Global Trends in Passenger Vehicle Fuel Economy Standards

Drew Kodjak, Executive Director

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Overview

- Introduction to the ICCT
- Global overview
- Market summaries
- GFEI Targets
Who we are


Board of Directors  Dan Greenbaum, head of Health Effects Institute, chair of ICCT board.

Funding  California philanthropies plus government grants and contracts.

Mission: To dramatically improve environmental performance and efficiency of motor vehicles (cars, trucks, marine, aviation) and fuels by supporting government regulatory agencies in world’s top vehicle markets.

Geographic scope: China, US, EU, Japan, Brazil, India, Canada, Korea, Indonesia, Australia, Mexico plus smaller markets by request.
Where we are going:
Five guiding principles

- **Geographic scope** – Expand fuel economy standards to all countries and regions to achieve GFEI goals.
- **Stringency** – Seek an annual rate of progress in fuel efficiency from 3% to 6% consistent with pace of technology development.
- **Lead time** – Provide a lead time or phase in period of 5 to 10 years to enable manufacturers to make large investments into technology innovation.
- **Regulatory design** – Facilitate well timed investments in retooling vehicles with corporate average standards and vary vehicle standards by size attribute (footprint) - not mass - to fully encourage lightweighting.
- **Electric drive vehicles** – Continue to seek to develop effective fiscal and non-fiscal incentives for battery electrics and fuel cells as these new technologies are critical achieving our long term goals.

Note: In this presentation, “fuel economy” standards also include CO2 and Greenhouse Gas standards.
Passenger Car Fuel Economy Standards

Solid lines: historical performance
Dashed lines: enacted targets
Dotted lines: proposed targets or targets under study

[1] China’s target reflects gasoline vehicles only. The target may be higher after new energy vehicles are considered.
[2] US standards GHG standards set by EPA, which is slightly different from fuel economy standards due to low-GWP refrigerant credits.
[3] Gasoline in Brazil contains 22% of ethanol (E22), all data in the chart have been converted to gasoline (E00) equivalent.
Overall and annual CO₂ reduction rates required for passenger cars

- US 2011-2025
- Canada 2010-2015
- EU 2011-2021
- Japan 2011-2020
- China 2011-2015
- S. Korea 2011-2015
- India 2011-2021
- Mexico 2011-2016
- Brazil 2012-2017

Overall Reduction

- US: 51%
- Canada: 37%
- EU: 30%
- Japan: 12%
- China: 27%
- S. Korea: 9%
- India: 17%
- Mexico: 11%
- Brazil: 13%

Annual Reduction

- US: 5.0%
- Canada: 2.2%
- EU: 3.5%
- Japan: 1.4%
- China: 2.2%
- S. Korea: 2.2%
- India: 1.8%
- Mexico: 2.2%
- Brazil: 2.8%

ICCT
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION
Mid/Full Size sedans in the US market have substantially improved their fuel economy. Competition is intense.
European CO₂ Passenger Vehicle Standards

Demonstrates importance of government policy to support fuel economy improvements
European Standards
CO₂ Emissions of Selected Vehicle Models by Technology (2013)
China Fuel Economy Standards

Mass-based fuel consumption standards and limits with bins

- Per-vehicle limits for Phase 1 and 2.
- Phase 3 Corporate average targets: 14-22% lower for MY2015
- Phase 4 Corporate average targets: ~28% lower for MY2020
Japan expected to meet 2020 targets in FY 2014.
FY 2012 fuel economy was just 7.1% shy of the 2020 standard
Japan to consider setting a 2025 goal once the 2020 goal is met
Hybrids account for 40% of Toyota market share (2012)
Global Fuel Economy Initiative (GFEI) target: Doubling the fuel efficiency of new passenger cars by 2030

**THE GFEI FUEL ECONOMY TARGETS**

*From 2005 baseline:*

- **30%**
  - reduction in L/100km by 2020 in all new cars in OECD countries

- **50%**
  - by 2030 in all new cars globally

- **50%**
  - by 2050 in all cars globally
Progress towards 2030 GFEI target
(We’re about halfway there; next several years are critical)

Sales-weighted averages include projected sales of passenger cars and light commercial vehicles through 2030.
Summary

- Nine (9) countries have adopted some form of fuel economy standards with other countries with complementary policies (e.g., feebates, labeling).
- Three-quarters (75%) of the world’s fleet is currently under some form of fuel economy standards.
- The longest lead time for any standards is now set at 2025.
- Europe and Japan are home to world’s most efficient fleets, but the gap is narrowing.
- The pace of vehicle efficiency technology development is accelerating (e.g., 6 speed transmissions, downsized turbocharged engines, better tires, hybrids).
- Consumer acceptance is widespread given the relatively short payback period from 2 to 5 years.
- Thus we find that to meet the GFEI goal of doubling new passenger vehicle fuel economy by 2030, we will need all countries to adopt some form of fuel economy standards.