

Passenger Vehicle Greenhouse Gas & Fuel Economy Standards Around the World

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ICCT's Bellagio Principles

- Clean vehicle strategies should promote air quality and greenhouse gas (GHG) goals in parallel
- New vehicle standards for GHG emissions and conventional pollutants should be fuel neutral
- Vehicles and fuels should be treated as a system

Full document is available at www.theicct.org in five languages.

Air quality & climate goals

- Much progress in tackling conventional pollutants
 - Advanced vehicles, with cleaner fuels can achieve very low pollutant emissions at low cost
 - Urban air pollution continues to threaten human health in cities around the world
- At the same time, GHG emissions from transportation growing faster than any other sector
 - 24% growth in developed world between 1990 and 2004
- Continued rapid growth in vehicle numbers, especially in the developing world

Comprehensive strategy

- Regulatory standards
 - Fuel economy or GHG standards
 - Stringent standards for conventional pollutants
 - Lower carbon fuels
- Fiscal incentives
 - Variable taxes or fees based on FE or emissions
 - Congestion charging
 - Parking fees
 - Other fuel, vehicle and road use taxes and fees
- Improving other transportation options
 - Public transportation
 - Biking and walking
 - Urban planning

Regulatory goals of passenger vehicle FE & GHG standards

- Reduce petroleum consumption
 - Energy security
 - Improving trade balance
- Tackle climate change
 - Reducing CO₂ & other greenhouse gas (GHG) emissions
- Other benefits include
 - Reduce overall transportation costs
 - Protect consumers against oil price spikes
 - Ensure access to efficient & advanced technologies

Regulations cover

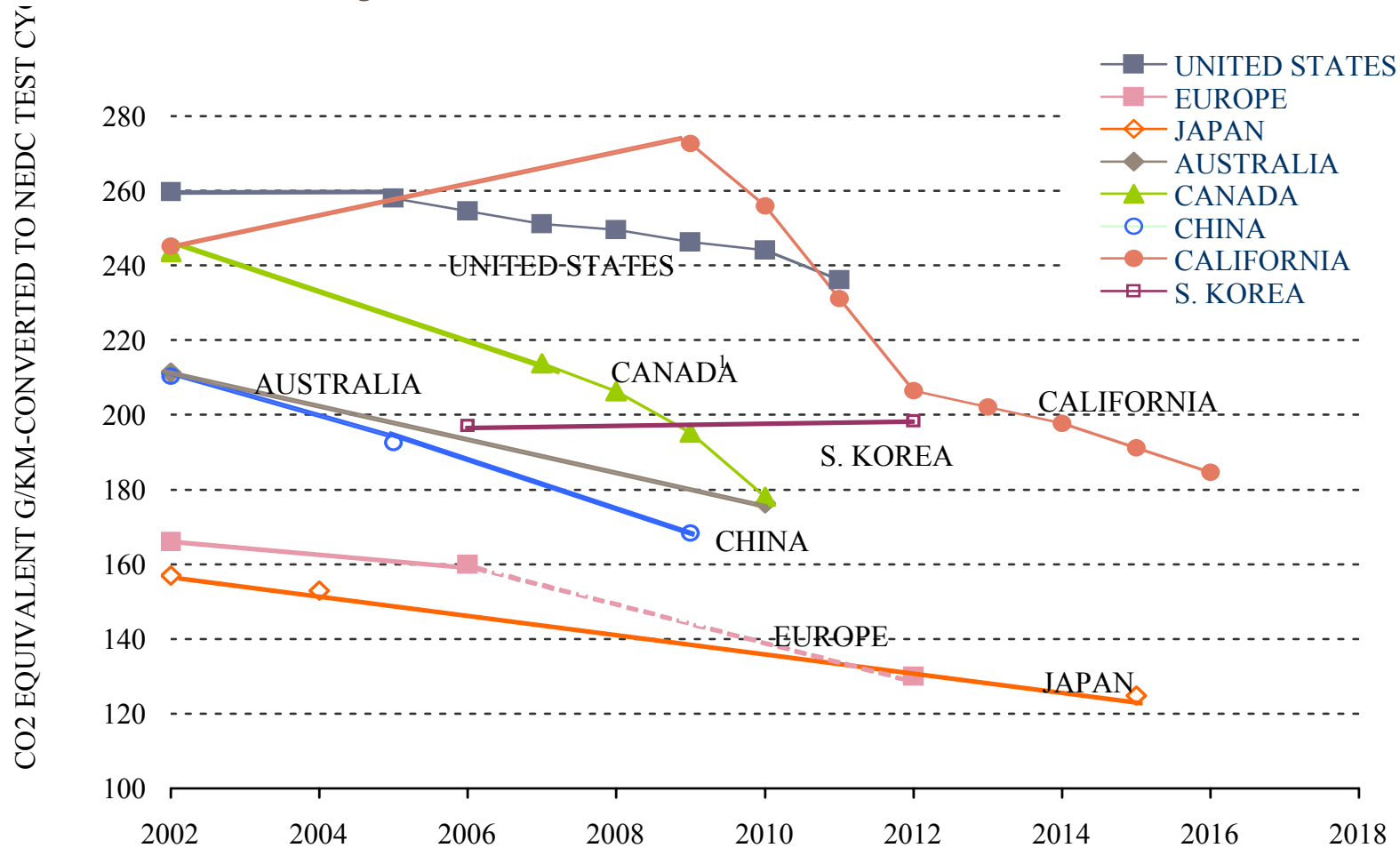
~ 90% of global auto market

- Largest auto markets in the world regulate fuel economy or GHG emissions from passenger vehicles
 - Japan, the European Union, United States, California, Canada, China,
 - Also Australia, South Korea, and Taiwan, China
- Only a few in Organization for Economic Cooperation and Development (OECD) without standards
 - Iceland, Mexico, Norway, Switzerland, and Turkey

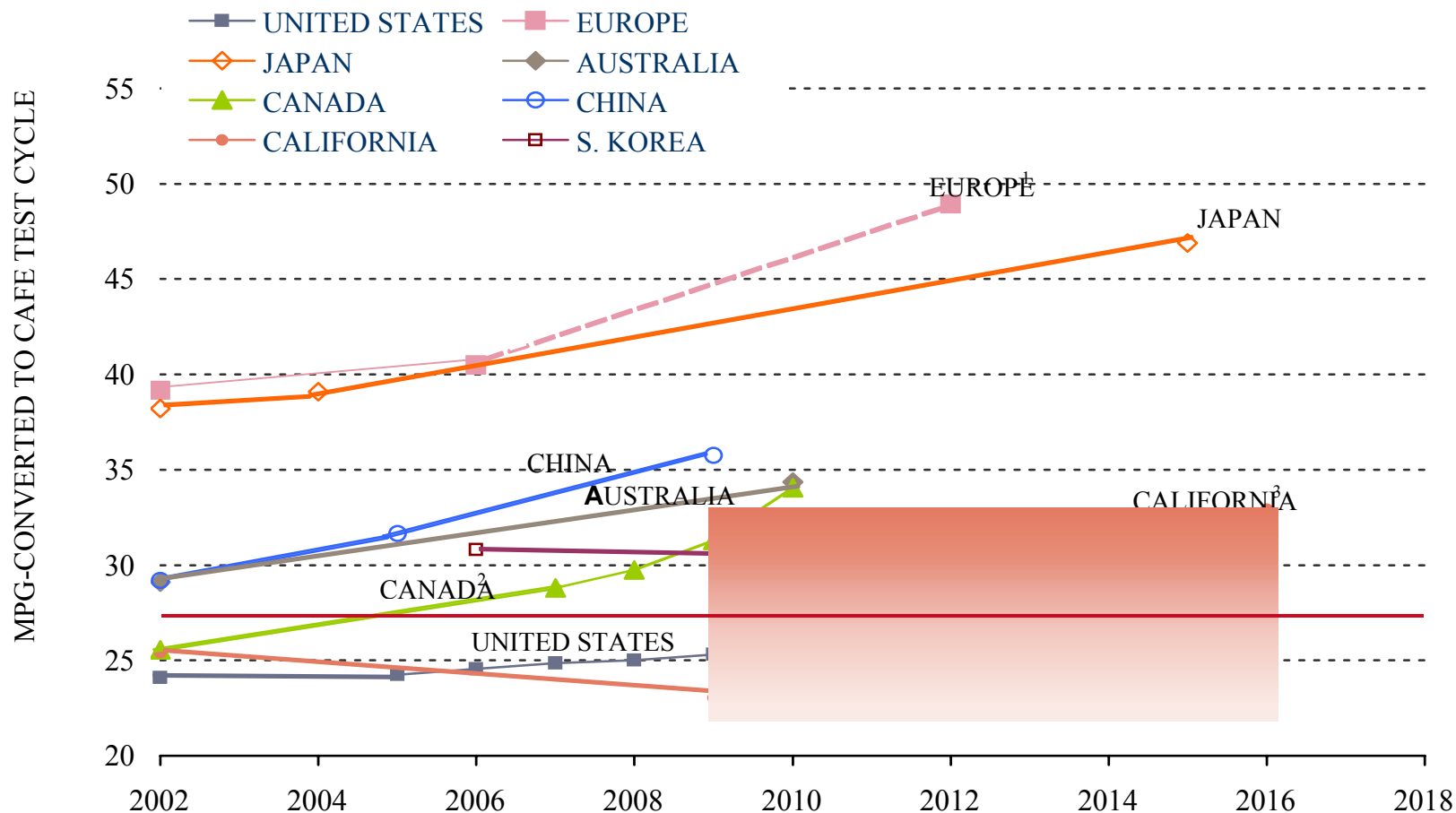
Recent regulatory activity

- Europe and Japan have the most stringent passenger vehicle GHG and fuel economy standards.
- Japan's standards will lead to the lowest fleet average GHG emissions in the world (125 g CO₂-e / km by 2015).
- California GHG regulations are expected to achieve the greatest overall reduction in GHG emissions in the world.
- Due to shift towards heavier vehicles, South Korea fuel economy projected to decline slightly over the next five years.
- U.S. standards continue to lag behind other nations. New bills under discussion in Congress could help U.S. to catch up.

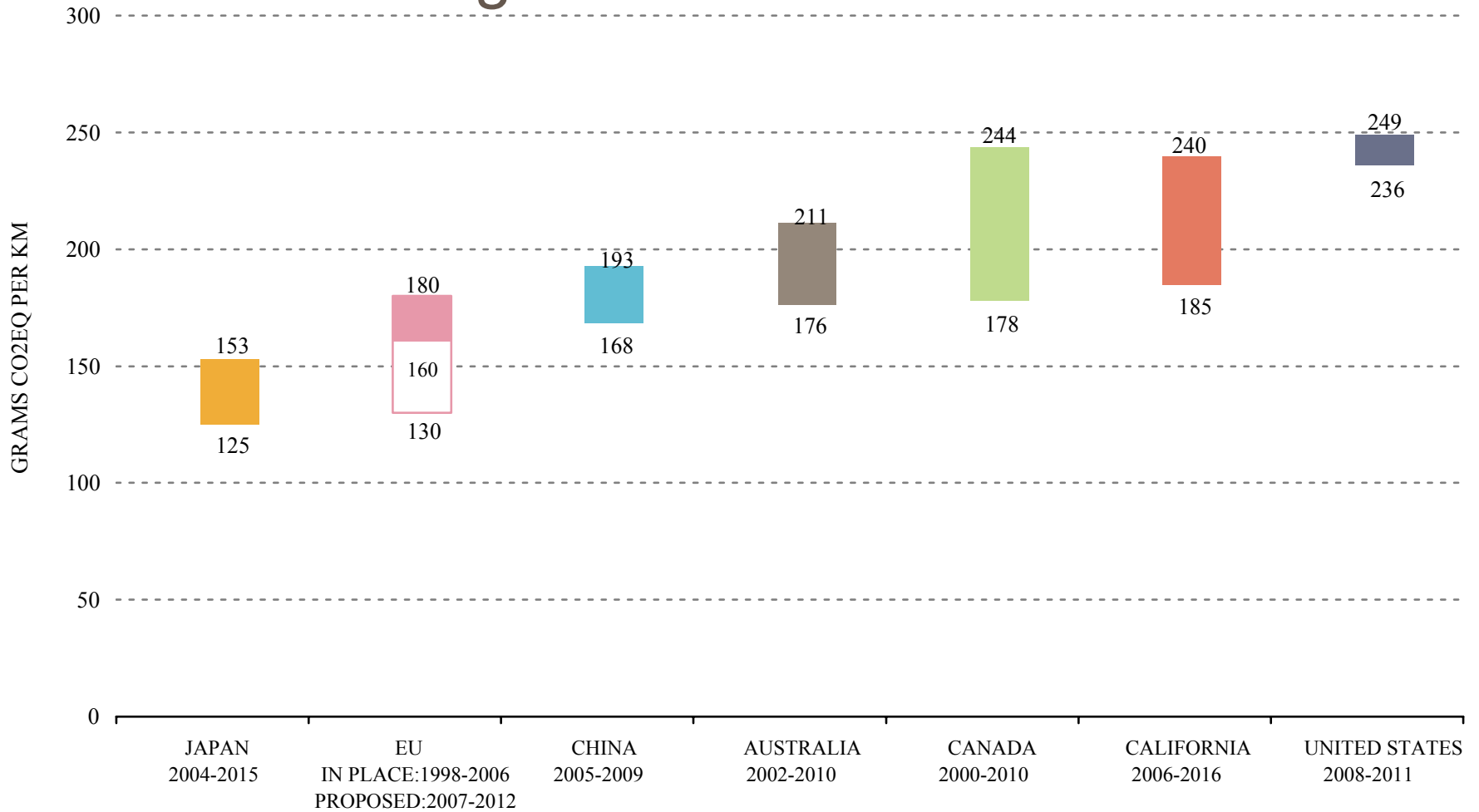
Actual & Projected New Vehicle GHG Emissions



Actual & Projected New Vehicle Fuel Economy



Magnitude of Reductions



Fiscal policies for improved FE & reduced GHG emissions

- Canada has established only active feebate program
 - Incentives and levies based on fuel economy
- Japan standards supported by progressive taxes
 - Vehicle weight and engine displacement
 - Purchase and registration
 - Subcompact car pays ~\$4,000 less over lifetime than larger passenger car
- China has revised excise tax structure
 - Encourages production & purchase of smaller engines
 - Eliminates preferential tax structure for SUVs

Lessons learned

- Shift to heavier & more powerful vehicles will reduce fuel economy unless there are protections in place
 - US fuel economy has dropped 7% since 1987
 - Fuel economy projected to drop slightly in S. Korea in spite of standards
- Increasing market share for diesels can exacerbate air pollution problems
 - Market share in EU has reached 50% due to lower diesel fuel prices
 - Emissions standards are still less stringent for diesels and air quality is suffering
 - In India, where standards lag far behind the EU, diesels have ~30% market share 2010 and air pollution is a huge problem

Fiscal incentives

- Complement regulatory standards
- Ease burden on automakers by helping to drive consumer preference
- Discourage increases in vehicle weight and power
- Can be revenue neutral or revenue generating

Fuel economy or GHG standards

- Real danger of market shift to heavier & more powerful vehicles
 - Consider this in policy decision-making
 - Dynamic standards (increasing over time)
- Program design is important
 - Size or weight-based
 - Bins or continuous function
 - Adjust stringency to diminish/ eliminate incentive to up-size or up-weight
 - Design influences relative compliance burden among manufacturers