

Mississauga Hydrogen Hub

Engaging a Local Hydrogen Economy

Summary Report
September 2025

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Mississauga Hydrogen Hub: Engaging a Local Hydrogen Economy Overview

Purpose of the initiative

The City of Mississauga, in collaboration with Deloitte, from September 2024 to March 2026 has assessed the feasibility of establishing a hydrogen hub in Mississauga and the surrounding area. This initiative supports the transition to clean fuels, particularly for heavy-duty trucks and buses, by advancing a local hydrogen ecosystem.

The initiative aims to:

- Participate in the growing network of clean hydrogen producers, consumers, and infrastructure.
- Reduce greenhouse gas (GHG) emissions, improve public health, promote equity, drive job growth, and enhance energy security.
- Lay the foundation for hydrogen production, distribution, and storage while identifying infrastructure needs, opportunities, and challenges.
- Build capacity through safety awareness, training, and ecosystem connections to support hydrogen adoption.

Deloitte's role: Deloitte, as a strategic advisor, has been tasked with conducting research, evaluating opportunities, and providing actionable recommendations to operationalize the hydrogen hub.

Natural Resources Canada grant funding: The project is partially funded by Natural Resources Canada.

Document purpose

The following executive summary provides a concise overview of Mississauga's hydrogen hub opportunity, highlighting the city's strategic advantages, hydrogen production potential, policy alignment, and key findings. It outlines actionable recommendations for advancing the hydrogen economy, focusing on technology enablement, market development, and community engagement to establish Mississauga as a leader in Canada's hydrogen ecosystem. The full report is available upon request by contacting living.green@mississauga.ca.

Abbreviations

Abbreviation	Definition
AEM	Anion exchange membrane
ARCHES	Alliance for Renewable Clean Hydrogen Energy Systems
CAD	Canadian dollar
CAPEX	Capital investments
CCS	Carbon capture and storage
CCUS	Carbon capture, utilization, and storage
CER	Canadian Energy Regulator
CHP	Combined heat and power
CFS	Clean Fuel Standard
CNG	Compressed natural gas
DOE	Department of Energy
EGR	Exhaust gas recirculation
ECCC	Environment and Climate Change Canada
FCEV	Fuel cell electric vehicle
FID	Final investment decision
GDP	Gross domestic product
GHG	Greenhouse gas
GJ	Gigajoule

Abbreviation	Definition
GRC	Gross revenue charge
H2GO	H2GO Canada
HBC	Hydrogen Business Council
HICE	Hydrogen internal combustion engine
IEA	International Energy Agency
IESO	Independent Electricity System Operator
ITC	Investment tax credit
kWh	Kilowatt-hour
LETS	Large emitter pricing systems
LCOH	Levelized cost of hydrogen
LNG	Liquefied natural gas
MHZEVS	Medium- and heavy-duty zero-emission vehicles
MHDV	Medium- and heavy-duty vehicles
MW	Megawatt
Mt	Megatonne
NOx	Nitrogen oxides
NRCan	Natural Resources Canada
OBPS	Output-based pricing system

Abbreviation	Definition
OBRITC	Ontario Business-Research Institute Tax Credit
OEM	Original equipment manufacturer
OPEX	Operating expenses
PEM	Proton exchange membrane
PPE	Personal protective equipment
PM	Particulate matter
PSA	Pressure swing absorption
R&D	Research and development
SCR	Selective catalytic reduction
SMA	Subject matter advisor
SMR	Steam methane reforming
SMR+CCS	Steam methane reforming with carbon capture and storage
SOx	Solid oxide
SR&ED	Scientific research and experimental development
STEM	Science, technology, engineering, and mathematics
TCO	Total cost of ownership
TRL	Technology readiness level
VOC	Volatile organic compounds
ZEV	Zero-emission vehicle

Mississauga is well-positioned as a hydrogen hub in Canada's hydrogen economy

Mississauga can support the development of the hydrogen ecosystem in Ontario by leveraging its geography, local industry collaboration, and aligning with provincial and national hydrogen strategies.

Purpose of the report

The City of Mississauga engaged Deloitte to assess the feasibility of establishing a hydrogen hub. The assessment aimed to: (1) understand the hydrogen opportunity in Mississauga and the surrounding region, focusing on infrastructure and market potential, (2) position Mississauga competitively to attract investment and support for hydrogen initiatives, and (3) develop actionable steps to operationalize the hydrogen hub and address key challenges. While the City can leverage its assets and policies, the hub itself will serve as the operational and collaborative platform to implement and scale hydrogen technologies, infrastructure and market initiatives within the region. The project is partially funded by [Natural Resources Canada's Zero Emissions Vehicle Awareness Initiative](#).

Approach overview

To evaluate the potential for a hydrogen hub in Mississauga, foundational content focused on the understanding of the hydrogen ecosystem was developed. A comprehensive policy analysis was conducted, examining hydrogen-related policies at global, national, and provincial levels. This analysis enabled a comparison of Mississauga with other regional hubs across North America, determining its position relative to its peers. The findings informed an Opportunity Assessment analyzing the City's supply and demand prospects to gauge the Hub's viability. Based on this assessment, targeted recommendations focused on technology advancement, policy formulation, market development, and community engagement were proposed.

Key findings



Mississauga has the potential to become a **key player** in the regional **hydrogen economy** due to its **strategic location, diverse industrial base, and supportive policy environment**.



Various **hydrogen production methods**, such as **electrolysis** and **steam methane reforming** with **carbon capture and storage**, are feasible, in the surrounding region. These methods ensure a **stable hydrogen supply** that can support both **industrial** and **transportation** sectors.



Ontario's **supportive policies**, including the **Low-Carbon Hydrogen Strategy** and the **Hydrogen Innovation Fund**, align with the province's broader strategy to encourage **investment in hydrogen infrastructure and usage**. This positions Mississauga well in the **hydrogen economy**.

Overview of recommendations



Mississauga can support the **development of the hydrogen market** by coordinating with surrounding regions, continuing the hydrogen working group and using City-owned pilot projects as living laboratories (e.g. the MiWay H2 10-bus pilot).



Mississauga can **advocate for supportive policies** to streamline regulatory processes at provincial and federal levels, as well as for sector investment.



Mississauga can **enable technology and infrastructure development** by supporting connections across the hydrogen value chain and creating a City-level strategic plan for hydrogen infrastructure.



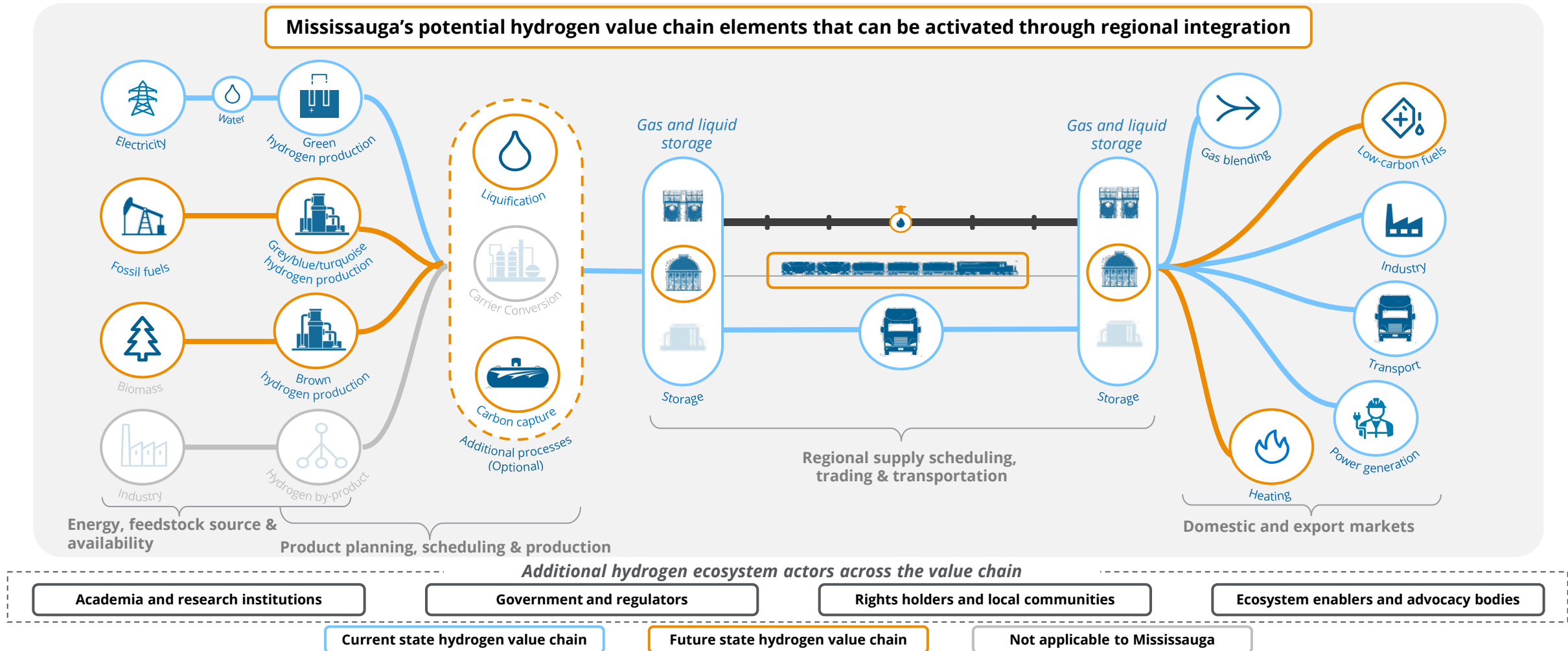
Mississauga can collaborate with other hubs, industry, and government to **raise awareness and educate communities** on hydrogen processes, uses, and safety.

Mississauga's advantage



Mississauga has an opportunity to be a key enabler across the hydrogen value chain

Mississauga is advancing green hydrogen and its applications in industry, transportation, and power. By connecting with the region, it can also influence various hydrogen production methods, carbon capture, and low-carbon fuels.



The success of a hydrogen hub in Mississauga will be largely dependent on the relationships between regional hydrogen producers, suppliers, users, governments, and regulators.

Industry and community partnerships drive and influence the competitiveness of Mississauga's hydrogen economy

The successful commercialization of Mississauga's hydrogen hub relies on purposeful and coordinated development across seven key levers.



Mississauga has the potential to be a hydrogen hub in Ontario

Mississauga's strategic location, strong innovation ecosystem, and access to Ontario's low-carbon electricity grid position it well to establish itself as a local hydrogen hub, serving key markets such as heavy-duty transportation, industry, buildings and facilities.

Mississauga has the required elements of a hydrogen hub



Strategic location

Mississauga's strategic location within the Greater Toronto and Hamilton Area, combined with its well-developed transportation networks and access to Ontario's low-carbon electricity grid, positions it as an ideal site for a hydrogen hub.



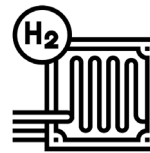
Growth opportunities

Mississauga has the potential to become a larger demand-driven hub due to its strategic location within manageable distance (100 km - 350 km) from potential hydrogen production clusters, allowing it to receive low-carbon hydrogen at a competitive cost.



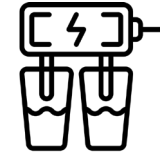
Target markets

The City can support heavy-duty transportation and industry decarbonization markets, with additional opportunities for hydrogen blending in natural gas networks for power generation and building heating.



Innovation and research and development ecosystem

The City boasts a strong local innovation and research ecosystem, with ample collaboration opportunities with universities, research institutions, and industry partners.



Production potential

While Mississauga can produce electrolytic hydrogen using Ontario's grid, it currently lacks the capacity for large-scale hydrogen production without technological advancements like methane pyrolysis.



Supportive policy environment

Ontario's current hydrogen strategy supports Mississauga's hydrogen hub ambitions. Stable federal and provincial policies are needed to ensure certainty for investments over the long-term.

Bridging the hydrogen value chain gap in Mississauga

Mississauga faces a low-carbon hydrogen value chain gap, requiring supply- and demand-side actions. This gap reflects the difference between current supply capabilities and future demand, shaped by technology, policy, and market readiness. The City can focus on regulatory support, partnerships, and community engagement, while the hub can drive innovation, large-scale production, and market integration.

Supporting hydrogen production



What Mississauga can do

Mississauga can support producers by offering permitting assistance, while also fostering partnerships between local businesses, research institutions, and hydrogen producers.



What the provincial and federal governments can do

The provincial and federal governments can offer financial support and implement regulatory frameworks with clear standards and penalties to support hydrogen production projects.

Supporting hydrogen adoption



What Mississauga can do

Mississauga can support hydrogen adoption by organizing forums and networking events to unite groups with interest and by promoting pilot projects to showcase hydrogen technology's benefits.



What the provincial and federal governments can do

The provincial and federal governments can support hydrogen adoption by providing targeted grants and incentives, and by establishing regulatory frameworks that mandate or encourage the use of low-carbon hydrogen in various sectors.

Mississauga has the potential to influence three key areas

Education and upskilling

- ✓ Establishing a hydrogen economy necessitates a new, highly skilled workforce with expertise in hydrogen-related industries.
- ✓ Investing in education and upskilling programs can attract and retain talent, making the region an attractive investment destination.
- ✓ A skilled workforce fosters growth in the hydrogen sector, driving innovation, entrepreneurship, and economic diversification.

Climate action

- ✓ Advancing a hydrogen economy supports local, provincial, and federal decarbonization efforts.
- ✓ Diversifying energy sources with hydrogen can help replace fossil fuels, improve air quality and reduce greenhouse gas emissions.
- ✓ Diversifying energy sources with hydrogen contributes to system resiliency.

Economic opportunity

- ✓ Developing a hydrogen economy strengthens the City's competitiveness in a low-carbon economy.
- ✓ Transitioning to hydrogen supports innovation, technological advancement, and new job opportunities.
- ✓ Economic diversification through hydrogen strengthens regional resilience to economic fluctuations and provides long-term stability.

Mississauga can be a core driver of the hydrogen ecosystem in Ontario

Based on the Opportunity Assessment and interviews conducted across the ecosystem, Deloitte has developed four recommendations for Mississauga's consideration in bringing together the City and the region to advance the hydrogen hub. These recommendations are designed to complement ongoing activities.

	1 Market development	2 Government support and policy frameworks	3 Technology and infrastructure enablement	4 Community education and engagement
Overview	Mississauga can boost local market development through hydrogen procurement and partnering with regional hubs like Hamilton, Niagara, and Durham to improve supply chain, investment, and industry education.	Government support and policies are crucial for hydrogen technology. Mississauga can advocate for streamlined regulations and stable policies to create a hydrogen hub.	Hydrogen technology has advanced slowly due to high costs, infrastructure limitations, and scaling challenges. Mississauga can drive progress through industry, research, and government collaboration.	Mississauga can collaborate with other hubs, industry, and government to raise awareness and educate communities on hydrogen processes, uses, and safety.
Actions	<p>1.1 Establish a clear governance structure for the Mississauga hydrogen hub, including defined roles, decision-making processes, and groups with interest coordination.</p> <p>1.2 Align with neighboring regional hubs on technology, infrastructure, community engagement, and government support to reduce duplication.</p> <p>1.3 Revisit the hydrogen working group's mandate and terms of reference to reflect evolving priorities.</p> <p>1.4 Leverage City-led pilot projects as living laboratories for hydrogen adoption.</p> <p>1.5 Support demand growth by procuring hydrogen for City fleets and transit and facilitating demand aggregation across public and private sector partners.</p>	<p>2.1 Expand mandate to leverage the working group to provide insight into streamline regulatory and permitting processes specific to Mississauga.</p> <p>2.2 Advocate at the provincial and federal levels for the streamlining of hydrogen-related regulatory policies, such as environmental and transportation permits.</p> <p>2.3 Advocate for increased funding for hydrogen projects by leveraging Mississauga's role in the Ontario Low-Carbon Hydrogen and Hydrogen Strategy for Canada.</p>	<p>3.1 Support the connection of proponents across the hydrogen value chain to advance their own objectives through facilitating networking events, workshops, and collaborative projects.</p> <p>3.2 Create a formalized Mississauga Hub and develop a strategic plan for hydrogen infrastructure that would support a wider-regional ecosystem.</p>	<p>4.1 Collaborate with industry on education in support of hydrogen development on specific projects through community engagement.</p> <p>4.2 Continue to provide community education on hydrogen processes and safety.</p>
Desired outcomes	Establishes a structured hydrogen ecosystem that strengthens the supply chain, maximizes regional partnerships, and showcases Mississauga's contributions.	Supports hydrogen development through supportive financing, building codes, and alignment with Ontario's Low-Carbon Hydrogen Strategy and the Hydrogen Strategy for Canada.	Enables hydrogen production, distribution, and refueling stations while accelerating hydrogen adoption.	Increases public and industry support for hydrogen and enhance community understanding, acceptance and adoption of hydrogen.

There are four categories of risk each with mitigation strategies designed to support the operationalization of the hub

		Market development risk	Government support and policy frameworks risk	Technology and infrastructure enablement risk	Community education and engagement risk
Overview and risk types		<ul style="list-style-type: none"> ➤ Slow adoption of hydrogen technologies due to concerns about their maturity and commercial viability. ➤ Dependency on external sources for hydrogen production and supply makes the province vulnerable to supply chain disruptions. ➤ Lack of established large-scale hydrogen consumers creates demand uncertainty. ➤ Limited acceptance of various hydrogen production methods, may undermine the environmental and economic goals associated with hydrogen adoption. 	<ul style="list-style-type: none"> ➤ Regulatory uncertainty in hydrogen project permitting. ➤ Ambiguity or inconsistency in policies that may delay project approvals and discourage hydrogen development. 	<ul style="list-style-type: none"> ➤ Dependence on natural gas for peak electricity. This may limit the province's ability to produce green hydrogen, due to insufficient low-carbon electricity supply. ➤ Limited readiness of hydrogen infrastructure and high upgrade costs. ➤ Lack of confidence in hydrogen technology for various industrial applications. 	<ul style="list-style-type: none"> ➤ Public safety concerns about hydrogen use, despite strict safety standards. ➤ Limited collaboration within the diverse business community in Mississauga. ➤ Insufficient community outreach and continuous education about hydrogen opportunities and safety.
	Mitigation	<ul style="list-style-type: none"> ➤ Promote successful hydrogen technology trials and case studies to build confidence and encourage adoption in various industries. 	<ul style="list-style-type: none"> ➤ Advocate for clear and consistent hydrogen policies and permitting processes with federal and provincial decision-makers. 	<ul style="list-style-type: none"> ➤ Identify and prioritize areas with existing industrial infrastructure and proximity to transportation routes for hydrogen corridor development. 	<ul style="list-style-type: none"> ➤ Provide continuous education and communication to the public via the website and other channels on hydrogen opportunities, development, safety, and job creation in the region.

Conclusion and next steps

Based on our findings from the Opportunity Assessment and interviews, the following priorities have emerged as next steps for the City of Mississauga:



Market development and community engagement

Mississauga can support the growth of its hydrogen ecosystem by continuing its Hydrogen Working Group to strengthen local supply chains and attract investment. The Mississauga Hub could also coordinate with neighboring regional hubs to align shared objectives and leverage connections with local industries and associations. This collaboration can be formalized through a clear governance framework that defines roles, supports information sharing, and accelerates project development. In parallel, community education on hydrogen processes, safety, benefits, and risks will be essential to building public awareness and supporting broader adoption within Mississauga and the surrounding region.



Government support and policy frameworks

The City has the opportunity to collaborate both within its own organization and with provincial and federal governments. The City could consider establishing a working group to review and streamline regulatory and permitting processes specific to its jurisdiction. Additionally, the City can continue to advocate at the provincial and federal levels for the streamlining of hydrogen-related regulatory policies, such as environmental and transportation permits. This can create a supportive environment for hydrogen initiatives, ensuring that regulatory hurdles are minimized and progress is accelerated.

Technology and infrastructure development

The Mississauga Hydrogen Hub has an opportunity to accelerate technological advancements in the region. Developing a Hub-level strategic plan for hydrogen infrastructure will be essential in identifying key locations for production, distribution, and refueling stations, expediting the location identification process. Close collaboration with industry and research institutions will be necessary to address infrastructure constraints and drive progress in hydrogen technologies. This approach ensures that the Hub and local industry are well-equipped to handle the growing demand for hydrogen and can efficiently integrate it into the existing energy framework.



For further information, please contact the City of Mississauga at living.green@mississauga.ca.