

# 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. On average, trains are four times more fuel efficient than trucks. They also reduce highway gridlock, lower greenhouse gas emissions, and reduce pollution. Railroads are committed to even greater environmental excellence in the years ahead through the development and use of greener and cleaner technologies and more efficient operating practices.

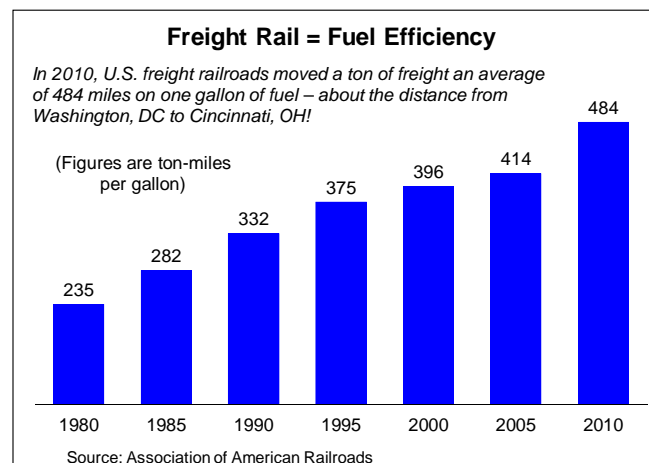
## Freight Railroads Mean Greater Fuel Efficiency

Freight railroads and fuel efficiency go hand in hand. In 2010, U.S. freight railroads — which are privately owned and operated — moved a ton of freight an average of **484 miles per gallon of fuel**. Railroad fuel efficiency is **up 106% since 1980**.

On average, railroads are **four times more fuel efficient than trucks**, according to a recent independent study for the Federal Railroad Administration. If just 10 percent of the long-distance freight that moves by truck moved by rail instead, fuel savings would exceed **one billion gallons per year**.

In recent years, railroad freight volume has been nearly double what it was in 1980 — but railroads' fuel consumption has been about the same as in 1980. How did railroads do this? Through technological innovations, improved operating practices, and a lot of hard work, including:

- Dramatically **increasing how much freight is in an average rail carload and average train**. Thanks to improved freight car design and other factors, the average freight train carried a record 3,585 tons of freight in 2010, up 61 percent since 1980.
- Acquiring thousands of **new, more efficient locomotives**, including many “gensets” that have several independent engines that turn on and off depending on how much power is needed to perform a particular task. Many older, less fuel efficient locomotives have been retired from service.
- Installing new idling-reduction technologies, such as **auxiliary power units** that provide secondary power to a locomotive (allowing the main diesel engine to be shut down) and **stop-start systems** that shut down a locomotive when it is not in use and restart it when it is needed.



- Developing and implementing **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.
- Offering **employee training** and **incentive programs** to help locomotive engineers develop and implement best practices and improve awareness of fuel-efficient operations.
- Expanding the use of **distributed power** (positioning locomotives in the middle of trains) to reduce the total horsepower required for train movements.
- Improving **rail lubrication** to reduce friction at the wheel-rail interface, saving fuel and reducing wear and tear on track and locomotives.

### Freight Railroads Mean Lower Greenhouse Gas Emissions

Greenhouse gas emissions are directly related to fuel consumption. Since railroads are, on average, four times more fuel efficient than trucks, **moving freight by rail instead of truck lowers greenhouse gas emissions by 75 percent.**

If just 10 percent of long-distance freight now moving by truck moved by rail instead, annual greenhouse gas emissions would fall by more than 12 million tons. That's equivalent to taking **2 million cars off the road** or **planting 280 million trees.**

America's seven largest freight railroads have joined the Environmental Protection Agency's "SmartWay Transport" partnership aimed at improving fuel efficiency and reducing greenhouse gas emissions.

### Freight Railroads Mean Less Highway Gridlock

Railroads help **reduce the huge economic costs** of highway congestion.

According to the Texas Transportation Institute, in 2009 **congestion on America's highways cost \$115 billion** just in wasted time (4.8 billion hours) and wasted fuel (3.9 billion gallons). Lost productivity, cargo delays, and other costs add tens of billions of dollars to this tab.

**A single freight train, though, can carry the load of 280 or more trucks**, equivalent to making room on our highways for more than 1,100 cars. Shifting freight from trucks to rail also reduces highway wear and tear and the pressure to build costly new highways.

### Freight Railroads Mean Less Pollution

Moving freight by rail rather than truck significantly reduces harmful emissions. In March 2008, the EPA issued stringent new locomotive emissions standards that will **cut emissions of various pollutants by up to 90 percent.**

