



Wabtec Overview

DoE: Gaseous H2 Workshop February 2022

WABTEC

Global leader in freight and transit rail technologies



+50 COUNTRIES

~25k EMPLOYEES

FREIGHT: 67%

27%
Freight Services

20%
Freight Equipment

11%
Components

9%
Digital Electronics

TRANSIT: 33%

PORTFOLIO

\$7.6B

2020 REVENUE

33%
Transit

MARKET
~60%
Aftermarket

GEOGRAPHY
~60% Non-U.S.
Revenues

Rail is well-positioned to tackle world's freight challenges

RAIL VS TRUCKS TODAY

The freight rail network is already considered the largest, safest, and greenest means of transporting goods throughout the world.

TODAY



CARBON REDUCTION

5x less carbon emissions per ton mile



SAFER

22x fewer deaths and injuries per year than trucking



MORE EFFICIENT

3-4x more fuel efficient than trucking

50% SHIFT TO RAIL

~5 BILLION

gallons of fuel eliminated / year

~60 MILLION

5x less carbon emissions per ton mile

~18 MILLION

fewer truckload trips / year

~14 MILLION

fewer injuries or deaths from truck accidents / year

WABTEC

Changing the course on emissions

Wabtec is leading the charge to a low- to zero-emissions rail network with heavy-haul battery-electric locomotives

1st

7MWh

30%

100%
BATTERY-ELECTRIC
LOCOMOTIVE
WORLDWIDE

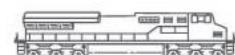
MORE THAN
7MWH
CAPACITY

UP TO 30%
FUEL & EMISSIONS
SAVINGS



Roadmap to Carbon-zero Locomotives

HYDROGEN AVAILABILITY

GREY H₂BLUE H₂GREEN H₂

Diesel-Electric

(Bio-Diesel and Renewable Diesel)

TODAY

Battery-Electric
Operating in ConsistBattery-Electric
LeadLOCOMOTIVE CARBON
EMISSIONS

2015

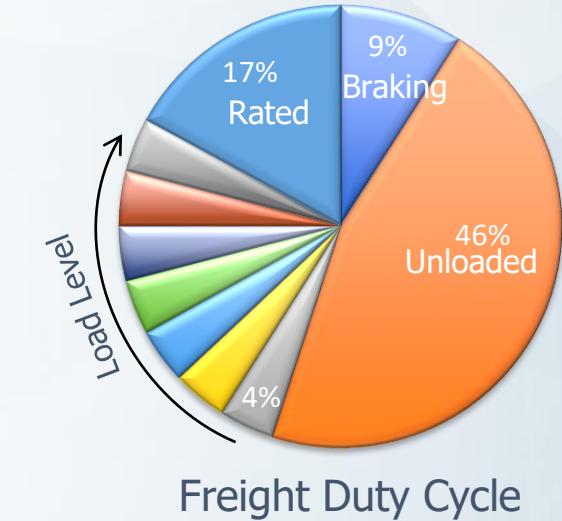
2020

ZERO
CARBON 2030Hydrogen
Fuel Cell

Locomotive Operation

Aggressive Duty Cycle

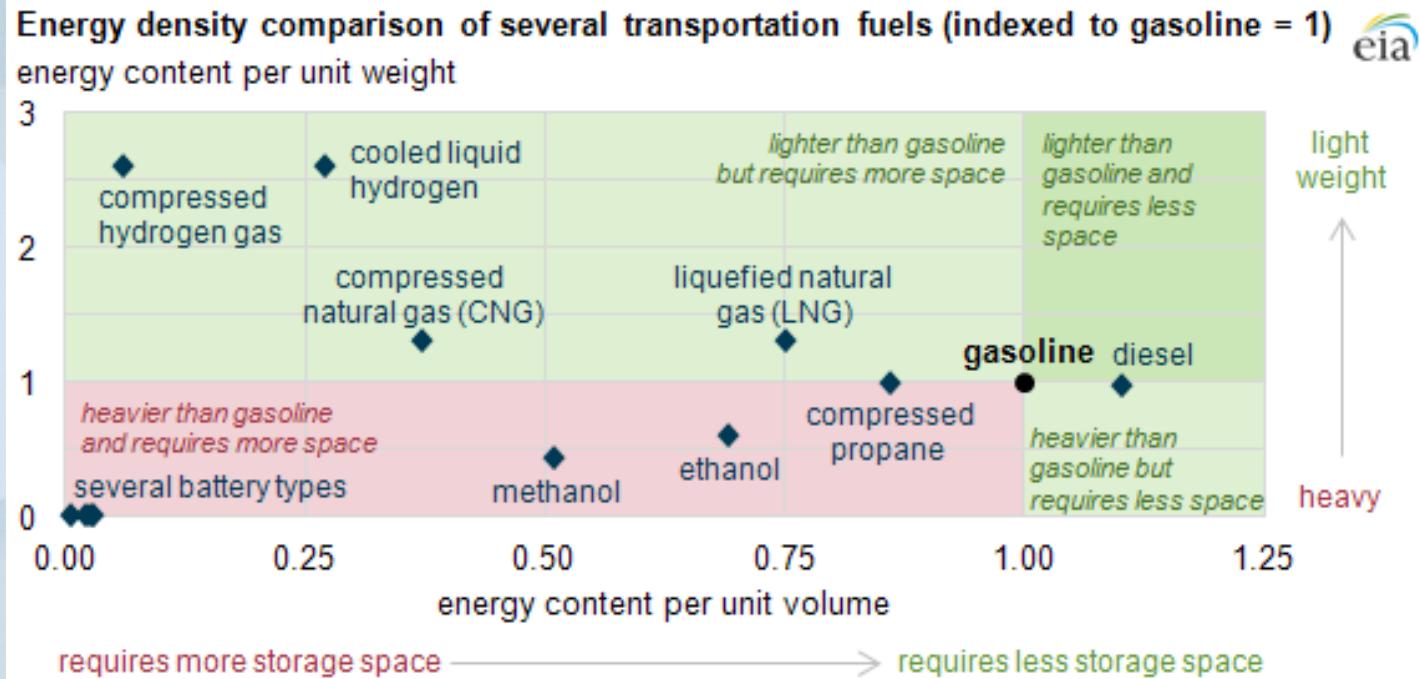
MWh/Yr	:	3500-4000
Power (kW)	:	~3300
Loco Operation	:	30+ Yrs.
Rated Power	:	17%+ usage
Daily Uptime	:	80%+
Diesel used/yr	:	~250,000 gals
Refuel freq.	:	~1 week/fill



Temperature : -40°F to >120°F
Altitude : 0 to 10,000+ ft

Extreme Conditions

Energy Density walk



Diesel

- ~70 MWh per tank

Energy Density Comparison

