

# The Edmonton Region's Hydrogen Ecosystem



The Edmonton region is home to Canada's largest hydrogen hub, making it the driving force of Canada's hydrogen economy. Our region produces low-cost, low-carbon hydrogen at a global scale. Through a hub-based approach, we're generating demand to accelerate the growth of the region's hydrogen sector.

**OVER \$30B** IN NEW HYDROGEN PROJECTS PLANNED BY 2030

**55 KM** HYDROGEN PIPELINE IN THE REGION

**5,000 HYDROGEN POWERED VEHICLES** ON THE ROAD IN WESTERN CANADA IN 5 YEARS

**THE WORLD'S LARGEST** NET-ZERO HYDROGEN FACILITY



## Edmonton Metropolitan Region Value Proposition

### Hub Approach

- The Edmonton Region Hydrogen HUB is the first and largest in Canada.
- Strategic collaboration between industry, government, and Indigenous organizations in the Edmonton region will accelerate the region's hydrogen economy.
- Modeling the path forward for a national hydrogen strategy.

### Opportunity to Scale

- Alberta's natural gas supply is abundant and low-cost, creating a cost advantage for hydrogen production and making our region the highest-volume producer in Canada.
- The region will see \$30 billion in hydrogen-related investment by 2030.

### Existing Infrastructure and Technology

- Some of the largest CCUS facilities in the world.
- Six CO<sub>2</sub> storage hubs.
- World's largest CO<sub>2</sub> pipeline.
- Edmonton International Airport is investing in hydrogen initiatives to decarbonize its operations.
- Air Products is building the world's largest net-zero hydrogen network that will include the only liquid hydrogen production facility in Western Canada.

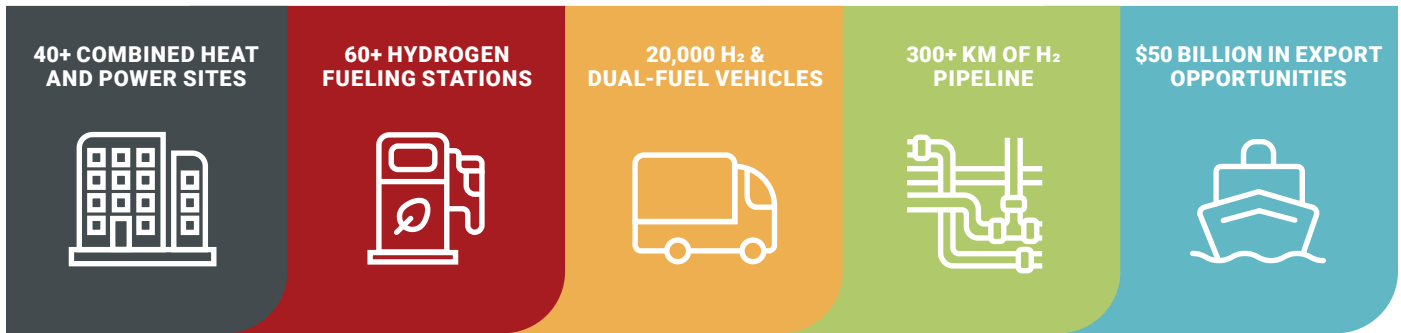
### Incentives

- Capital investment grants of up to 12% for hydrogen production under the Alberta Petrochemicals Incentive.
- Federal CCUS tax credits up to 60% for investments into equipment for CO<sub>2</sub> capture.

### Talent

- Alberta has outperformed other major provinces in Canada in per capita number of engineers, manufacturing productivity (per capita manufacturing sale), and unit labour cost.
- Post-secondary institutions are supporting innovation, working closely with industry to meet talent needs.
- The region is home to world-leading expertise in CCUS technology and clean energy.

# Planned Investments by 2032



## How We're Building a Hydrogen Economy

Industrial demand for hydrogen has spurred investment into the Edmonton region's hydrogen economy. The Edmonton Region Hydrogen HUB forecasts heat, power, and transportation to grow demand for hydrogen to 570 tons/day by 2032. Our strong industry clusters have the greatest potential for a hydrogen transition and will make the Edmonton region a leader in hydrogen use adoption.

## Ecosystem Snapshot

### DOW CHEMICAL NET ZERO ETHYLENE AND DERIVATIVES COMPLEX

- Will use low carbon hydrogen to decarbonize ethylene production.
- Decarbonizes approximately 20% of Dow's global ethylene capacity while growing polyethylene supply by around 15%.

### FUEL CELL ELECTRIC BUS DEMONSTRATIONS

The Alberta Zero Emission Hydrogen Transportation initiative is demonstrating hydrogen fuel cell transit buses in real world conditions. The City of Edmonton is exploring the conversion a large portion of its fleet to hydrogen fuel cell buses.

### ALBERTA'S INDUSTRIAL HEARTLAND

An energy cluster with world-leading hydrocarbon processing industry, including two refinery complexes with carbon capture technology and the world's largest CO<sub>2</sub> pipeline.

### EDMONTON INTERNATIONAL AIRPORT (YEG) ZERO-EMISSION FLEETS

A portfolio of projects including:

- Toyota Mirai hydrogen fuel cell, taxi and car rental fleets.
- Use of dual-fuel trucks in targeted operations.
- Installation of two new hydrogen refueling stations at the airport.
- YEG and Zero Avia will pilot the world's first hydrogen fuel cell aircraft.

### ALBERTA CARBON TRUNK LINE (ACTL)

Includes fully-integrated, large-scale CCUS system and the world's largest capacity pipeline capable of transporting 14.6 million tonnes of CO<sub>2</sub>/year.

### ALBERTA ZERO EMISSIONS TRUCK ELECTRIFICATION COLLABORATION

Canada's first-ever heavy-duty alternative fuel demonstration, including two long-range fuel cell electric trucks travelling between Edmonton and Calgary with refueling infrastructure in both cities.

### FORT SASKATCHEWAN HYDROGEN BLENDING PILOT

The pilot project will see ATCO deliver a blend of natural gas containing 5% hydrogen by volume into a subsection of the Fort Saskatchewan natural gas distribution system.

### SHELL CCUS PROJECTS

Quest has stored >7 megatons of CO<sub>2</sub> from hydrogen production facilities since 2015. Best practices from Quest will be used in Atlas CO<sub>2</sub> storage project.



### MEET WITH OUR EXPERT

## Brent Lakeman

Director, Hydrogen Initiative

+1.780.991.7439

blakeman@edmontonglobal.ca

