

The Environmental Benefits of Moving Freight by Rail

ASSOCIATION OF AMERICAN RAILROADS

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Summary

Railroads are the most environmentally sound way to move freight over land. On average, **trains are four times more fuel efficient than trucks.** They also **reduce highway gridlock, lower greenhouse gas emissions, and reduce emissions of particulate matter and nitrogen oxides.** Through the use of greener technologies and more efficient operating practices, our nation's privately owned freight railroads are committed to even greater environmental excellence in the years ahead.

Freight Railroads and Fuel Efficiency Go Hand in Hand

Freight railroads are the environmentally friendly way to move freight:

- ✓ In 2017, U.S. freight railroads moved a ton of freight an average of **479 miles per gallon of fuel** — up from 235 miles in 1980, 332 miles in 1990, and 396 in 2000 (see Figure 1).
- ✓ On average, railroads are **four times more fuel efficient than trucks**, according to an independent study for the Federal Railroad Administration.
- ✓ Greenhouse gas emissions are directly related to fuel consumption. That means **moving freight by rail instead of truck lowers greenhouse gas emissions by 75 percent.**
- ✓ If just 10 percent of the freight that moves by Class 7 or Class 8 (the largest) trucks moved by rail instead, fuel savings would be around **1.5 billion gallons per year** and **annual greenhouse gas emissions would fall by approximately 17 million tons** — equivalent to removing around 3.2 million cars from the highways for a year or planting 400 million trees.

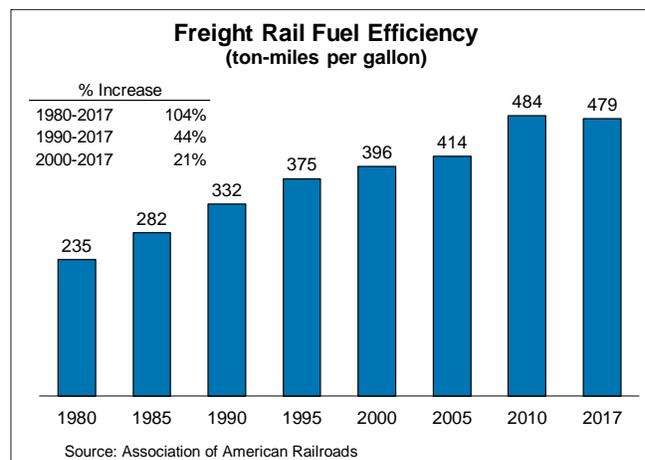


Figure 1

A Multi-Faceted Approach to Conserving Fuel

U.S. freight railroads' volume in 2017 was much higher than it was in 1980, but their fuel consumption was much lower. How did railroads do this? Through technological innovations, new investments, improved operating practices, and a lot of hard work. Steps railroads have taken individually or collectively include:

- ✓ Acquired thousands of **new, more efficient locomotives** and removed from service thousands of older, less fuel efficient locomotives.
- ✓ **Increased the amount of freight in rail cars and on trains.** Thanks to improved freight car design, the use of longer trains, and other factors, the amount of freight railroads carried in an average train in 2017 was 3,630 tons, up from 2,923 tons in 2000.
- ✓ Developed and implemented **highly advanced computer software systems** that, among other things, calculate the most fuel-efficient speed for a train over a given route; determine the most efficient spacing and timing of trains on a railroad's system; and monitor locomotive functions and performance to ensure peak efficiency.
- ✓ Installed idling-reduction technologies, such as **stop-start systems** that shut down a locomotive when it is not in use and restart it when it is needed, and expanded the use of **distributed power** (positioning locomotives in the middle of trains) to reduce the total horsepower required for train movements.
- ✓ Provided **employee training** to help locomotive engineers develop and implement best practices and improve awareness of fuel-efficient operations.

Freight Railroads Fight Highway Gridlock

Railroads help reduce the huge economic costs of highway congestion:

- ✓ According to the Texas Transportation Institute's 2015 Urban Mobility Scorecard, **highway congestion cost Americans \$160 billion** in wasted time (6.9 billion hours) and wasted fuel (3.1 billion gallons) in 2014. Lost productivity, cargo delays, and other costs add tens of billions of dollars to this tab.
- ✓ **A single freight train, though, can replace several hundred trucks**, freeing up space on the highway for other motorists. Shifting freight from trucks to rail also **reduces highway wear and tear and the pressure to build costly new highways.**

