PEOPLE. GOODS. CANADA MOVES BY RAIL.
We’re the voice of Canada’s railway industry

- Representing close to 60 freight and passenger railways
- Over 100 Million passengers annually
- With 60 industrial railways and rail supply company members
- $320 billion worth of goods moved annually
Canada’s Rail Network

5th largest network in the world

12% larger than highway system

Both Class I railways operate large U.S. networks
Impact of Canada’s Railways

- **Infrastructure**: 42,865 kilometers of track operated
- **Taxes**: $2.1B paid in taxes in 2019
- **Employees**: 173,000 jobs supported by rail
- **Freight**: 455.8B revenue tonne kilometers
- **Investment**: $3.1B in private capital investment in 2019

Source: Rail Trends Database | Conference Board of Canada and RAC
National Freight Portfolio: Originated Carload Profile

- Forest & Paper Products: 35%
- Metals & Minerals: 22%
- Fuel & Chemicals: 12%
- Agriculture & Food Products: 11%
- Intermodal: 7%
- Automotive & Manufactured Goods: 7%
- Coal: 6%

Sources: Railway Association of Canada, Rail Trends 2020 (2019 data year)
Canadian Freight Rail Trade Map

Our members move half the country’s exports (by volume)

Railways move more intercity freight than any other mode of transport

Environmental Benefits of Rail

4.1 Megatonnes

Can be avoided if just 10% of truck traffic is shipped by rail instead, removing more than 3.6 million trucks off the road instead.

1 train = 300 trucks

One unit-train of freight can remove upwards of 300 trucks from our congested roads.

4x more efficient

On average, railroads are 3-4 times more fuel efficient than trucks.
In 2019, the transportation sector accounted for 217 Mt (29.7%) of Canada’s total 730 Mt of Co2e.

Railways accounted for 7.7 Mt of Co2e – only 1 percent of Canada’s total emissions, and less than 4% of total transportation emissions.

Note: Other includes propane & natural gas vehicles; off-road transportation; and marine.
Since 1990/91, both freight and intercity passenger railways have improved their emissions intensities by over 40%.
Rail Pathways Initiative:  Phase 1 – Landscape Document

• Partnership between RAC and its members, Transport Canada, Environment and Climate Change Canada, and Natural Resources Canada to identify further opportunities for decarbonization

• Objectives:

  1. Develop a common understanding of the current state of rail sector decarbonization in Canada, which can be used as a tool for collaboration between industry and government;

  2. Create a repository of current federal, provincial and territorial GHG reduction legislative instruments and activities impacting the rail sector; and

  3. Contribute to next-phase work on a roadmap to achieving future GHG reductions in Canada’s rail sector.

Rail decarbonization will look like...

- Efficiency improvements to existing and new equipment and infrastructure
- Increased blending of renewable fuels, beginning with biodiesel and then HDRD and other drop in fuels
- Increasing electrification (battery/fuel cell), in LDV, MDV fleets, yard equipment, HDV fleets and locomotives (in order)
Rail Pathways Initiative: Phase 2 – Rail Decarbonization Roadmap

• Objectives:

1. Develop an analytical framework for assessing GHG reduction opportunities in Canada’s rail sector.

2. Identify and assess potential GHG reduction measures.

3. Create a multi-stakeholder work plan and initiate a Roadmap implementation strategy.
Analytical Assessment Framework

- Commercial Readiness
- Decarbonization Potential
- Cost
- Challenges
CP Hydrogen Powered Locomotives

(Pilot Project) Launched in the Fall 2020, CP plans to develop North America's first freight-line hydrogen-powered locomotive.

• Program aims to retrofit a freight-line locomotive with hydrogen fuel cells and battery technology

• Builds on prior experience with low-emitting locomotive technologies, including biofuels, compressed natural gas and battery-powered solutions.

• Field testing commencing Q1 2022
UBC Okanagan – SRY Switcher Locomotive

• Converting a switcher from diesel-electric to hydrogen-electric power

• Partnership between University of British Columbia Okanagan School of Engineering, Southern Railway of British Columbia Ltd., Loop Energy, and Hydrogen in Motion.

• Intended to demonstrate the viability of the technology, GHG reductions and impacts to community
Hydrail Railway Transition in Canada: Technological, Operational, Economical, and Societal (TOES) Barriers and Opportunities

• Transport Canada engaged a firm to assess the implications of a conceptual transition from diesel to hydrogen as the primary fuel to power Canada’s railway services, inclusive of freight and passenger modes.

• Hypothetical transition model was constructed, consisting of a period of initial prototyping and testing of hydrail systems from present day to 2030, followed by a period of aggressive deployment to 2050.

• The cost of a full transition scenario is estimated at $30 billion in locomotive and tender equipment and infrastructure.

• The report suggests that a joint Canada-U.S. initiative involving government and industry would help advance commercialization, as the freight and passenger operations are continentally integrated.
Thank you - Merci

Comments or questions can be directed to:

Ben Chursinoff
Policy Analyst & Program Coordinator
bchursinoff@railcan.ca

Railway Association of Canada
99 Bank Street, Suite 901
Ottawa, ON K1P 6B9
(613) 564-8090
www.railcan.ca