

FACT OR FICTION? RAILROADS ARE THE CHAMPIONS OF FUEL EFFICIENCY



A towboat pushes barges on the Chicago Sanitary and Ship Canal. TRAINS: Matt Van Hattem

Here is one of the great untold railroad success stories: In 1980, when railroading was still a fragile industry, it began a desperate effort to become more fuel efficient. As time passed, the efficiency push grew even more intense for a different reason: escalating fuel prices. The end result? In 2007, railroads hauled almost double the ton-miles of 1980, but used only about 3 percent more fuel (as detailed in the chart below).

How did they do it? For one thing, today's locomotives are more powerful and twice as fuel efficient as ones built in the 1960s and '70s. Railroads have also increased the amount of tonnage that can be carried in each freight car by using newer and better types of steel to lower the empty weight of the car, notes John T. Gray, senior vice president-policy and economics for the Association of American Railroads. For instance, a coal car now might weigh 30 tons empty, down from 40 tons. That means the car can haul 110 tons of coal rather than 100 tons, while producing the same wear on the rail.

"Most of the fuel efficiency improvements took place back when fuel was relatively cheap," Gray says. "We were doing this long before it was a national fad, and we also know that you have to work on it for little increments over a long period of time to make a difference." How do you measure fuel efficiency? "We compute the number simply by dividing total revenue ton-miles by total gallons used," Gray says.

Now the downside: The price of diesel fuel rose from 57 cents to \$2.18 per gallon in just the decade ending in 2007, meaning the fuel bill rose even faster than the impressive efforts railroads made at fuel conservation.

Yet railroads are not the champions of fuel efficiency. That title goes to barges. The big loser is trucks, although truck power plants have made impressive gains in efficiency.

A barge industry study found that inland towing carries 1 ton of freight 576 miles on 1 gallon of fuel, while railroads can go 413



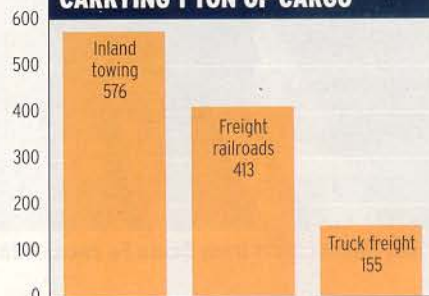
Engineer Brad Jolliffe starts Ontario Southland M420 No. 647 at Guelph in 2003. Ron Bouwhuis

miles, and trucks 155 miles. This is strictly the weight of the freight, not the weight of the vehicle used. However, it includes all fuel consumed, even if idling or engaged in empty backhauls. (Backhauls consumed 30 percent of the fuel used by railroads, the study notes, while another 10 percent was used in yard service, and about 4 percent during idling.)

The study was produced in 2007 by the Texas Transportation Institute using 2005 data, a year when freight railroads consumed 4.1 trillion gallons of fuel (about the same amount they used in 2007). The report does not appear to be skewed to make barges look better, and the rail industry does not take serious issue with it, although the AAR performed its own calculations with 2007 data, and came up with a figure of 436 ton-miles per gallon for freight trains, reflecting the continuing increase in railroad ton-miles.

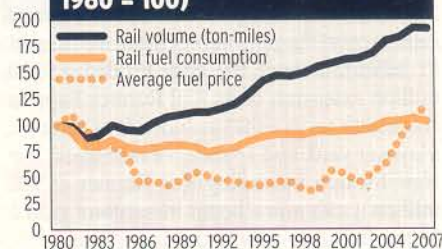
"Barges should be much better than they are," Gray adds. The reason? Many towboats have older diesel engines similar to the railroads' gas-guzzling F units of the 1950s — and they sound about the same. Cash-strapped barge lines are slowly replacing these, however. — Don Phillips

MILES PER GALLON CARRYING 1 TON OF CARGO



Source: "A Modal Comparison of Domestic Freight Transportation Effects on the General Public," Texas Transportation Institute, 2007

DOUBLE THE FREIGHT ON THE SAME AMOUNT OF FUEL (as a percent of 1980 figures; 1980 = 100)



Source: AAR