

# ChinaFAQs

## The Network for Climate and Energy Information



# Fuel Economy Standards In China

## Key Points

- In 2004, China adopted its first nation-wide fuel economy standards for passenger vehicles. They are considered to be the world's third toughest, behind Japan's and Europe's.
- The standards – which called for average auto efficiency to improve by 15% by 2010 over 2003 levels – have produced significant gains, even though Chinese cars have become heavier, more powerful, and are more often equipped with automatic transmissions and pollution-control devices that can reduce efficiency.
- China has since expanded the standards to cover light-duty trucks, and is eyeing further measures to improve the fuel economy of its motor vehicles.

In 2001, China's senior economic and trade officials confronted some eye-opening energy statistics. China became a net oil importer during the early 1990s, and annual consumption was growing by about a half-million barrels per day. In 2000, the figures showed that China's oil imports had nearly doubled, and forecasts suggested its dependence on foreign oil would grow rapidly.

Concerned about China's oil security and, to a lesser extent, the future environmental impact of China's automobile fleet, the Chinese government moved to impose national fuel economy standards on its growing auto industry. The efficiency rules – considered the third toughest in the world behind Japan's and Europe's – have since helped China save more than \$1 billion in fuel and prevent millions of tons of carbon dioxide from escaping into the atmosphere. Although vehicles are not the major source of China's greenhouse gas emissions today, the mileage standards could become even more environmentally significant over the long run, since China's fleet will grow and passenger vehicles can stay on the road for a decade or two.

China's experience "is an encouraging but small step to a more sustainable transportation future," a multinational team of researchers conclude in an analysis published in the journal *Energy Policy*.<sup>\*</sup> And they say there is

still plenty of room for China to stiffen its fuel standards as it moves to further improve its energy efficiency and address climate change.

## A WINDOW OPENS

China's fuel standards were the product of a "special policy window" opened by an array of political and economic forces in the early 2000s, report Hongyan H. Oliver, a former research fellow at Harvard University in Cambridge, Massachusetts, Kelly Sims Gallagher of Harvard and Tufts University in Boston, and Donglian Tian and Jinhua Zhang of China's Automotive Technology and Research Center in Beijing. Chinese officials, for instance, were increasingly worried about energy security, but also interested in building a stronger auto industry that incorporated the latest technologies from foreign partners. Several government ministries and research institutes, meanwhile, were eager to raise their profile by taking on greater regulatory authority and by providing technical expertise. Also in the mix was a respected international philanthropy – the San Francisco-based Energy Foundation – that was supporting Chinese researchers interested in improving auto efficiency. A major catalyst for all these players was China's growing appetite for oil – and sales of new passenger cars, which were doubling every few years.

## Contact An Expert

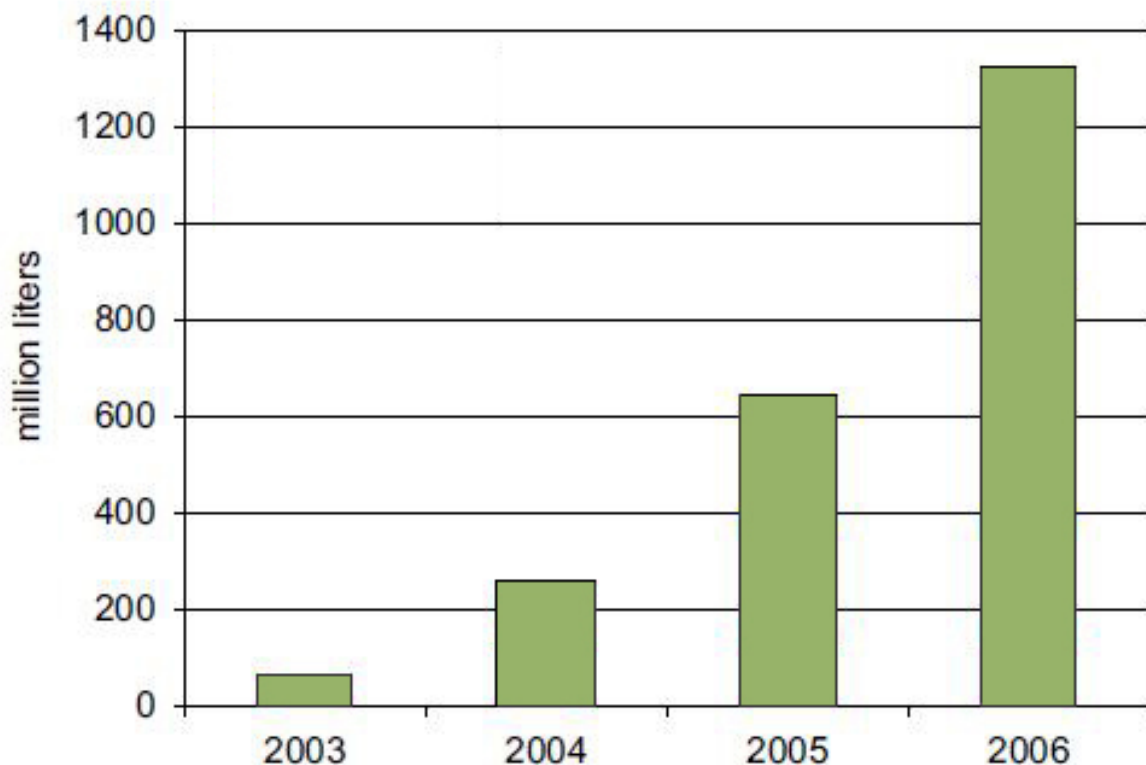
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To get a handle on these issues, between 2001 and 2003 several government committees set to work studying China's auto industry, the fuel economy policies in other nations, and the potential economic and technological consequences of various regulatory schemes. The process culminated in September 2004, when China's National Development and Reform Commission (NDRC) released its "Policies for Automotive Industry Development." They called for passenger cars built in 2010 to get, on average, 15% better mileage than those built in 2003 (trucks and other large vehicles were not covered originally).

phased-in over several years -- regulate passenger vehicles in different weight classes, with heavier vehicles facing tougher standards. Regulators took this approach, in part, to discourage the selling of heavier, less-efficient U.S.-style Sport Utility Vehicles (SUVs). The standards also divide passenger cars into two big categories: "normal structure" vehicles that have manual transmissions and less than 3 rows of seats; and "special structure" vehicles that have automatic transmissions and at least three rows of seats. The smaller, "normal structure" vehicles must get slightly better (6%) mileage than the heavier, special structure vehicles.

In general, the rules – which were



Fuel savings in China due to improved light passenger vehicle fuel efficiency during 2003-2006 (Adapted from Oliver et al, 2009, page 4728).

The rules have achieved many of the government's goals, the Energy Policy study concludes.

- Overall fuel efficiency has improved across all weight classes. Between 2002 and 2006, for instance, the efficiency of lighter “normal structure” vehicles improved by 7% to 17%, and the efficiency of heavier “special structure” vehicles improved by 10% to 20%. These improvements occurred despite the fact that, on average, Chinese cars became 10% heavier, and more frequently carried more powerful engines, automatic transmissions and pollution controls that can reduce fuel efficiency. (Overall, however, Chinese vehicles remain smaller and lighter than models in developed nations.)
- Companies began offering more models with more modern and efficient engine and transmission technologies.
- Drivers saved more than 600 million gallons of gasoline and \$1.2 billion in fuel spending between 2003 and 2006. In 2006 alone, gasoline consumption was estimated to have been 2% lower than it would have been without the standards.
- The rules prevented the creation of about 5.4 million tons of carbon dioxide emissions between 2003 and 2006.

The standards have shown “that it is possible to simultaneously address several policy concerns with one effective policy instrument,” the authors write. And they have spurred China to adopt other auto efficiency measures, such as mandatory mileage labels that allow shoppers to compare models, and taxes that make less-efficient cars more

expensive. In 2008, the government also expanded the standards to cover light-duty trucks, and it is now “seriously considering” stiffening existing standards on passenger vehicles – partly in hopes of making Chinese cars more competitive on the international market.

Without such aggressive new steps to reduce demand, the International Energy Agency estimates that, by 2030, cars, trucks and motorcycles could be consuming some 43% of all of China's oil – and 80% will come from imports. “Such trends and projections,” the authors note, “have received increasing attention within the Chinese government.” Ultimately, China hopes expanded auto efficiency improvements will help it meet its global climate commitments – and trim its growing dependence on foreign oil.

*This fact sheet is based on: Oliver, Hongyan H., Kelly Sims Gallagher, Donglian Tian and Jinhua Zhang. China's fuel economy standards for passenger vehicles: Rationale, policy process, and impacts. Energy Policy 37, pp. 4720-4729, 2009.*

This fact sheet is a product of ChinaFAQs, a joint project of the World Resources Institute and experts from leading American universities, think tanks and government laboratories. Find out more about the ChinaFAQs Project at: <http://www.ChinaFAQs.org/>.

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