Global Trends in Passenger Vehicle Fuel Economy Standards

Drew Kodjak, Executive Director

GFEI Fuel Economy Symposium
Ministry of Foreign Affairs & International Development
27 rue de la Convention, Paris
5th September 2014

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Overview

- Introduction to the ICCT
- Global overview
- Market summaries
- GFEI Targets

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

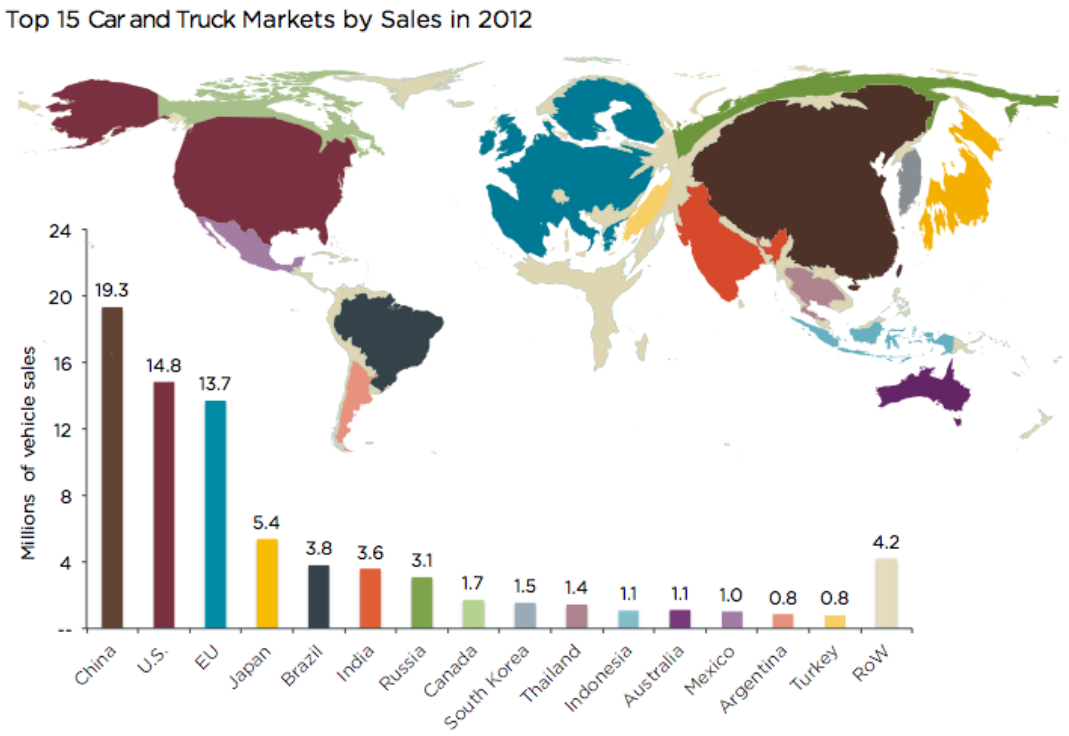
Who we are

International Council Composed of top government regulators (~25) in major markets founded in 2001.

Non-profit Organization
ICCT incorporated to serve International Council, staff of 35 technical experts on vehicles and fuels, half with background / nationality outside US founded in 2005. Offices in DC, San Francisco and Berlin. China office coming later this year.

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.

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

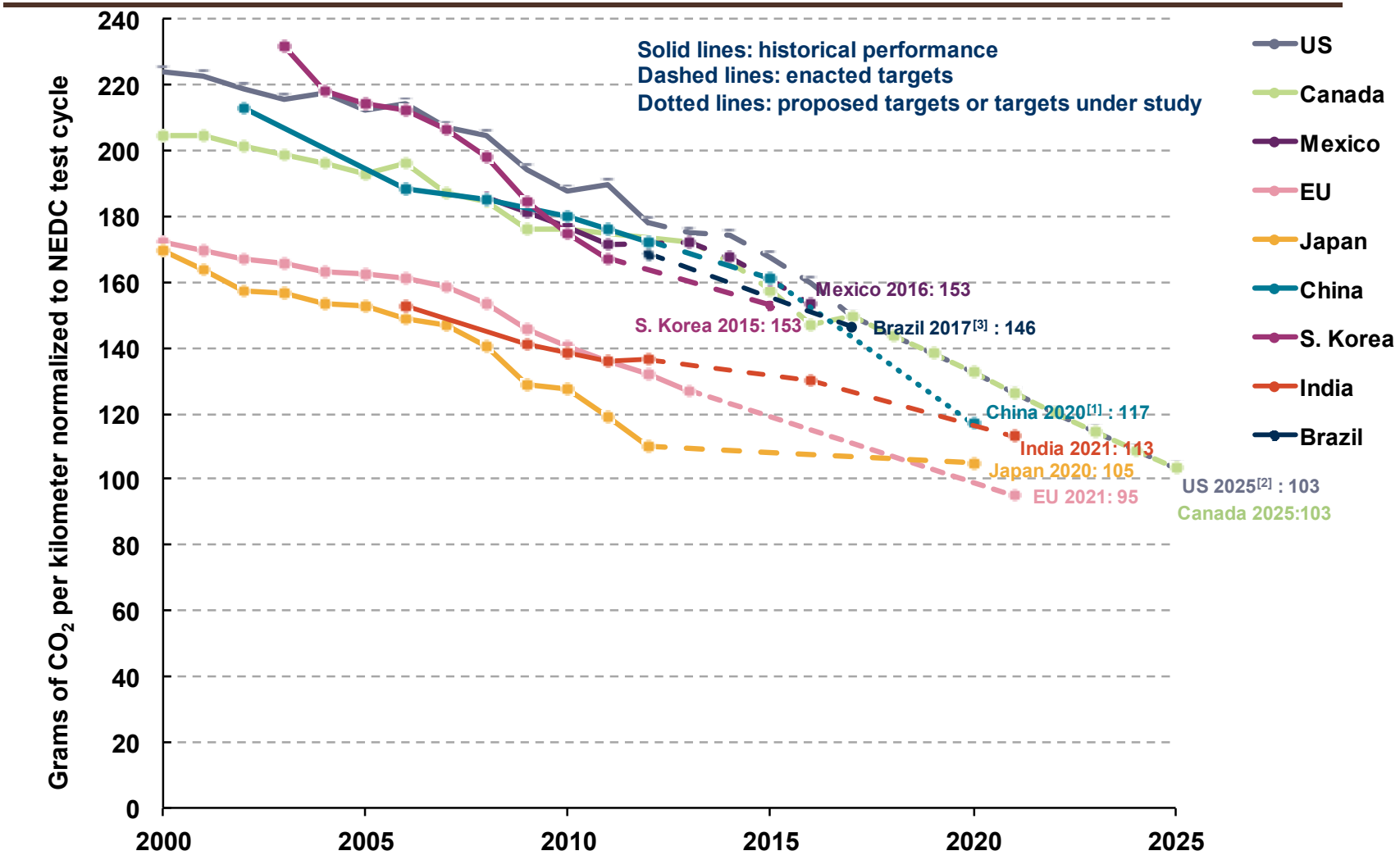
Where we are going:
Five guiding principles

- **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.

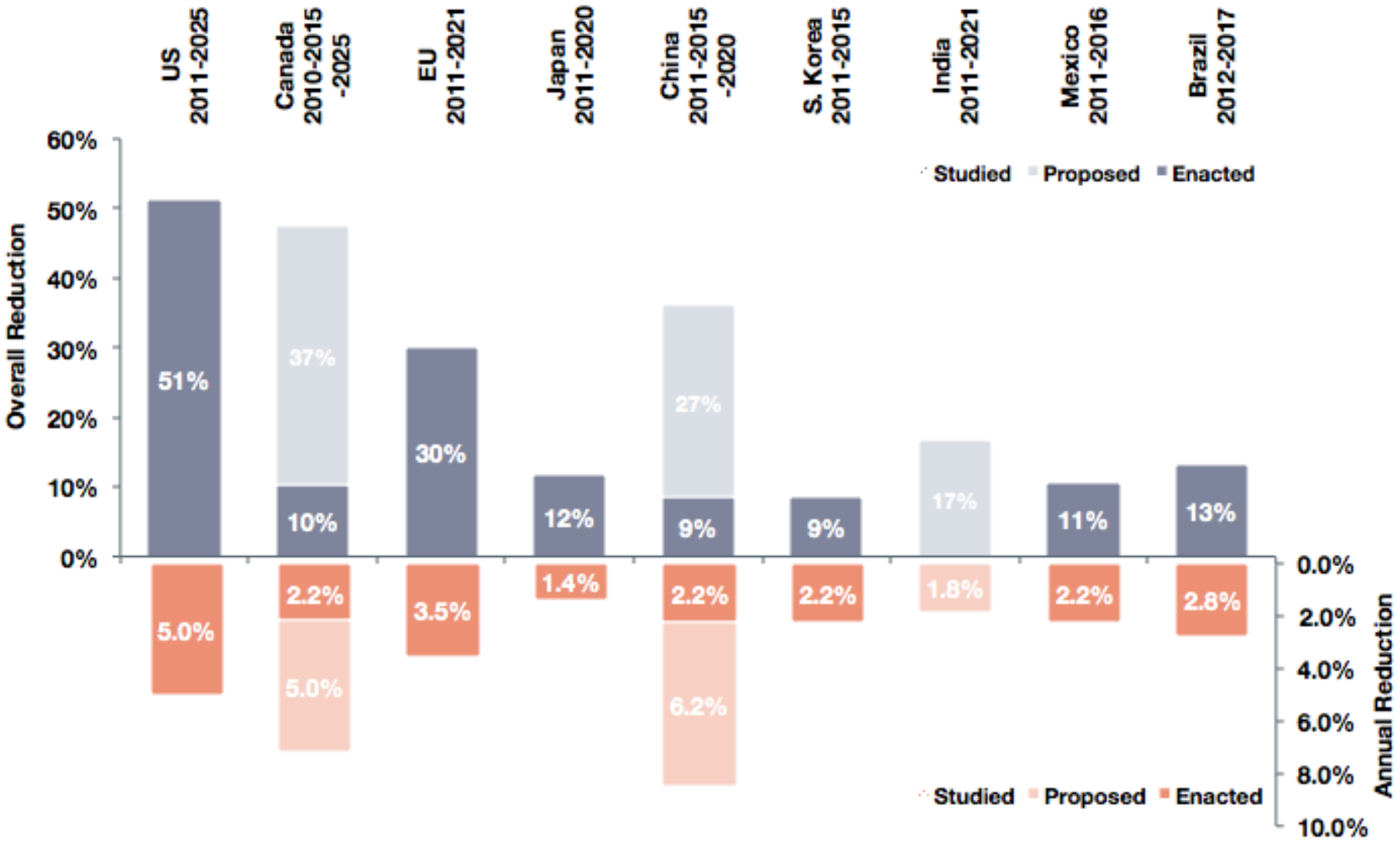
icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

Passenger Car Fuel Economy Standards

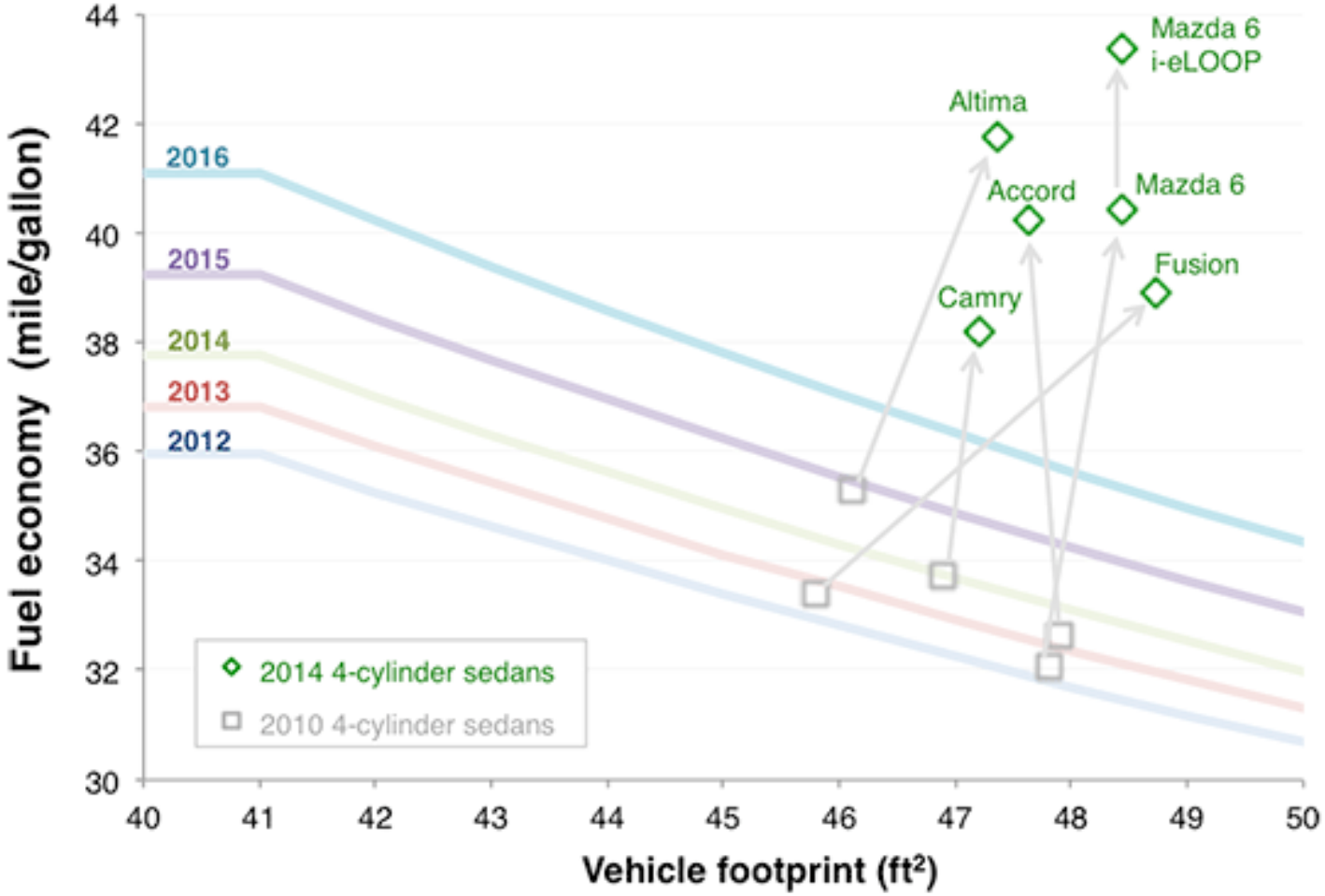


[1] China's target reflects gasoline vehicles only. The target may be higher after new energy vehicles are considered.
[2] US standards GHG standards set by EPA, which is slightly different from fuel economy stadards due to low-GWP refrigerant credits.
[3] Gasoline in Brazil contains 22% of ethanol (E22), all data in the chart have been converted to gasoline (E00) equivalent
[4] Supporting data can be found at: http://www.theicct.org/info-tools/global-passenger-vehicle-standards.

Overall and annual CO_2 reduction rates required for passenger cars



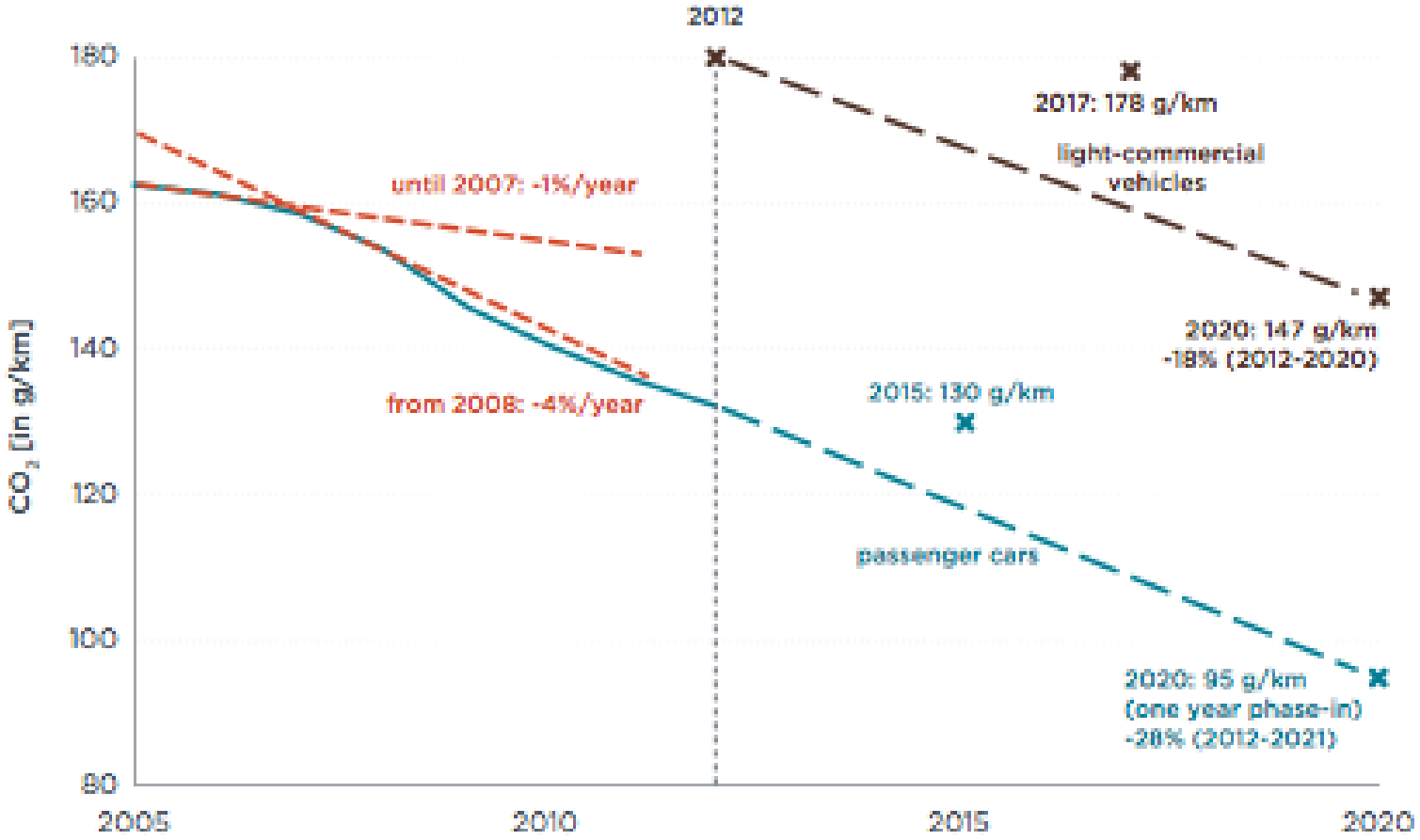
United States Fuel Economy Standards



Mid/Full Size sedans in the US market have substantially improved their fuel economy. Competition is intense.

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

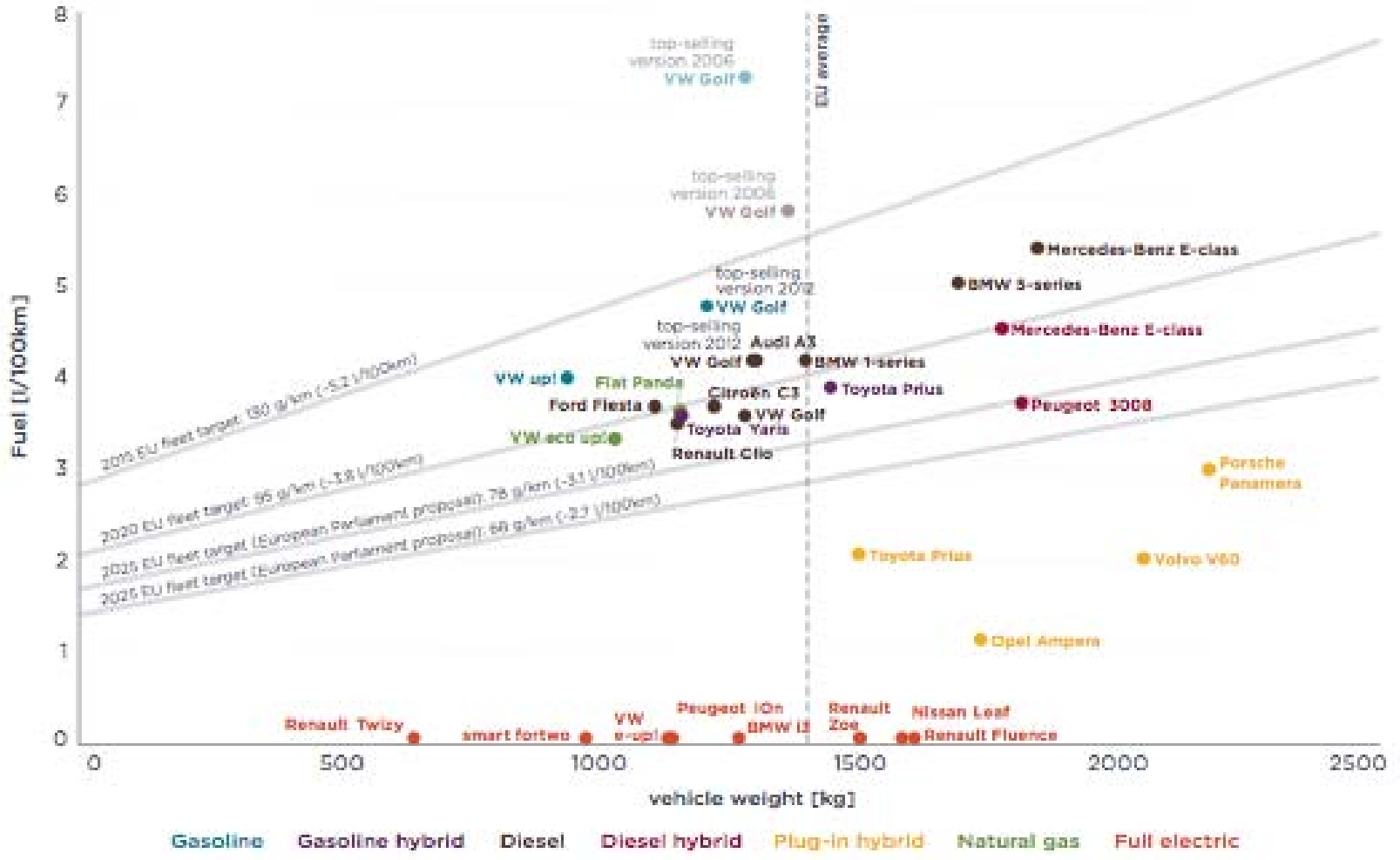
European CO_2 Passenger Vehicle Standards



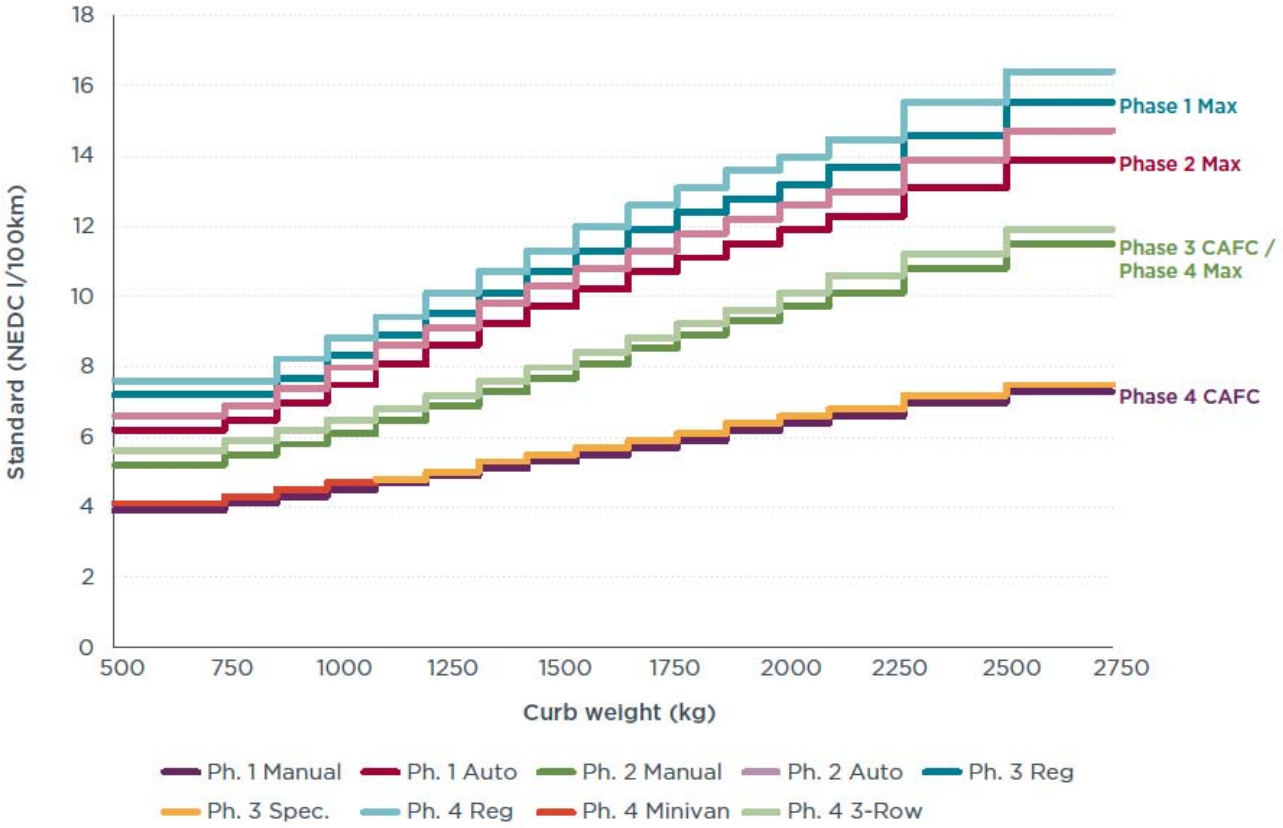
Demonstrates importance of government policy to support fuel economy improvements

European Standards

CO_2 Emissions of Selected Vehicle Models by Technology (2013)



China Fuel Economy Standards

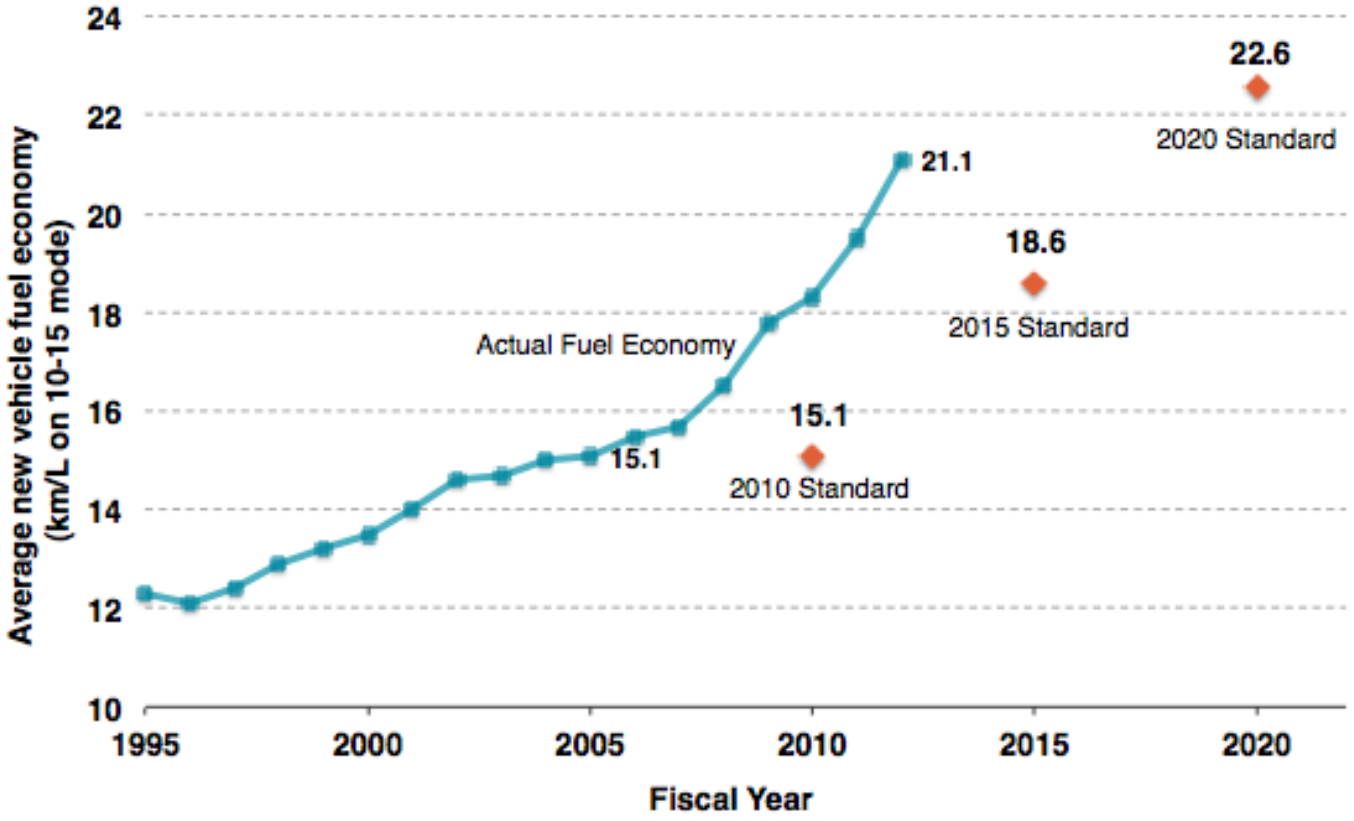


Mass-based fuel consumption standards and limits with bins

- 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

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

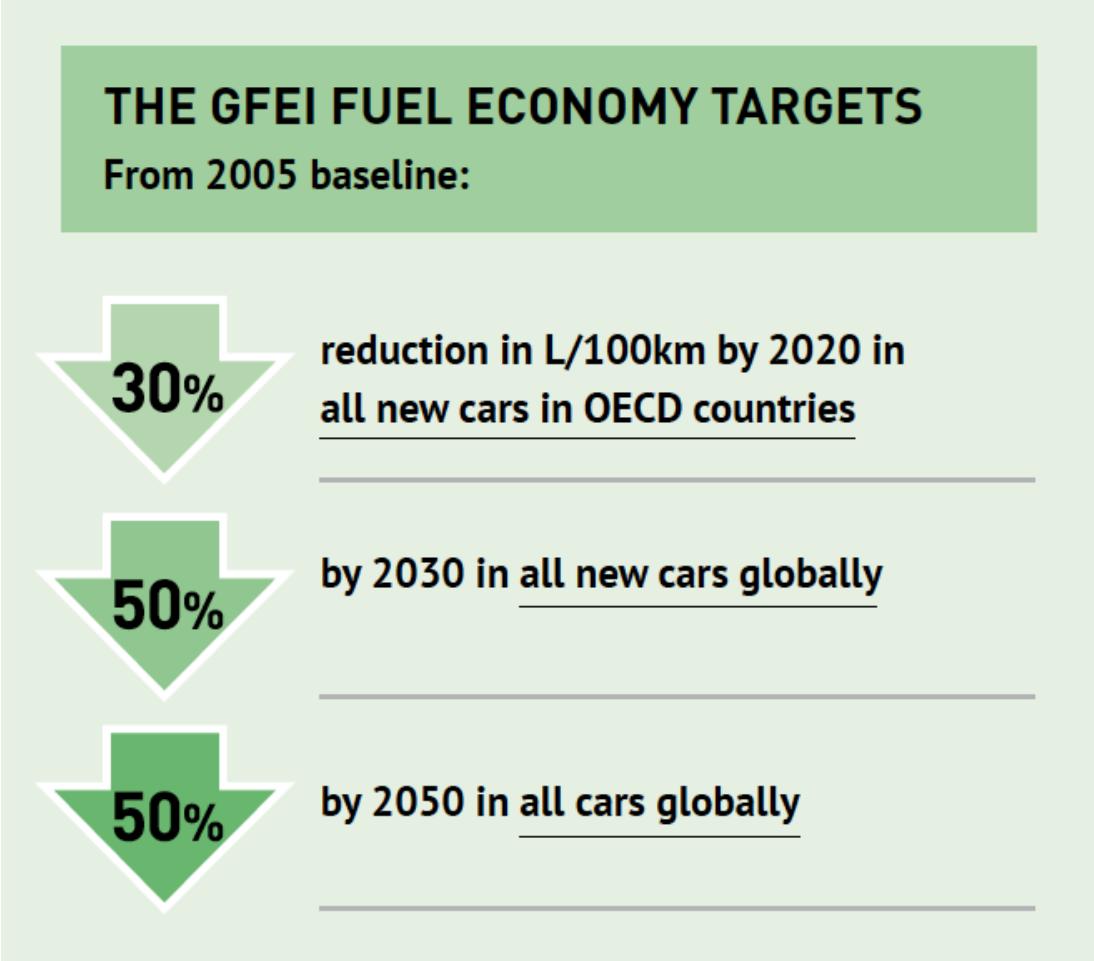
Japan Fuel Economy Standards



- 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)

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

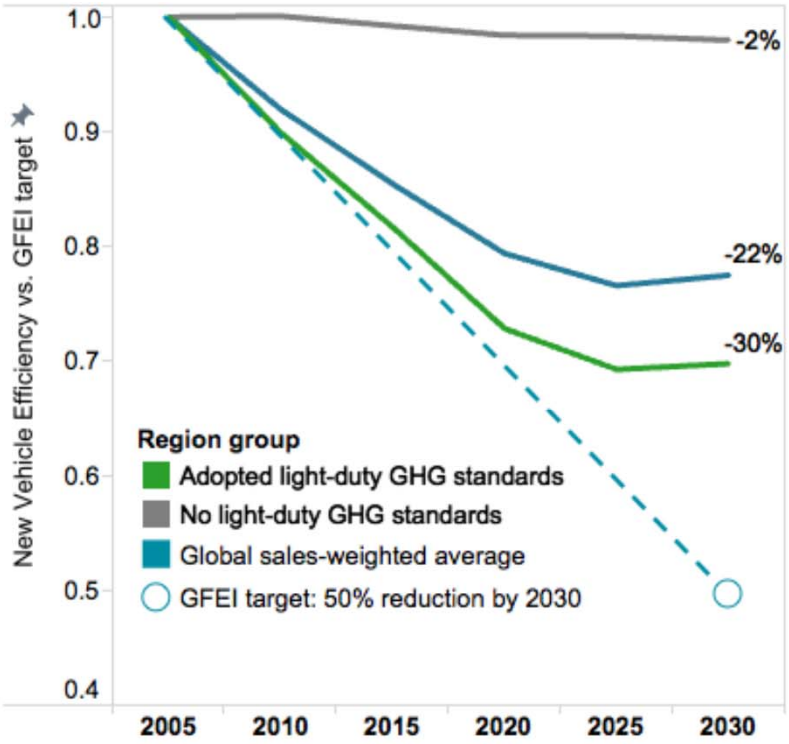
Global Fuel Economy Initiative (GFEI) target: Doubling the fuel efficiency of new passenger cars by 2030



FIA Foundation for the Automobile and Society · UNEP · International Transport Forum · iea International Energy Agency · icct · ITS UCDAVIS Institute of Transportation Studies

Progress towards 2030 GFEI target

(We're about halfway there; next several years are critical)



		2030	
		% of total sales	% reduction in new vehicle fuel consumption (2005 baseline)
Adopted light-duty GHG standards	China	**26%**	**-15%**
	EU-28	**15%**	**-40%**
	U.S.	**15%**	**-50%**
	India	8%	-26%
	Japan	3%	-38%
	Brazil	3%	-12%
	Canada	2%	-24%
	Mexico	2%	-19%
	South Korea	1%	-24%
	Average	**76%**	**-30%**
No light-duty GHG standards	Russia	4%	0%
	Australia	1%	-9%
	Other countries	**19%**	**-1%**
	Average	**24%**	**-2%**
Global Average		**100%**	**-22%**

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

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

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.

icct
THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION