

Hydrogen Value Chain Opportunities in the Edmonton Region: Manufacturing

The Edmonton region is home to Canada's largest hydrogen hub, making it the driving force of Canada's hydrogen economy. With more pilot projects than anywhere else in Canada, we're generating demand to accelerate the growth of the region's hydrogen pilot projects.



Over 580 km² industrial lands for development



Two of the world's largest industrial parks



Over \$30 billion in new hydrogen production projects



Leader in hydrogen related pilot projects



4.3% operating cost advantage over the United States

Edmonton Metropolitan Region Value Proposition

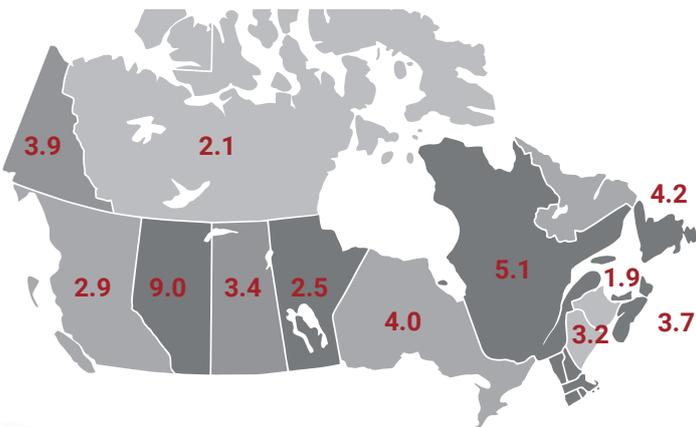
Manufacturing Infrastructure & Capacity

The Edmonton region offers:

- Over 582 km² of light, medium, and heavy industrial lands for development in Alberta's Industrial Heartland, our region has the largest fabrication space in North America.
- A multi-source hydrogen distribution network that delivers on safety, reliability and improved efficiency.
- The right infrastructure and feedstocks needed to grow a thriving hydrogen economy.

Manufacturing Productivity and Talent

- Our young and educated STEM graduates include expertise in advanced engineering, machine learning, and software development.
- Alberta graduates more engineers than any other province in Canada – by a large margin.
- Alberta leads Canada in manufacturing productivity (100.4 \$/hr) and unit labour cost (0.44 \$/GDP).
- Over 158,000 workers in manufacturing, trades, and transport sectors.
- Alberta leads Canada in per capita number of engineers.



**Engineers per
1,000 people**

Market access— an international cargo and logistics hub



Among closest major cities in North America to Asia

City	Distance to Edmonton (YEG) in Km	Distance to Seattle (SEA—closest US city) in KM
📍 Tokyo, Japan	7,852	7,675
📍 Seoul, Korea	8,413	8,394
📍 Beijing, China	8,652	8,727
📍 Guangzhou, China	10,386	10,397
📍 Manila, the Philippines	10,870	10,720

Technology & Innovation



Industry 4.0

- 35% of manufacturers in Alberta have implemented digital technologies.
- Telus is investing \$16B investment over five years to support increased IoT capabilities in Alberta.



InnoTech Alberta

- Supports small and medium-sized companies to implement advanced manufacturing and fabrication solutions.



Reinforcement Learning

- The University of Alberta is ranked 3rd globally in AI and Machine Learning research and is a world leader in Reinforcement Learning.



Trade & Export

- Average cost to build a manufacturing facility in the Edmonton region is the lowest among major urban centres in Canada.
- Business operating costs are among the lowest in North America.
- Edmonton shows a 4.3% operating cost advantage over the United States.
- In 2017, Alberta exported \$2.2 billion in machinery manufacturing – 45% originated in the Edmonton region.



Business environment

- The value added tax (VAT) in Alberta is 5% – among the lowest in Canada.
- At 8%, Alberta has the lowest provincial corporate tax rate in Canada.

Rail connections

Current CN & CP Networks (including KCS Acquisition)



Other benefits:

- The entire Edmonton Metropolitan Region is a Foreign Trade Zone.
- Custom bonded warehouses.
- Canada has 14 trade agreements with 51 countries, opening access to a market of 1.5 billion customers.

Produces some of the lowest cost, net-zero hydrogen in the world – at a global scale



The region produces more hydrogen than anywhere else in Canada.



Western Canada's centre for low cost, high quality manufacturing.



Our region is piloting the use of hydrogen across sectors, including long-haul trucking, aviation, freight rail and residential heating.



With our cost advantage in producing low carbon hydrogen, Western Canadian demand for hydrogen will be centred in the Edmonton region.