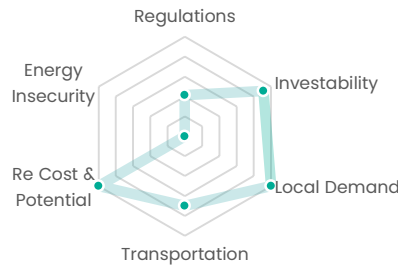
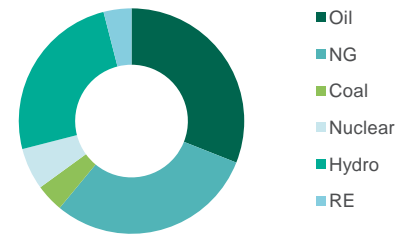


GDP - USD (trn):	1.64
GDP per capita - USD:	43,242
Land area ('000 km2):	8,966
Population density (per km ²):	4
Grid emissions factor (gCO ₂ /kWh):	130

Hydrogen Drivers Matrix



Primary Energy Mix



2.1 Regulatory commitment

- Net zero by 2050
- No meaningful hydrogen funding commitment
- No cohesive carbon pricing

3.5 Transportation

- Large exporter of ammonia today with existing ammonia export infrastructure
- Pipeline connection to US market

4.6 "Investability"

- Rated AAA by S&P
- 23rd in WB Ease of Doing Business

5.0 RE cost and potential

- Vast resources of low-cost onshore wind and hydropower

5.0 Local demand potential

- 18th largest steel manufacturing
- 11th largest oil refiner
- 8th largest ammonia producer
- Car-dependent society

0.0 Energy insecurity

- Net energy exporter

Vast wind and hydro resources, but Canada moves towards blue

Canada today is one of the top 10 grey hydrogen producers in the world at c.3mtpa, but low-carbon hydrogen developments are in early stages compared to Europe. Although Canada holds abundant onshore wind and hydro resources, and 73% of the grid is today powered by clean energy, oil and gas exports remain a bedrock of the economy and receive special federal consideration that in the past has been prioritized over the climate agenda. Canada has passed legislation for net zero by 2050, but although carbon pricing was introduced nationwide in 2019, provinces are free to adopt their own systems, which has resulted in diverging carbon prices and standards within the country. There are no clear internal or external carbon borders. The government targets a USD50bn domestic hydrogen sector by 2050 and is looking towards becoming an exporter to partners including US, Japan, Korea and Germany.

Clean hydrogen projects

Air Liquide inaugurated a 20MW PEM electrolyser in Bécancour, Québec in January, producing up to 3ktpa powered by hydro that will supply the northeast mobility market. In March this year, Canada and Germany agreed on the joint development of hydro-powered green hydrogen in Canada for export to Germany.

Oil refining & ammonia

Canada is the 8th largest ammonia producer and 11th largest oil refiner in the world, which provides a ready base of industrial offtakers that would not require substantial capex to modify downstream processes to accommodate hydrogen use.

Alberta blue hydrogen

USD2m of joint government funding is being provided for hydrogen production in Alberta. Air Products has signed an MoU with the Canadian and Alberta governments to build a new CAD1.3bn (USD1.0bn), 550ktpa gas-powered SMR hydrogen complex in Edmonton. The project plans to capture and store 95% of the carbon in the conversion process but has not addressed fugitive emissions in upstream production. Shell plans to build a large CCS project at its Scotford Complex near Edmonton, with the initial phase of operations anticipated by mid-decade. Suncor and ATCO are working on a facility in Alberta to produce more than 300ktpa of blue hydrogen, potentially by 2028.

Established supply chain cluster

Canada is recognised as a global leader in hydrogen and fuel cell technology and hosts a large cluster of hydrogen and fuel cell companies in British Columbia, encompassing a full supply chain from components through testing, equipment, engineering and financial services.