Union of Concerned Scientists

EXECUTIVE SUMMARY

Engines for Change

From Cell Phones to Sodas, How New Truck Standards Can Improve the Way America Ships Goods

HIGHLIGHTS

Recent analysis shows that strong fuel economy and greenhouse gas standards could improve the efficiency of the average new truck by 40 percent in 2025, as compared to 2010. The fuel economy of today's trucks have barely budged since the 1970s, even as technology has improved. New standards would save truck owners money and save consumers in freight costs, helping to grow the economy while improving national security by reducing oil consumption and global warming emissions.

The United States moves more than $10 trillion worth of goods by truck each year. Nearly every product we buy—from the bed in which we awoke this morning, to the clothes we are dressed in, to the cell phone in our pocket, to the breakfast food that helps us start the day—has been on a truck at some point.

While trucks carry everything from food to fuel, and from industrial equipment to animal feed, **more than a third of the fuel used by trucks to move freight brings consumer goods to market**. That means the fuel efficiency of trucks directly affects the costs, oil use, and global warming emissions linked to the items we purchase and use every day.

The amount of fuel used to ship everyday products is staggering. Trucking the food we eat to local stores and restaurants requires more than 2.5 billion gallons of fuel. And transporting the gasoline used to do things like grocery shopping in the first place? That requires fuel, too—263 million gallons just to truck that fuel to gas stations so we can fill up our vehicles. Even trucking the 163 million cell phones sold in the United States every year to retailers and consumers uses nearly half a million gallons of fuel (Table ES-1, p. 2).

Heavy-duty trucks use more fuel to move freight around the country—getting food and beverages to supermarkets, transporting construction materials, and bringing orders from retailers to our door—than for any other purpose. **And freight shipments consume more than 21 billion gallons of fuel annually—almost 70 gallons for every U.S. resident**.

Fortunately, we have a tremendous opportunity to reduce fuel use by setting standards that boost the fuel economy of heavy-duty trucks by more than 40 percent by 2025. The use of these fuel-efficient trucks and advanced technologies—

The average tractor-trailer gets just 6 miles per gallons when it's driving down the highway to deliver goods. New fuel economy standards can improve that, cutting fuel use from new trucks by 40 percent over the next 10 years.

available now and over the next decade—would cut fuel costs for carriers, shippers, and consumers alike while slashing global warming emissions.

ECONOMIC BENEFITS OF MORE EFFICIENT TRUCKS

Stronger standards could raise the average fuel economy of trucks used to ship goods around the country from 6.3 mpg to 10.7 mpg. And that, in turn, would reduce fuel use by billions of gallons annually and prevent tens of millions of metric tons of global warming emissions (Figure ES-1).

Many different types of companies move freight. For-hire carriers such as UPS and FedEx move goods for other companies—whether imported goods from a central distribution center to some of the largest retailers in the country, or packages from retailers to your doorstep.

Other companies, including some of America's biggest brands, such as Coca-Cola, Pepsi, and Walmart, own their own truck fleets. That enables them to respond quickly to changes in consumer demand and ensure that perishable products arrive without delay.

No matter what type of trucking firm, the savings from deploying cost-effective fuel economy technologies quickly add up. Owners of more efficient tractor-trailers would save $30,000 in fuel costs for each truck each year, for example, enabling them to quickly recoup the estimated $32,000 they would spend on efficiency upgrades. **These owners would save about $170,000 over the lifetime of each vehicle, compared with trucks on the road today, even after accounting for the higher up-front costs**.

A 40 percent drop in fuel use by trucks could reduce freight rates by nearly 10 percent. If truck owners and retailers passed on just half the fuel savings from more efficient trucks to consumers, each household would have $135 more to spend each year, based on today's freight volumes. And with the projected growth in the movement of goods, truck owners and households would likely save even more.

> ***Heavy-duty trucks use more fuel to move freight around the country than for any other purpose.***

Tighter fuel efficiency standards for trucks would create tens of thousands of jobs and add billions to the U.S. gross domestic product. Stronger standards would create jobs directly—through investments in fuel-saving technologies—and indirectly, as companies and consumers spend their savings in other sectors of the economy. And reducing fuel use and global warming emissions from the movement of goods would also bolster national security.

STRONG STANDARDS ARE CRITICAL TO OVERCOMING MARKET BARRIERS

In 2011, the Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) issued the first-ever standards regulating the fuel economy and global warming emissions of heavy-duty trucks. Despite the large amount of fuel used by this sector, no regulations previously existed to ensure that efficiency technologies were being deployed to minimize fuel use. That is a key reason why the fuel economy of tractor-trailers has hovered around just 6 miles per gallon since the 1970s.

The new standards, which took effect in 2014, require manufacturers to improve the fuel efficiency of new trucks by

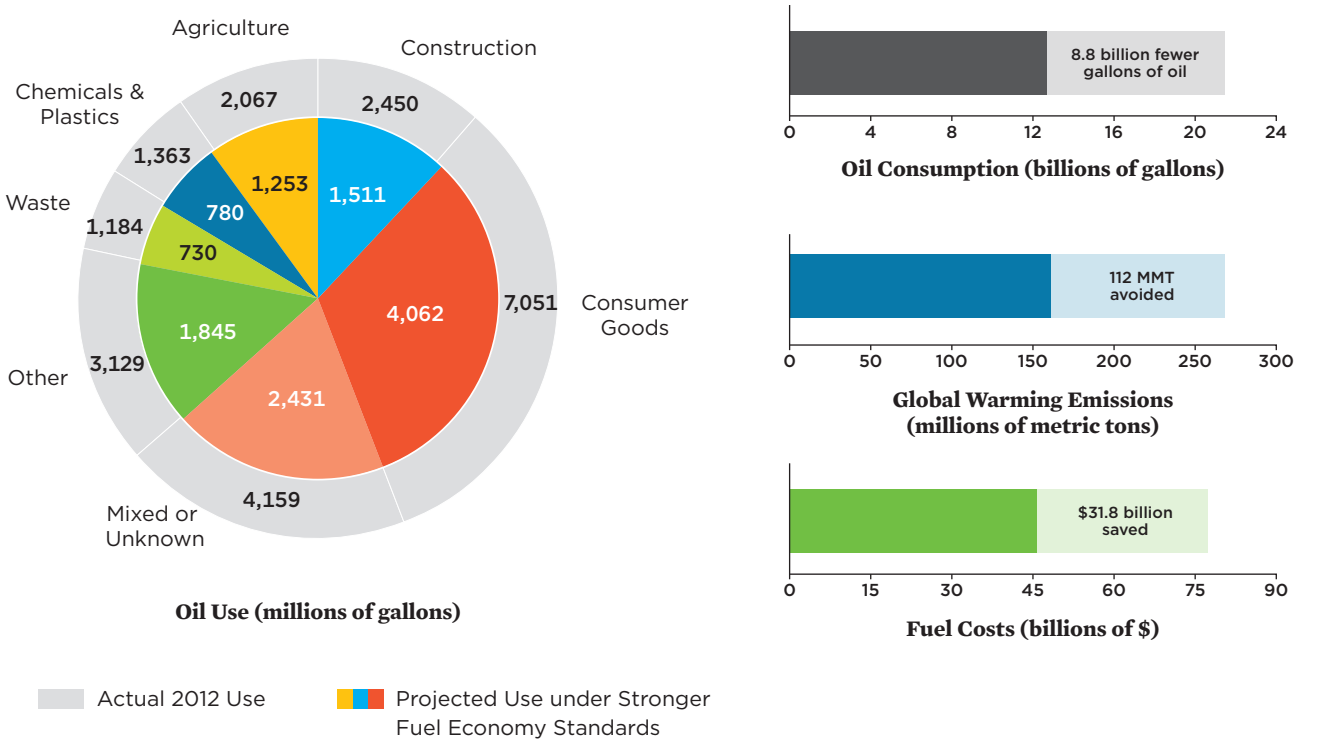
TABLE ES-1. Fuel Used to Ship Consumer Goods

Product	Quantity Sold	Fuel Use (gallons)
Cell Phones	163 million	0.4 million
Shoes	316 million pairs	2.2 million
Cars and Trucks	16.4 million	114.9 million
Diapers	14.7 billion	2.4 million
Beer	48.7 billion pints	62.8 million
Wine	4.5 billion bottles	10.9 million
Gasoline	135 billion gallons	262.6 million

Nearly every one of the products we use every day spent time on a truck, from the shoes on our feet to the cell phone in our pocket. The heavy-duty trucks used to ship these products burn 21 billion gallons of fuel each year.

SOURCE: BREWERS ASSOCIATION 2014; EIA 2014A; MAWSTON 2014; NIELSEN CO 2013; RICHER N.D.; WARDSAUTO 2015; WINE INSTITUTE 2014; OUR ANALYSIS (FUEL USE).

FIGURE ES-1. Reductions in Fuel Costs, Oil Use, and Global Warming Emissions, from Shipping Commodities Using More Efficient Trucks



Shipping nearly 20 billion tons of freight around the country each year consumes over 21 billion gallons of oil (outer pie chart). Stronger standards for fuel economy and global warming emissions from trucks could shrink the amount of oil used for the shipment of commodities that Americans use every day by over 40 percent (inner pie chart). If today's trucks met these standards, fuel costs would be reduced by over $30 billion, savings for truck owners which could be passed on to consumers via reduced shipping rates. Moving the same quantity of goods, trucks that met these standards would reduce petroleum consumption by over 570,000 barrels of oil a day, which is more than the oil produced by Alaska. Not only would this reduction in petroleum consumption save money, but it would prevent over 110 million metric tons of global warming emissions annually, equivalent to shutting down 30 coal-fired power plants.

Notes: MMT=Millions of metric tons of carbon dioxide-equivalent. "Other" commodities include metals, minerals, machinery, and miscellaneous manufactured goods.

16 percent by 2018, compared with new trucks sold in 2010. However, our analysis shows that the average new truck could become 40 percent more efficient by 2025 by employing technologies that are both technically feasible and cost-effective.

Fuel expenditures are one of the largest concerns of any shipper. However, most for-hire carriers limit their exposure to volatility in fuel prices by imposing a fuel surcharge on the goods they transport. Retailers, in turn, typically pass on these fuel surcharges to consumers. That means for-hire truckers have less incentive to invest in technologies that reduce the fuel use from heavy-duty trucks.

The owners of private fleets of heavy-duty trucks have a greater incentive to buy more efficient vehicles. However, a stricter fuel economy standard would ensure that manufacturers bring more fuel-efficient trucks and advanced, cost-effective technologies to market faster. That, in turn, would enable these fleet owners to reduce both their costs and their exposure to volatility in fuel prices.

TAKING ACTION PAYS OFF

Stronger standards are essential to overcome the market barriers that have kept the fuel economy of new trucks stagnant for so long. Standards that ensure that heavy-duty trucks are 40 percent more efficient by 2025 will save carriers, shippers, and consumers billions of dollars in fuel costs, putting money back in their pockets. Stronger standards will also cut U.S. oil use and millions of metric tons of carbon emissions, curbing the global warming impact of moving goods by truck.

TABLE ES-2. Estimated Savings for Five Major Fleets Under Strong Standards

Fleet	2013 Fuel Use	Potential Fuel Savings		Avoided Global Warming Emissions	
	M gallons	millions $	M gallons	kMT	
FedEx	439–485	$571.1	173	2,241	38%
UPS	374–413	$456.3	139	1,794	35%
Coca-Cola	99–110	$146.0	44	573	42%
PepsiCo	182–201	$237.8	72	924	38%
Walmart	96–106	$132.2	40	519	40%

FedEx, UPS, Coca-Cola, PepsiCo, and Walmart operate five of the largest fleets in the country, consuming more than a billion gallons of fuel annually. New fuel economy standards could help reduce the fuel usage of these fleets by over 500 million gallons, saving $1.7 billion in fuel and preventing 6.7 million metric tons of global warming emissions annually.

Notes: M gallons = millions of gallons; kMT = thousands of metric tons of CO_2-equivalent.

Because diesel fuel is the overwhelming majority of fuel used by these truck fleets (95 percent on an energy-basis), fuel usage is given in millions of gallons of diesel-equivalent. Financial savings assume fuel prices projected out to 2020 by the Energy Information Administration (EIA 2014b) discounted by 10% to reflect private fuels contracts (e.g., $3.31 per gallon of diesel fuel).

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NATIONAL HEADQUARTERS
Two Brattle Square
Cambridge, MA 02138-3780
Phone: (617) 547-5552
Fax: (617) 864-9405

WASHINGTON, DC, OFFICE
1825 K St. NW, Suite 800
Washington, DC 20006-1232
Phone: (202) 223-6133
Fax: (202) 223-6162

WEST COAST OFFICE
500 12th St., Suite 340
Oakland, CA 94607-4087
Phone: (510) 843-1872
Fax: (510) 843-3785

MIDWEST OFFICE
One N. LaSalle St., Suite 1904
Chicago, IL 60602-4064
Phone: (312) 578-1750
Fax: (312) 578-1751

WEB: www.ucsusa.org