



A True Supply Chain Enabler

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OUTLINE

Company Profile
Transportation of Biomass
Environmental Benefits
of Shipping Rail
Maximizing Supply Chain
Efficiency



Our Franchise

Unparalleled reach coupled with profound geographic and product diversity.



23,000 engaged employees



20,000 route-miles

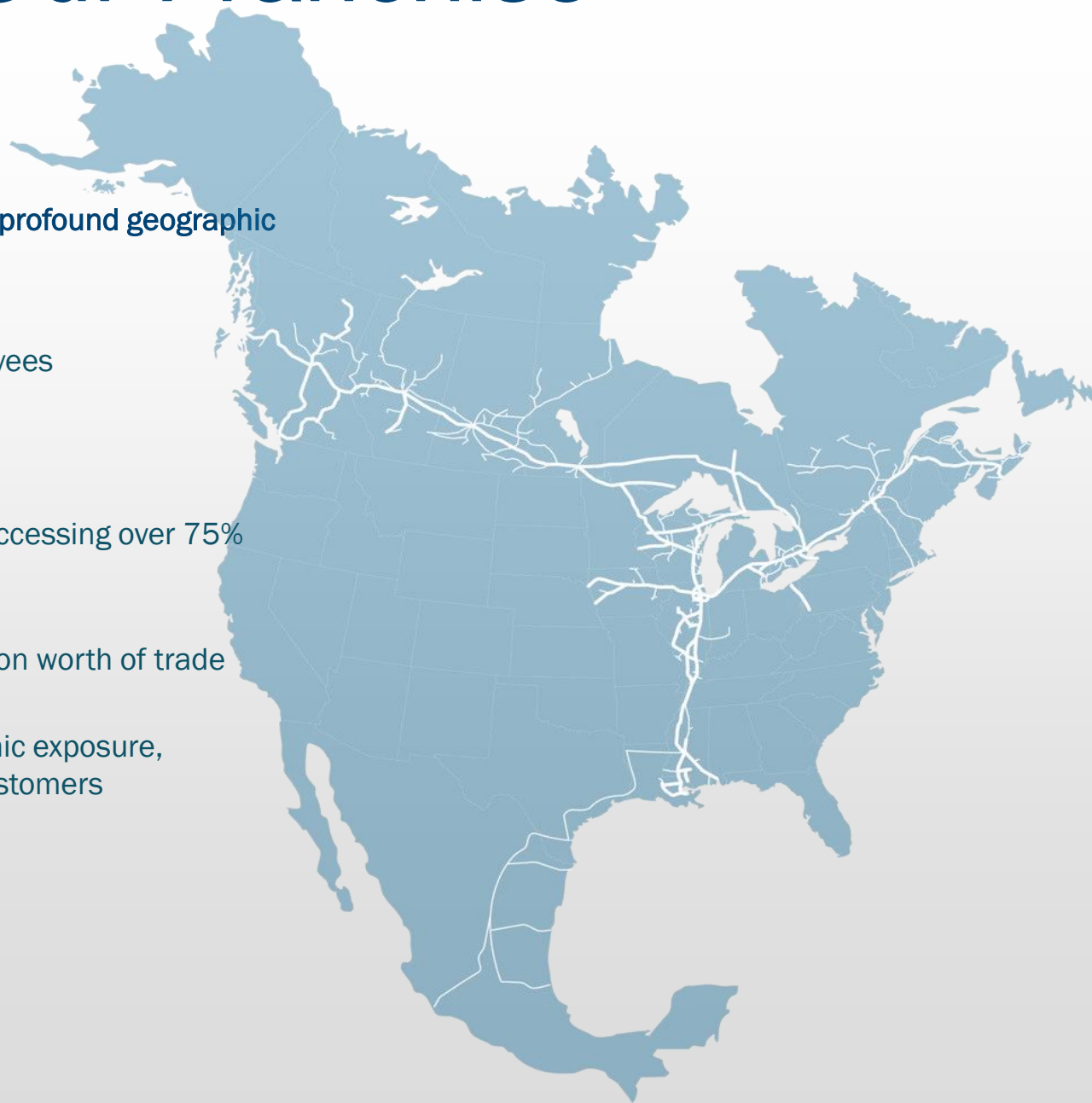


Unique 3 coast reach, accessing over 75% of NA's population



Enabling over \$250 billion worth of trade

Well diversified: economic exposure, products, geography, customers



Our Franchise

Unparalleled reach coupled with profound geographic and product diversity.

End Market Diversity

- 24% Intermodal
- 18% Petroleum & Chemicals
- 17% Grain & Fertilizers
- 16% Forest Products
- 10% Metals & Minerals
- 7% Automotive
- 5% Other Revenues
- 3% Coal

Economic Diversity

- 35% Canada/U.S. Trade
- 24% Global Trade – Asia
- 18% Domestic Canada
- 17% Domestic U.S.
- 4% Global Trade – Europe
- 2% Global Trade – South America

Based on H1 2016 revenues

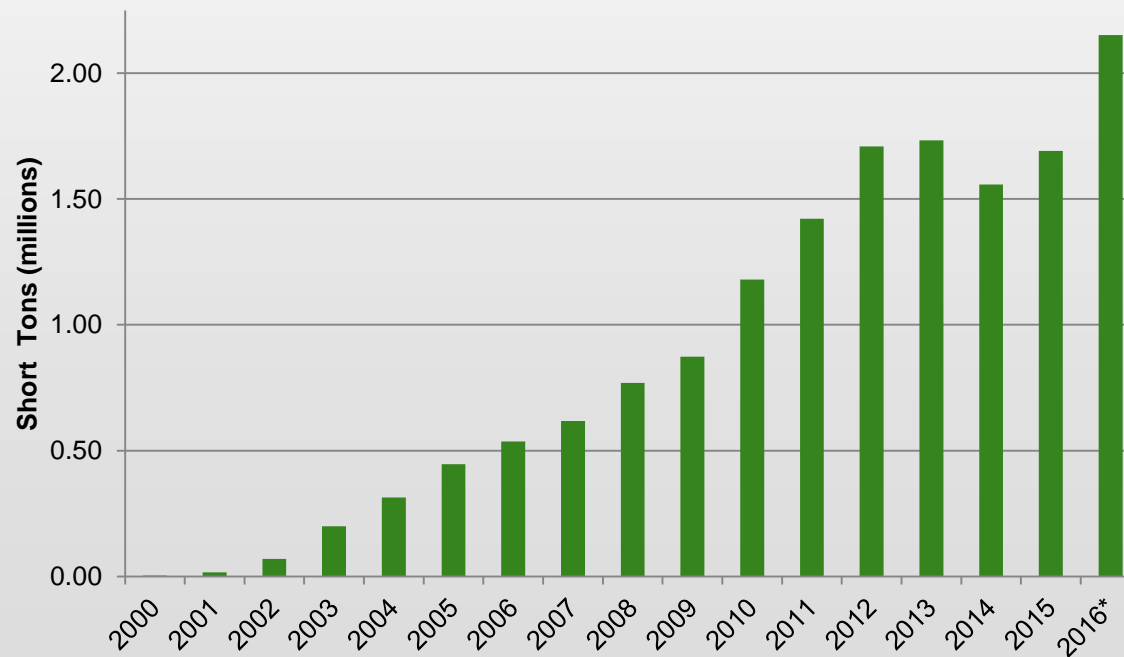


Transporting Biomass – The Case for Wood Pellets

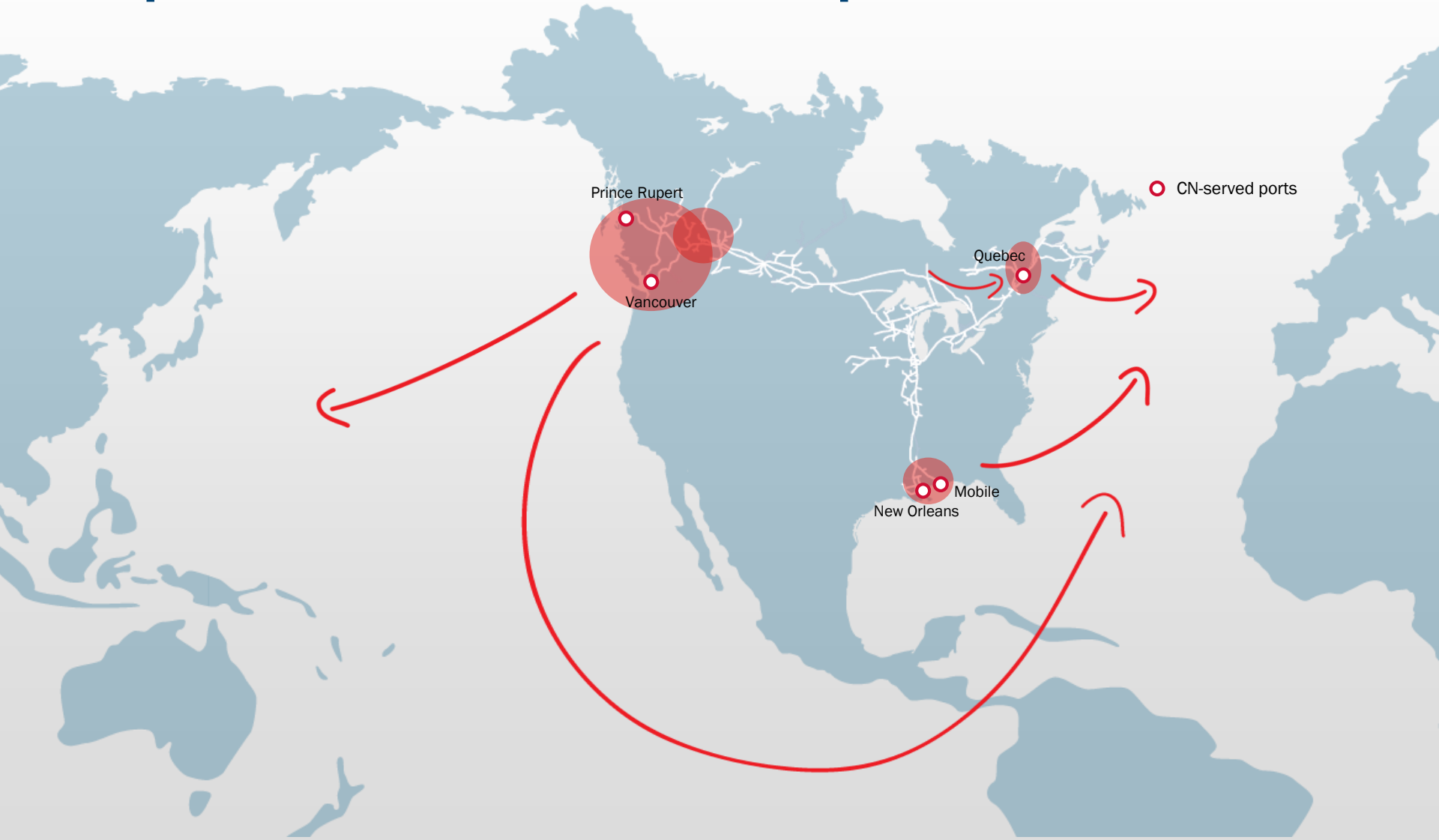


CN ships over **2.2M tons** of wood pellets annually for dozens of customers.

CN Wood Pellet Shipment Growth



We can provide direct access to Export facilities and consumption markets



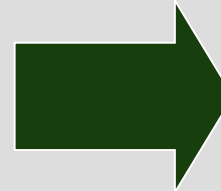
We transport wood pellets in bulk and in bags



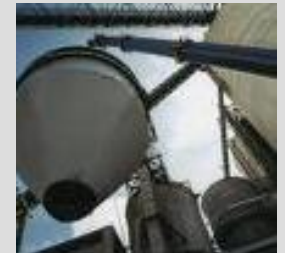
PELLET MILLS



**RAIL and
INTERMODAL**



**INDUSTRIAL
CUSTOMERS**



**BULK DISTRIBUTION
CENTERS AND
BAGGING
FACILITIES**



**BULK VESSELS AT
PORTS FOR EXPORT
TO EUROPE**



**RETAIL
OUTLETS**

Environmental Benefits of Shipping Rail



Using rail to ship your pellets supports a complete **green solution.**

Rail offers significant environmental benefits versus truck

Reduced highway
and urban congestion

280⁺ truck loads on a single train

Improved
fuel efficiency

200⁺km on one litre of fuel

Reduced
GHG emissions

4x up to 4 times less GHGs than heavy trucks

Leading the corporate response to climate change

- CN recognized for corporate action on climate change in the 2016 CDP A List
- One of only 193 companies out of thousands that submit
- Reduced locomotive carbon emission intensity by 19% since 2005
- Lead the industry in fuel efficiency



CN is 15% more fuel efficient than the industry average

Calculating total transportation emissions

Customers calculate carbon emissions savings gained by shipping with CN by using our website carbon calculator.

<http://www.cn.ca/en/delivering-responsibly/environment/emissions>



	TRUCK	RAIL	MARINE VESSEL	TOTAL
<i>Distance</i>		1,106 miles	2,726 miles	3,832 miles
<i>All modes</i>		2,959 tons CO ₂ e	3,771 tons CO ₂ e	6,730 tons CO ₂ e
<i>Vessel/Truck</i>	8,220 tons CO ₂ e	(890 truck miles)	3,771 tons CO ₂ e	11,991 tons CO ₂ e

Comparative Carbon Savings (Rail vs Truck)

Tons CO₂e reduced when you ship by rail instead of trucking over the same distance

5,261 tons CO₂e

Maximizing supply chain efficiency



Reducing supply chain emissions

Get the most out of every move

Combine freight and adapt packaging to maximize cube utilization. A fuller move is a greener move.

Redesign your logistics network

Continually optimize your network to maximize cost savings and minimize greenhouse gas emissions.

Collaborate

Root out opportunities for savings through discussions with internal departments, suppliers, customers, vendors – even competitors.

Choose the most carbon-efficient transportation mode

Favor rail over truck.

Use the most efficient carriers

CN is 15% more fuel-efficient than the industry average.

How CN helps pellets producers



Site Selection

- Optimal location
- Available sites on CN
- Rail access
- Track capacity / design
- Car storage
- Distance to port
- Service design
- Cycle time



Inbound Flow of Raw Material

- Connect pellet producer to sawmills/wood chip suppliers
- Rail transportation of raw material to wood pellet mill



Outbound Logistics Design

- Supply chain options & tradeoffs (rail distance to port vs ocean costs, cycle times, depth of water, terminal operator availability, etc.)
- Trip plan and cycle time for fleet sizing
- Track weight restrictions
- Rail transportation



Export Terminal

- Connect pellet producer to terminal operators
- Jointly set operating parameters based on service requirements

How CN helps pellets producers



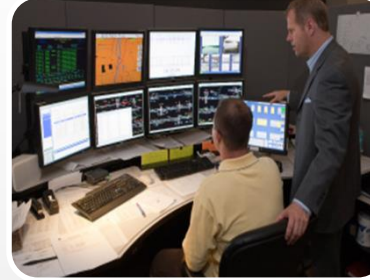
Equipment Sourcing

- Advise on specs of cars (dimensions, loading capacity, etc.)
- Size of fleet
- Connect to leasing suppliers



Origin Transload

- Connection to railroad for mills who are not rail served
- CN owned or partner facility
- Feasibility for establishment of new transloads



Transportation Management

- Order railcars
- Coordinates among all vendors
- Track cars to ensure they are progressing according to schedule
- Provides reporting to the customer
- Manage fleet pipeline



Customs Brokerage

- In addition to International Freight Forwarding
- Fully managed customs clearance and brokerage services

IN CLOSING

Biomass is railroad friendly due to high volume, consistent shipments patterns and lower value per tonne

Service consistency and reliability

Rail is a greener way to transport green energy





www.cn.ca/environment

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