Investment Opportunity – Hydrogen Economy

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*

50 KM HYDROGEN PIPELINE IN THE REGION

6 NEW CO2 STORAGE HUBS ANNOUNCED

THE WORLD'S FIRST NET-ZERO HYDROGEN FACILITY

WORLD'S LARGEST LOW-CARBON HYDROGEN AND CCUS PROJECTS

EDMONTON METROPOLITAN REGION VALUE PROPOSITION

1 HUB APPROACH

- The Edmonton Region Hydrogen Hub is the first and largest in Canada.
- A hub approach will accelerate the region's hydrogen economy.
- Building a blueprint for a national hydrogen economy.

2 EXISTING INFRASTRUCTURE AND TECHNOLOGY

- Some of the largest CCUS facilities in the world.
- Six proposed CO_2 storage hubs.
- World's largest CO_2 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.

3 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.

4 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.

5 INCENTIVES

- Capital Investment grants of up to 12% for hydrogen production under the Alberta Petrochemicals Incentive Program (APIP) .
- Federal CCUS tax credits up to 60% for investments into equipment for CO_2 capture.

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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 forecasted heat, power, and transportation to grow demand for hydrogen to 570 tonnes/day by 2032.

PLANNED PROGRESS BY 2032

- 40+ COMBINED HEAT AND POWER SITES
- 60+ HYDROGEN FUELING STATIONS
- CLASS 8 TRUCKS
  - 5,000 HYDROGEN FUEL CELL ENGINE
  - 15,000 DUAL
- 325 KM OF H2 PIPELINE
- $50 BILLION IN EXPORT OPPORTUNITIES

Our strong industry clusters have the greatest potential for a hydrogen transition and will make the Edmonton region a leader in hydrogen use adoption.

DEMAND SIDE PROJECTS

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%

SHELL CCUS PROJECTS

Quest, a large-scale carbon capture facility, has stored >7 million tonnes of CO_2 from hydrogen production facilities since 2015. Best practices from Quest will be used in Shell/Suncor/ATCO Atlas CO_2 storage project.

EDMONTON INTERNATIONAL AIRPORT 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.
- EIA 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_2/year.

ALBERTA ZERO-EMISSIONS TRUCK ELECTRIFICATION COLLABORATION (AZETEC)

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 five per cent hydrogen by volume into a subsection of the Fort Saskatchewan natural gas distribution system.

FUEL CELL ELECTRIC BUS DEMONSTRATIONS

The Alberta Zero Emission Hydrogen Transportation (AZEHT) initiative will demonstrate two hydrogen fuel cell transit buses this fall. The City of Edmonton intends to convert a large portion of its fleet to hydrogen fuel cell buses.

ALBERTA'S INDUSTRIAL HEARTLAND (AIH)

An energy cluster with world-leading hydrocarbon processing industry, including two refinery complexes with carbon capture technology and the world's largest CO_2 pipeline.

Contact Edmonton Global's Brent Lakeman to receive a detailed base case with projected regional demand for hydrogen in the Edmonton Metropolitan Region.

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