

# Supporting the Edmonton Region's Economic and Environmental Goals through the Edmonton Region Hydrogen Hub

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The purpose of Edmonton Global is to radically transform and grow the economy of the Edmonton Metropolitan Region



# The Edmonton Region Hydrogen Hub

Our futures are linked together and we're working cooperatively to take advantage of this opportunity to develop a low-carbon hydrogen economy and position the **Edmonton Region for long-term economic success in the clean energy future.**



With the support of:  
Prairies Economic  
Development Canada



# Canada's path to net-zero runs through the Edmonton region



**350,000**  
HYDROGEN  
SECTOR JOBS



**\$50 BILLION IN**  
DOMESTIC  
REVENUE



PART OF AN  
**\$11 TRILLION**  
GLOBAL  
OPPORTUNITY



UP TO 30% OF  
CANADA'S  
ENERGY MIX  
BY 2050



REDUCE CO<sub>2</sub>  
EMISSIONS IN  
HEAVY-EMITTING  
INDUSTRIES



Abundant low-cost feedstock



International collaboration



Strong energy sector



Access to export markets



Clean energy innovations



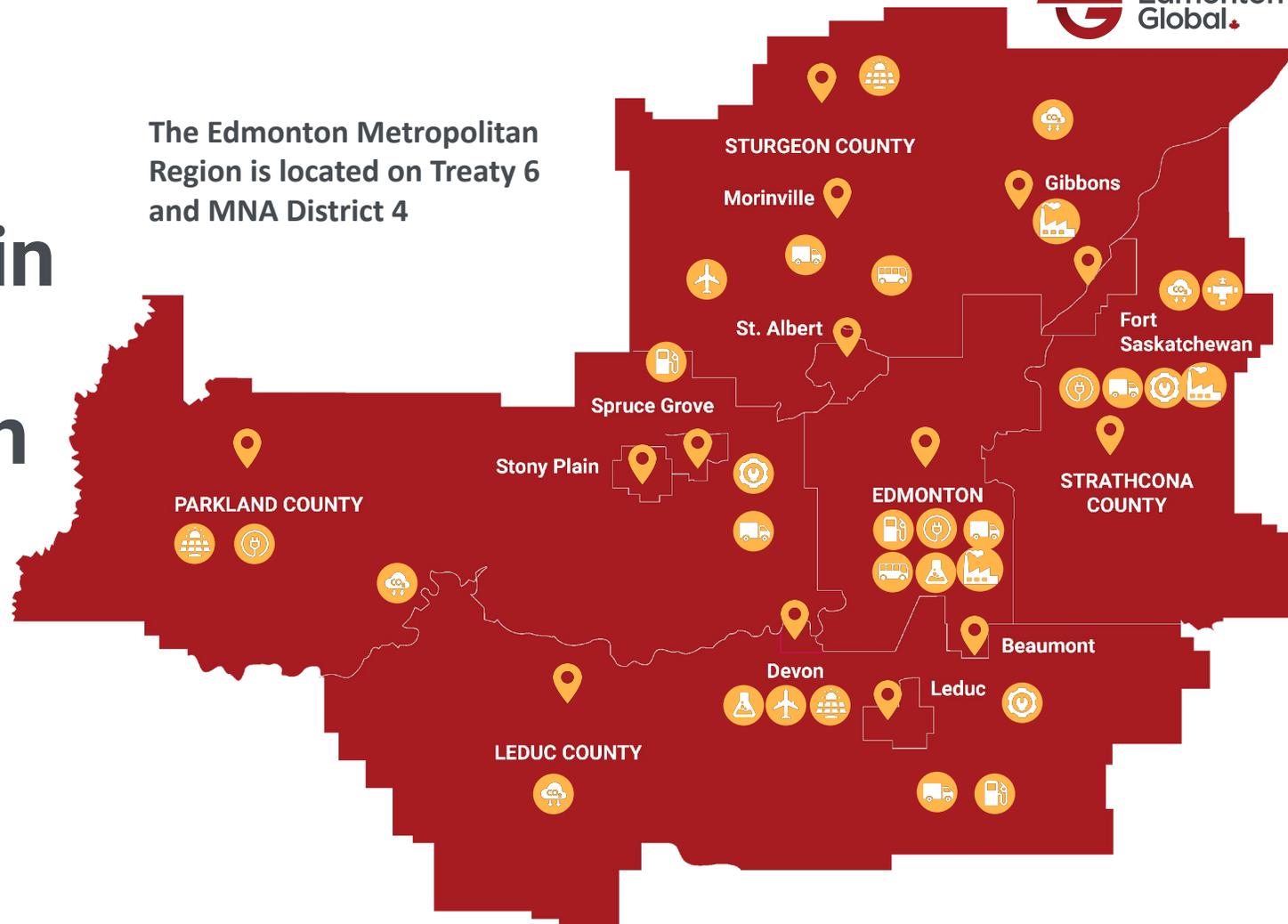
Experience in deployment



# Hydrogen Value Chain Opportunities within the Edmonton Region



The Edmonton Metropolitan Region is located on Treaty 6 and MNA District 4

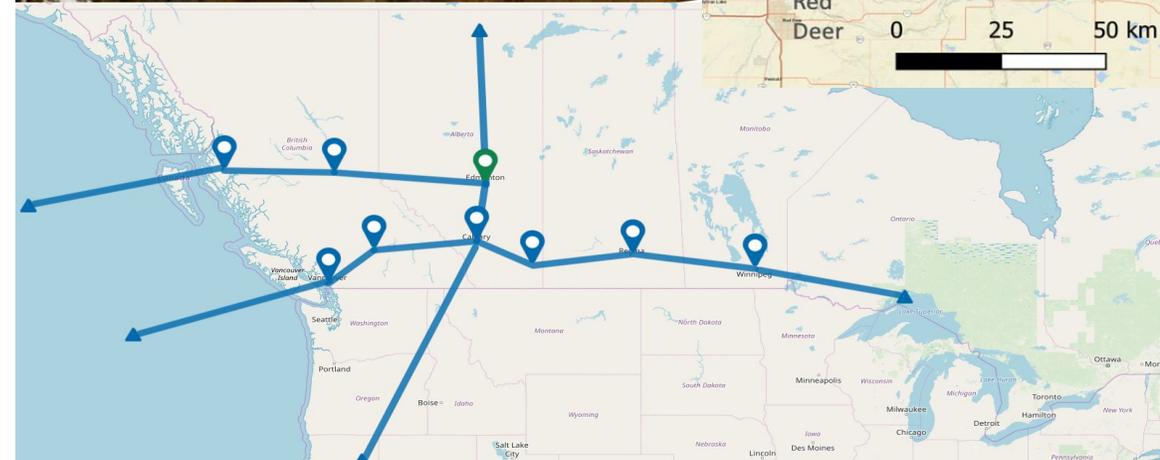
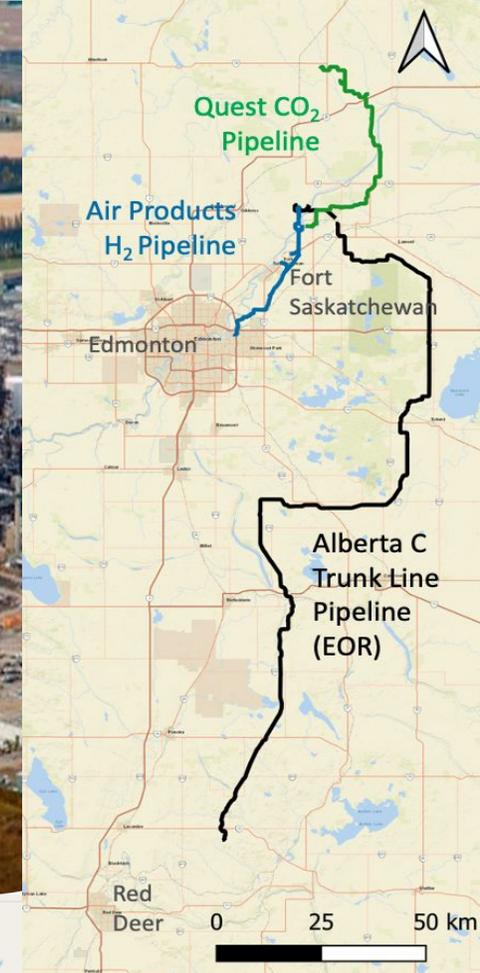


- |                  |             |                               |                         |
|------------------|-------------|-------------------------------|-------------------------|
| Power Generation | Maintenance | Aviation                      | H <sup>2</sup> Blending |
| CCUS             | Bus Fleets  | Solar (Green H <sup>2</sup> ) | Production              |
| Trucking         | Research    | Hydrogen Fueling Stations     |                         |

# Why the Edmonton region?

## The ingredients are here.....

- Enabling policy framework
- World's lowest cost, lowest carbon H<sub>2</sub>
- Expertise and experience from the oil and gas sector
- World-class CCUS capabilities
- Strategically located with access to two western ports
- Centrally located along transportation corridors
- Diversified industry base



HYDROGEN AND CLEAN TECH

# Policy Alignment Resulting in World Leading Investments

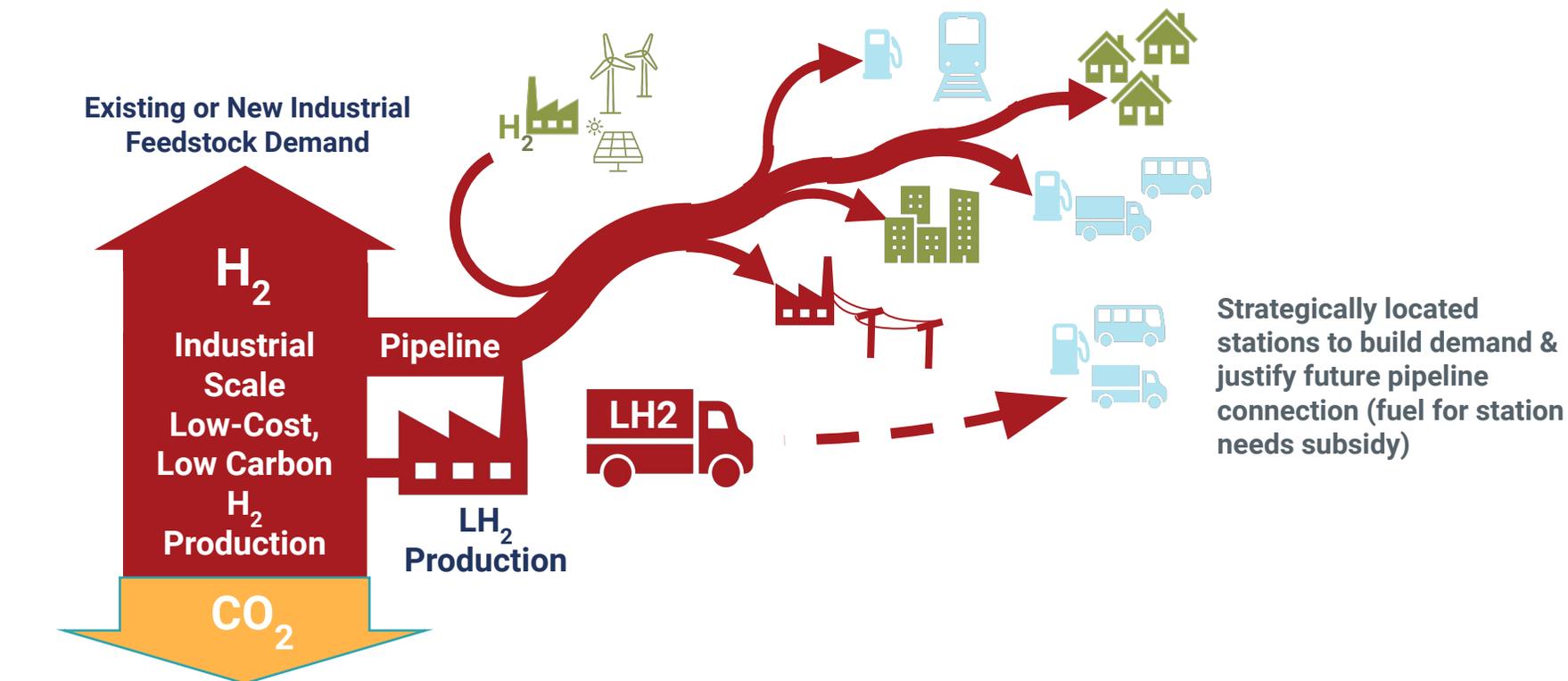


**Federal and Provincial Policy and Program Alignment Resulting in a \$1.6 Billion investment for the region**

- World's largest Net Zero Hydrogen Complex
- SIF funding - \$300 million
- APIP funding - \$161 million

HYDROGEN AND CLEAN TECH

# Leveraging our Assets to Create a Hydrogen Cluster

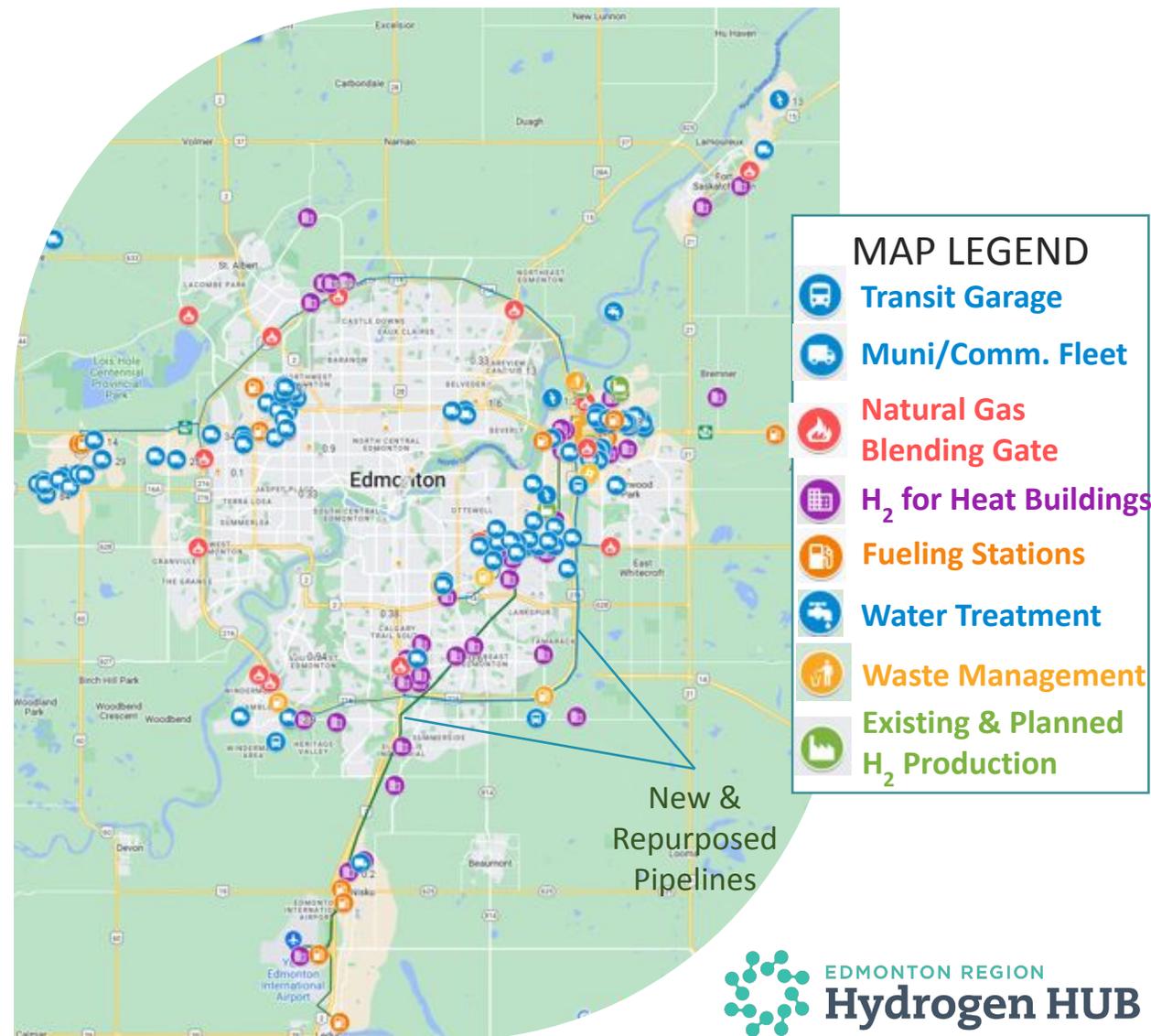


- 1) 'Piggy-back' on low-cost, low carbon industrial H<sub>2</sub> prod.
- 2) Pipeline H<sub>2</sub> to new fuel markets
- 3) Rapidly grow H<sub>2</sub> demand
- 4) Attract H<sub>2</sub>-using industries & OEMs

# ERH2 - Strategic Vision 2032

Edmonton Region Hub		07-Jul-22	
		2023	2032
Class 8 Trucks	Fuel Cell	5	5,700
	Dual Fuel	2	9,500
Fueling stations		1	40+
H <sub>2</sub> Pipelines in place (km)		0	100's
tH <sub>2</sub> demand/day	Transportation*	0.1	340
	Heat and Power	0.1	120

- **Transportation**—trucks, buses, trains
- **Heat & Power**—commercial, institutional, light industrial
- **Utility Blending**—commercial, residential
- **\$100's billions** of capital investment and construction activity
- **\$400+ million/yr** of H<sub>2</sub> commodity sales

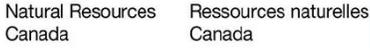




# The Home to Leading Pilot Projects

# Building Demand from Pilot Projects within the Edmonton Region

## TRUCKS

Alberta Zero-Emissions Truck Electrification Collaboration (AZETEC)	     
Dual Fuel Commercialization Program	    
H <sub>2</sub> Truck Demonstration Road Show	   
Electric Vehicle Infrastructure Demo (EVID)	 

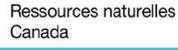
## BUSES

Fuel Cell Electric Bus Demonstrations (AZEHT)	
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## AIR

Edmonton International Airport Zero-emission Fleets	    
Edmonton International Airport Zero-emission Aviation Fuel and Aircrafts	    

## RAIL

CP Rail Hydrogen Locomotive Pilot	   
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## HEAT & POWER

Fort Saskatchewan Hydrogen Blending Pilot	 
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# The 5,000 Hydrogen Vehicle Challenge

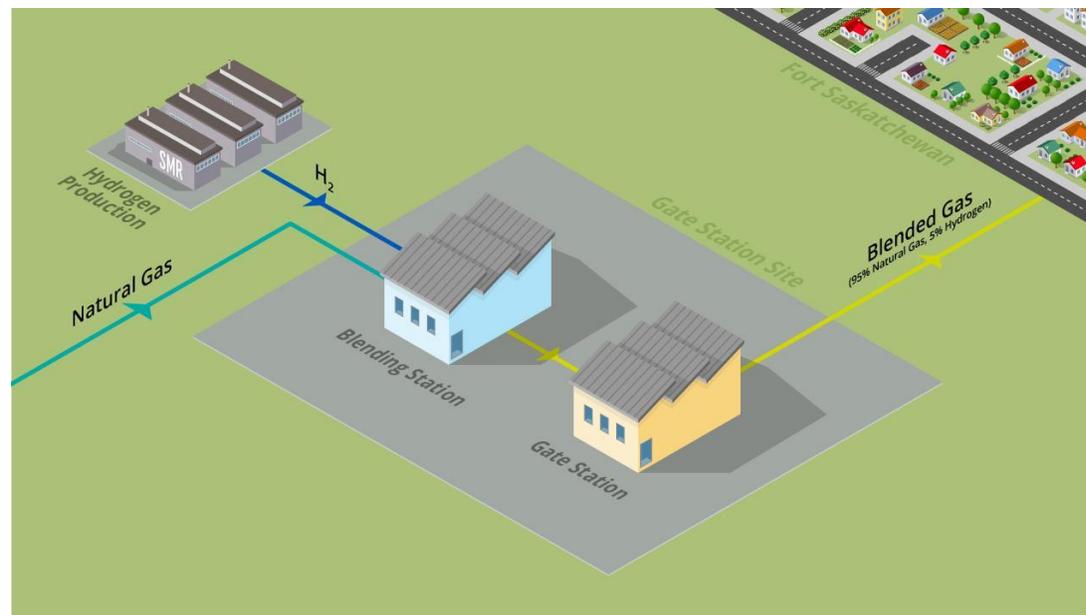
To get western Canada's first 5,000 hydrogen vehicles on the road by 2028, helping to contribute to Canada's environmental goals and enabling the development of Canada's hydrogen value chain.

- **Leverage learnings** from pilot projects that span different segments of transportation sector
  - Long-Haul Commercial Trucking
  - Municipal Fleets
  - Charter Bus Fleets
  - Airport Service Vehicles
- **Challenge-based approach** to engage wide segment of commercial transportation sector, municipalities, and other vehicle users
- **Pooled commitments** to **accelerate demand** and create **economies of scale**
- **Phased approach** to build momentum and **share learnings**
- **Coordinated approach** to stimulate refueling infrastructure at scale that will be needed for future demand
- **Concurrent initiatives** to **de-risk technologies** while **addressing regulatory barriers**
- **Strategic Approach** to access existing government programming
  - **Consortia/clustered approach** rapidly scale demand
- Geographic Scope: **Western Canadian** – but starting within the Edmonton region – Canada's first hydrogen hub



## HYDROGEN AND CLEAN TECH

# Implications on Urban Planning



- Staged development of hydrogen refueling infrastructure
- Possible use of hydrogen in homes and buildings
  - Blending hydrogen into natural gas distribution system
  - 100% hydrogen communities
 e.g. Bremner in Strathcona County and other projects being considered in Edmonton, Leduc and Sturgeon County
- Importance of demonstrating safe approaches to hydrogen use



## A Successful 2<sup>nd</sup> Canadian Hydrogen Convention (April 25-27, 2023)

- North America's largest hydrogen-focused conference
- Approximately 8,000 attendees (5,000 in 2022)
- 100+ exhibiting companies
- Industry experts and leaders as speakers
- Over 70 nations represented
  
- Edmonton Region Hydrogen HUB Pavilion

[www.hydrogenexpo.com](http://www.hydrogenexpo.com)

### **Key announcements:**

- **CoE H2 Refueling Station RFP**
- **Air Products first Refueling Station for Edmonton**
- **Launch of 5,000 Hydrogen Vehicle Challenge**



Edmonton  
Global 

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**Learn More About Hydrogen at:**

Edmonton Region Hydrogen Hub [www.erh2.ca](http://www.erh2.ca)

<https://edmontonglobal.ca/hydrogen-economy/>



Canadian Hydrogen Convention

Come Join us in Edmonton at the 2nd Canadian Hydrogen Convention, **April 25-27, 2023**

[www.hydrogenexpo.com](http://www.hydrogenexpo.com)



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