

Cars and Climate Change: How Automakers Stack Up

Transportation is one of the biggest sources of carbon dioxide (CO₂) emissions contributing to global warming. Nearly one third of U.S. CO₂ emissions comes from transportation, and most of those (62%) come from automobiles (cars and light trucks). A new Environmental Defense report, *Automakers' Corporate Carbon Burdens: Update for 1990-2005*, reveals how, in spite of technology advances, CO₂ emissions from cars continue to grow with little restraint. In fact, if considered as a nation, U.S. automobiles alone still emit more than the total emissions of all but three other countries in the world.

The growth in emissions was driven largely by the increasing popularity of light trucks such as SUVs. Higher gas prices and the small rise in CAFE standards have slightly slowed the growth of emissions. On the other hand, loopholes and gaps in fuels policy have worsened emissions to date and—with some exceptions—technology advances have gone to increasing vehicle horsepower rather than cutting global warming pollution.

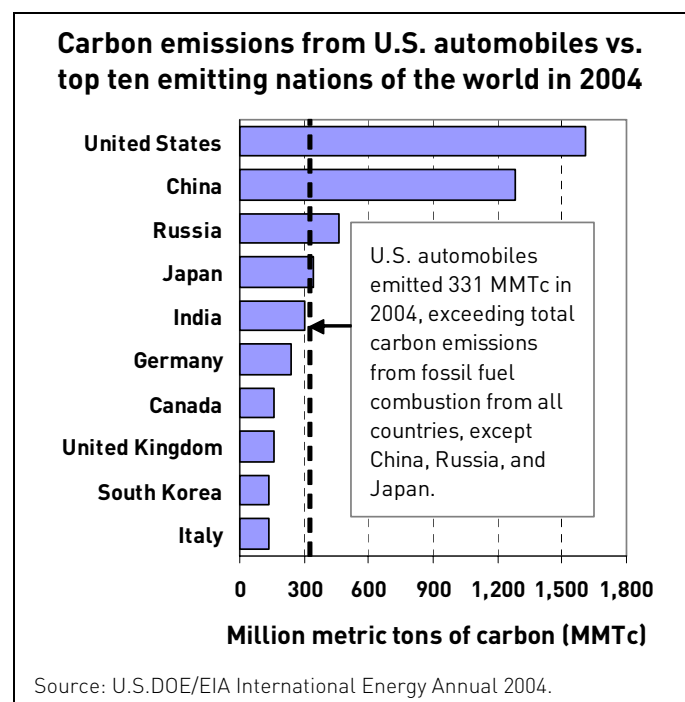
Measuring the 'carbon burden'

Accurately tracking progress on cars and climate means focusing on the "bottom line" measure of tons of carbon emitted rather than on alternative fuels, hybrids or other advanced technologies, no matter how promising they may seem. The "carbon burden" metric does just that by computing the amount of carbon a vehicle emits over its lifetime. Carbon burden reflects both the efficiency of the vehicles and the carbon intensity (i.e., the net greenhouse gas impact) of the fuel used, along with how much the vehicles are driven. An automaker's carbon burden sums this metric over the number of vehicles the company sells.

By taking a detailed look at how the carbon burdens of major automakers have evolved since 1990, the report highlights the way product strategies have affected emissions, both for better or worse. In spite of an overall trend toward higher emissions, two firms (Toyota and BMW) were able to cut their fleet average CO₂ emissions while maintaining strong sales growth.

Key findings on vehicle efficiency and carbon burden trends

- The overall per-vehicle CO₂ emissions rate dropped in 2005 for the first time in 20 years. This is partly a result of higher gas prices accelerating the shift from light trucks to car-based crossovers and cars. It is also a result of modest fuel efficiency improvements in a number of truck models, coinciding with recent increases in light truck CAFE standards.
- Nevertheless, most automakers had worse fleet average CO₂ emissions rates in 2005 than they did in 1990.



- The traditional Big Three (GM, Ford and DaimlerChrysler), in particular, have been leading a "race to the bottom" in terms of climate friendliness, in spite of their promises to develop greener cars.
- Two companies bucked the trend: Toyota and BMW. Their carbon burden increases were due entirely to increased sales. Toyota cut its fleet average CO₂ emissions rate 3% as it more than doubled its U.S. sales. BMW's fleet average CO₂ emissions rate dropped 12% as its U.S. sales volume increased fourfold.

Reducing emissions, maintaining profits

Toyota and BMW illustrate key options automakers have to cut carbon. Part of Toyota's increase in fuel economy can be attributed to sales of the hybrid-electric Prius. Most of the increase, however, came from fuel economy improvements in the Corolla and several light trucks including the RAV4, 4Runner, Highlander and Lexus RX330.

BMW incrementally improved fuel economy in many of its mainstay models, including the 3, 5 and 7-series among others. But the main factor behind the rise in BMW's average fuel economy is the success of the Mini Cooper. Emitting 25% less CO₂ per mile than BMW's fleet average, the Mini Cooper accounted for one-fifth of the company's 2005 sales.

Making higher fuel economy a design priority

Even though advanced technologies such as hybrid drives and new diesels will play an increasingly important role, automakers can significantly reduce CO₂ emissions through fuel economy enhancements using conventional technology. Toyota's improvements to the Corolla provide one example. Car companies also can reduce emissions by offering creative and fuel-efficient designs such as the Mini Cooper. But significant progress is only guaranteed if higher fuel economy is made a design priority across an automaker's total product lineup.

WANTED: A rational global warming policy that includes automobiles

Because automotive carbon burdens are a product of both vehicle efficiency and fuel carbon intensity, truly limiting auto emissions to climate-protective levels requires progress on both fronts. What is needed is a comprehensive policy to control carbon emissions across the U.S. economy. Recent support by the traditional Big Three and several leading fuel suppliers for a national cap-and-trade program is a significant step forward in this regard. It is now up to policy makers to pass national legislation that balances market forces with the need for deep reductions in greenhouse gas emissions. With the right leadership, we can hope to see all automakers and fuel suppliers pursuing innovative strategies to cut carbon burdens in ways that will protect the planet from the worst consequences of global warming.

Find the full report, *Automakers' Corporate Carbon Burdens: Update for 1990-2005*,
at www.environmentaldefense.org/carbonburdens

