural gas blending and transportation fuel, as well as the potential to provide grid reliability services.	Research/ Feasibility Study	$150,000.50	$300,001	Completed
Carlsun Energy Solutions Inc.	Distribution-Connected Electrolytic	This project aims to construct and operate a 500 kW hydrogen production, compression	New Facility	$1,891,400	$4,212,800	Terminated

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	Hydrogen Production	and storage facility to demonstrate the grid benefits of an Anion Exchange Membrane (AEM) electrolyzer while producing hydrogen fuel for Ontario's first publicly accessible hydrogen fueling station.				
Emerald Energy From Waste Inc.	Interruptible Hydrogen Generation Pilot	This project will demonstrate the technical capabilities of Proton Exchange Membrane (PEM) electrolyzer to produce hydrogen from waste, and test the electrolyzer's ability to provide real-time grid services such as operating reserve, frequency regulation and the smoothing of renewable generation. This project will also develop an on-site hydrogen hub to store and dispense hydrogen to near market ready customers.	New Facility	$2,990,000	$6,260,007	Active
Enbridge Gas Inc.	Performance of Combined Heat and Power System Using	This project will demonstrate the fueling of a 115 kW combined heat and power (CHP) unit with	New Facility	$1,787,480	$3,574,960	Active

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	Blended Hydrogen and Natural Gas as Fuel	a range of hydrogen and natural gas blends (up to 100% hydrogen) from an existing electrolyzer on-site to generate electricity and provide heat to the facility, contributing to a reliable, zero-to-low emission electrical grid in Ontario.				
HydroMéga Services	Coupling green electricity and hydrogen	This study aims to assess the technical and economic feasibility of retrofitting an existing 27 MW natural gas generation facility in Cochrane, Ontario by installing an electrolyzer powered by on-site renewable electricity generation (solar and wind) to produce and store green hydrogen for electricity generation and/or support decarbonization of the local heating systems by blending hydrogen with the local natural gas heating network.	Research/ Feasibility Study	$100,000	$250,000	Cancelled
Kinectrics	Feasibility Study for an Urban Hydrogen Hub	This study assesses the potential of producing hydrogen through solid	Research/ Feasibility Study	$250,000	$500,000	Completed

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	for Grid Flexibility, Resilience, and Carbon Reduction Scalable to Nuclear Power Plant Co-location	oxide electrolysis powered by a surrogate heat to emulate a nuclear power plant. It evaluates the economic feasibility, including installation, maintenance and operating costs of the hydrogen production, storage, distribution and electricity generation.				
Next Hydrogen Corporation	Development and Demonstration of Next Hydrogen's Advanced Water Electrolyser Under Interruptible Service Conditions	This project will demonstrate the capabilities of advanced alkaline water electrolyser to provide grid services, including, operating reserves, energy, frequency regulation, fast frequency response, and the smoothing of renewable generation.	Existing Facility	$938,201	$1,876,402	Active
Transition Accelerator	The Role of Hydrogen Hubs in Strengthening the Affordability and Reliability of Ontario's Electricity System	This study models the potential for hydrogen hubs in the Hamilton region to enable the decarbonization of Ontario's economy and the resulting impact on the electricity system. It	Research/ Feasibility Study	$101,204.73	$202,409.46	Completed

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		assesses the ability to cluster hydrogen production, transportation, storage, and demand to facilitate cost-effective net-zero solutions across multiple sectors and understand the impact on the electric system				
University of Windsor	Hydrogen Integrated Greenhouse Horticultural Energy	This study economically models the production, storage, delivery and consumption of hydrogen for use in Ontario's agricultural greenhouse sector. It identifies the potential grid services that a wind-powered hydrogen production facility can offer in Southwestern Ontario and estimated the range of costs for hydrogen integration into a greenhouse operation.	Research/ Feasibility Study	$130,000	$285,000	Completed
Volta Energy Inc.	Feasibility Evaluation of Sustainable, Green and Rapid-Response Metal-Supported	This study assesses how reversible solid oxide hydrogen fuel cells can help provide a pathway for hydrogen integration into the electricity grid. This study includes research on	Research/ Feasibility Study	$491,352	$1,114,554	Completed

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	Solid Oxide Cell Technology	market-entry barriers for reversible solid oxide hydrogen fuel cells alongside the responsiveness of the technology to control room signals.				
Western University	NET-PBH2: Negative Emissions Technology for Pale Blue Hydrogen Production	This study demonstrates the production of green hydrogen using PV powered AEM electrolyzer, blue hydrogen from biogas by integrating membrane separation of methane and CO2, conversion of methane and recycled methane to (blue) hydrogen and carbon black in a plasma reactor and CO2 capture by demonstration of a 20,000 L photobioreactor for algae cultivation and water recycle.	Research/ Feasibility Study	$498,000	$996,000	Completed
York University	Preliminary Feasibility Study of Hydrogen Productions On-Site and Utilization of Hydrogen in	This study assesses the techno-economic challenges and opportunities associated with the wide adoption of green hydrogen plants in Ontario. It investigates the	Research/ Feasibility Study	$38,000	$106,000	Completed

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	Existing Prime Movers	feasibility of retrofitting existing gas turbines to burn a blend of hydrogen and natural gas in small/medium sized generators. The study also investigates how generating hydrogen on-site during off-peak periods can provide faster operating reserve and reduce electricity demand and emissions during hours when large gas plants would otherwise be operating.				
York University	Optimal Deployment of Green Hydrogen Plants in Ontario Electricity System	This study analyzes innovative approaches to integrating large-scale green hydrogen plants into Ontario's electricity system. The study assesses the technological and economic challenges and opportunities associated with the wide adoption of green hydrogen plants.	Research/ Feasibility Study	$90,000	$180,000	Completed