

Reducing highway speed by five miles per hour can cut fuel use and greenhouse gas emissions by over seven percent while extending the life of a truck's engine, tires and brakes. A long-haul truck with 90 percent highway operation that reduces its top speed from 70 to 65 miles per hour could cut its annual fuel bill by \$1,450 while eliminating nearly ten metric tons of greenhouse gas reductions.

What is the challenge?

A typical combination truck spends 65 percent or more of its operating time at highway speeds. Line-haul trucks spend even more time on highways. The impact of speed on fuel economy depends upon many factors including vehicle aerodynamics, engine speed and operating conditions. As a general rule of thumb, increasing speed by one mile per hour reduces fuel economy by about 0.1 miles per gallon. For a truck with poor aerodynamics, the fuel penalty may be nearly twice as great. Higher speed also leads to higher maintenance costs by increasing wear on the engine, tires and brakes.

What is the solution?

Speed management is an easy and effective way to save fuel, reduce emissions, and prevent excess wear. A trucking firm or driver can adopt a speed policy at little or no cost. The most successful speed management policies combine technology (e.g., speed settings on electronic engine controls) with driver training and incentive programs to encourage drivers to maintain speed limits. Most new truck engines are electronically controlled so the cost of changing maximum speed settings on these engines is negligible.

The results are in . . .

Although fuel savings may vary by vehicle and speed range, a national trucking association estimates that a combination truck driving 55 miles per hour uses up to 20 percent less fuel than a similar truck driving 65 miles per hour. Other analyses indicate that reducing the maximum speed of a typical long-haul truck from 70 miles per hour to 65 miles per hour could save about \$1,450 in annual fuel costs. Reducing the maximum speed to 60 miles per hour could save an additional \$1,850, bringing the estimated annual savings to \$3,300.

Reducing speed can cut truck maintenance costs and reduce the frequency of maintenance work. The time between engine overhauls, for example, is directly related to fuel use. Holding maximum speeds at 60 rather than 70 miles per hour reduces engine

wear and extends time between engine rebuilds, saving hundreds of dollars per truck each year while keeping revenue-earning equipment on the road. Fleets that adopt speed policies report added savings due to fewer brake replacements and other service work.

Reducing highway speed does increase travel time. Assuming ideal conditions, a trucker driving 60 miles per hour instead of 65 miles per hour could spend about eight percent longer on the road. Of course, the time difference may be less, depending upon road conditions, weather, traffic congestion, and road construction. If a trucking company pays its drivers by the mile or by the load rather than by the hour, reducing speed should not increase labor costs. It could reduce the productivity of trucking operations since slower trucks may carry fewer loads. However, the benefits of lower fuel and maintenance costs combined with less frequent out-of-service work and driver safety considerations may well outweigh any costs associated with increased delivery time.

Next steps

A trucking company interested in saving fuel and lowering the cost and frequency of its equipment maintenance should consider adopting a speed management policy, particularly if its trucks spend considerable time on highways. A number of well-managed truck fleets have programs in place to reduce highway speed and promote safe driving by using driver training, incentive programs and electronic engine controls. A trucking fleet interested in following these examples may learn more by reading articles and fleet profiles in truck industry publications. When purchasing new vehicles, a trucking company may also consider specifying equipment designed to optimize truck performance at lower maximum speeds. Trucking companies and drivers interested in learning more about the effects of speed on fuel economy may contact truck and equipment manufacturers or their state and national trucking associations.