Policies that Work:
How vehicle standards and fuel taxes can cut CO_2 emissions and boost the economy

Francisco Posada Sanchez, International Council on Clean Transportation
Laura Segafredo, ClimateWorks Foundation

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Who we are – the ClimateWorks Foundation

- The ClimateWorks Foundation supports public policies that prevent dangerous climate change and promote global prosperity
- ClimateWorks' goal is to reduce global greenhouse gas emissions by 6 billion metric tons by the year 2020 (~25 percent below business-as-usual projections) and by 11 billion metric tons by 2030 (~50 percent below projections)
- These ambitious targets require the immediate and widespread adoption of smart energy and land use policies. ClimateWorks partners with an international network of affiliated organizations — the ClimateWorks Network — to promote these policies in the regions and sectors responsible for most greenhouse gas emissions

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ClimateWorks' Best Practice Networks

POWER
The Regulatory Assistance Project

TRANSPORT
The International Council on Clean Transportation
The Institute for Transportation and Development Policies

BUILDINGS AND APPLIANCES
The Global Buildings Performance Network
The Collaborative Labeling and Appliance Standards Program

FORESTS & LAND USE
The Climate and Land Use Alliance

INDUSTRY
The Institute for Industrial Productivity

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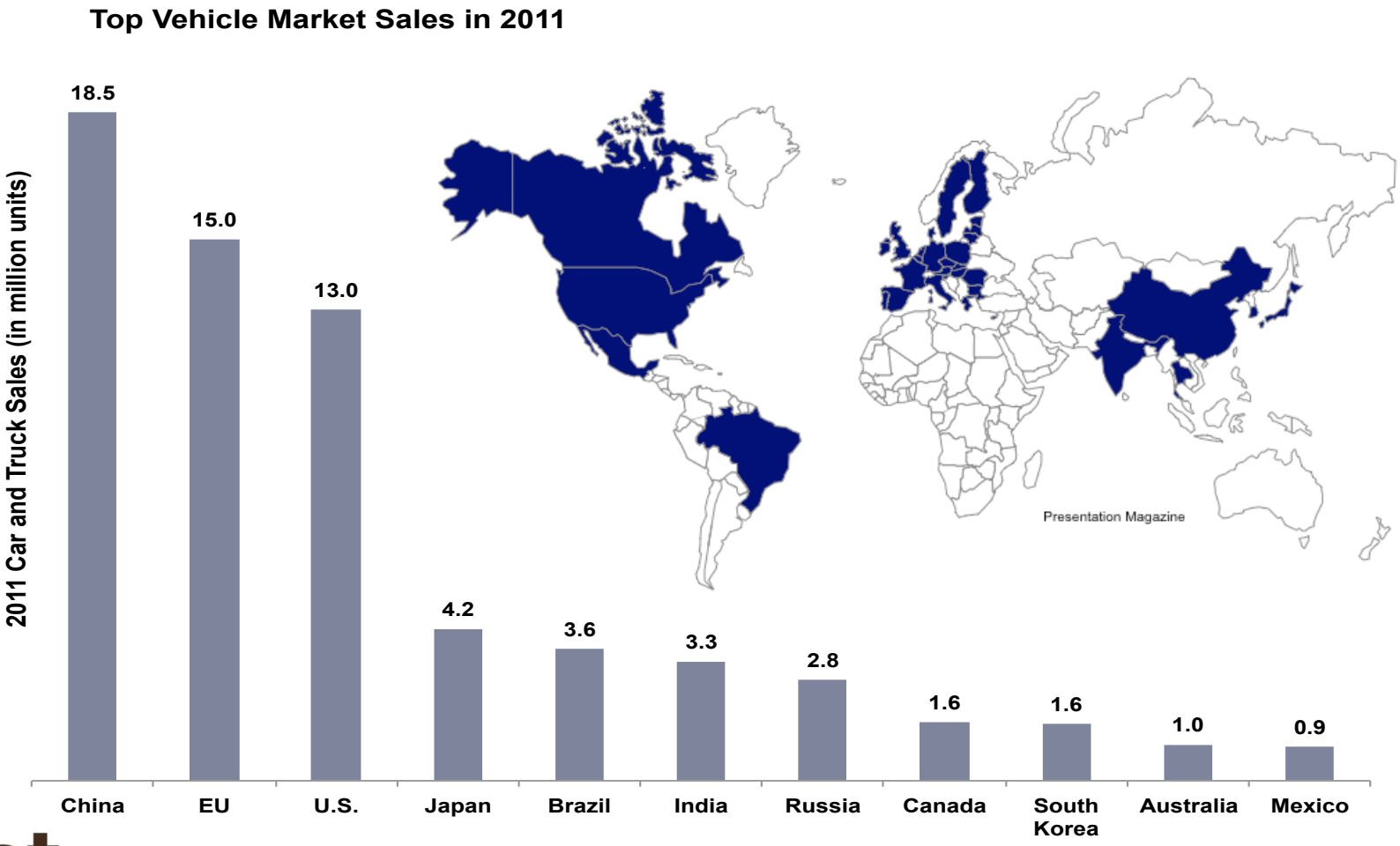
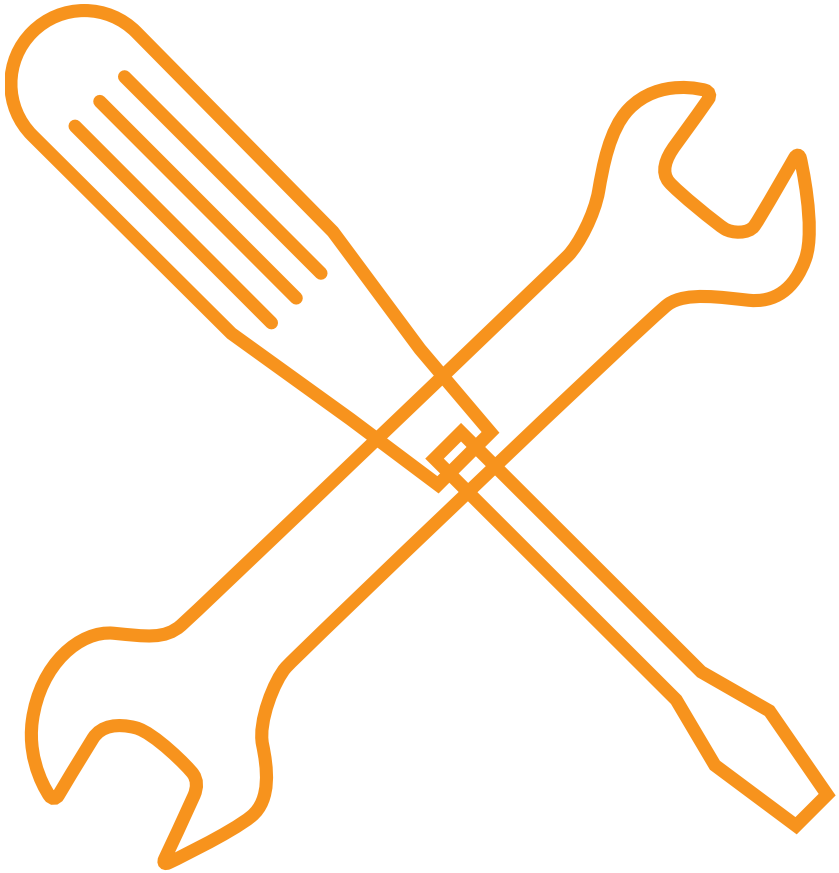
Who we are - ICCT

The mission of the ICCT is to dramatically improve the environmental performance and efficiency of cars, trucks, buses and transportation systems in order to protect and improve public health, the environment, and quality of life.



Policies That Work:

A toolkit to help solve nations' climate and energy challenges



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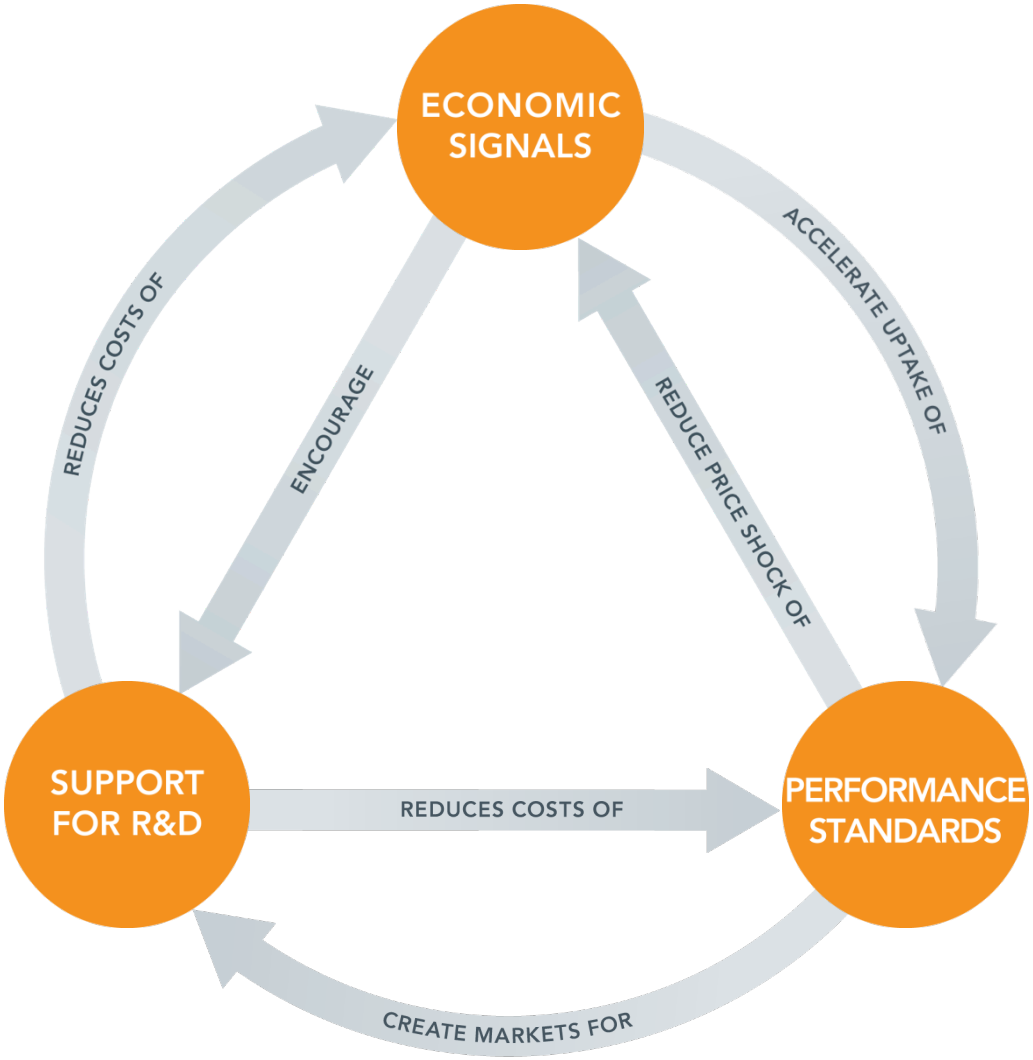
Three kinds of policy tools

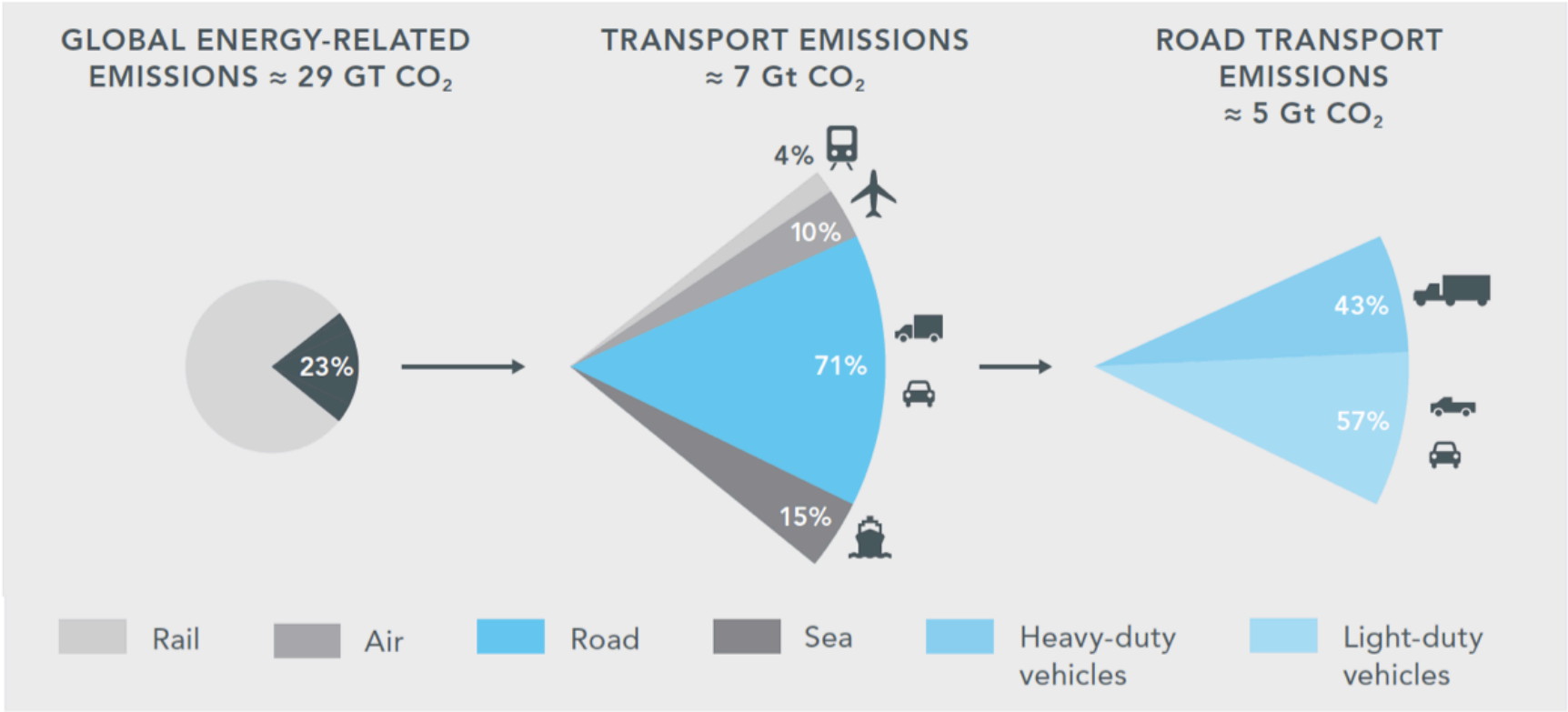


Ten policies can make the difference

1. Vehicle performance standards
2. Fuel and vehicle levies
3. Energy efficiency standards and labels
4. Clean energy supply policies
5. Utility-scale energy efficiency programs
6. Industrial energy efficiency programs
7. Effectively enforced building energy codes
8. Properly aligned economic incentives
9. Smart urban design
10. Support for R&D and innovation

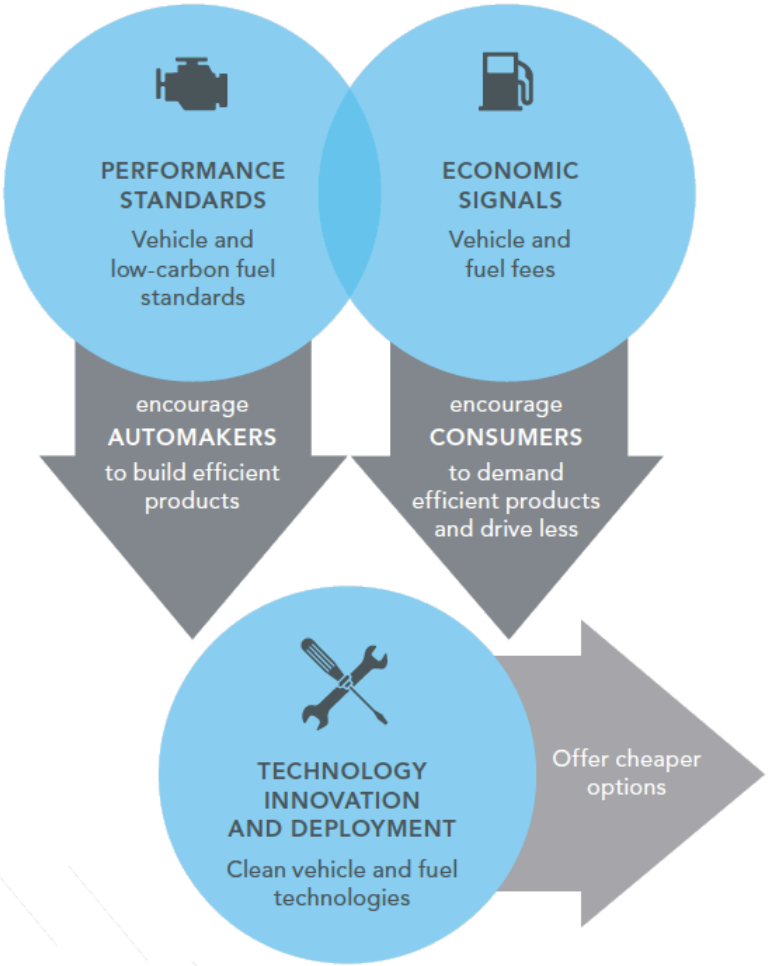
Focus on Transportation

- 65 million new vehicles in 2011 (ICCT countries only)
- Road emissions are projected to grow more than 2% annually, reaching 8.4 Gt CO_2 in 2030
- US, China and EU are the top emitters – focus of PTW report



Source: EIA, ICCT

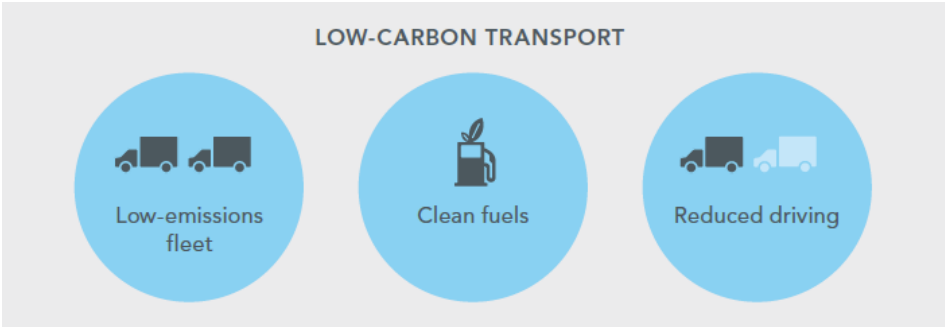
Most Effective GHG Regulations



Most effective ways to reduce GHG emission from the transport sector are:

- Vehicle performance Standards
- Vehicle and fuel fees/rebates

The report **Policies that Work** presents recommendations for performance standards and fees/rebates that are effective at aligning automakers and consumers with global GHG targets



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Five Steps to Successful Policy Design

Set overarching goal	• Base standards and fees on GHG emissions • Don't mandate particular technology solutions
Require consistent rate of improvement	• Steady basis over several product development cycles • 3%-6% per annum to encourage constant innovation
Cover all vehicles and Fuels	• No vehicle or fuel should be exempt – avoid consumers and manufactueres from circunventing the standards
Long term signals	• Manufactueres need stable market signals to invest in new technology
Reward performance	• Combine fees with rebates, "feebates", rewarding low emission models and penalizing high emitters • Avoid GHG standards based on vehicle weight –this promotes heavier models

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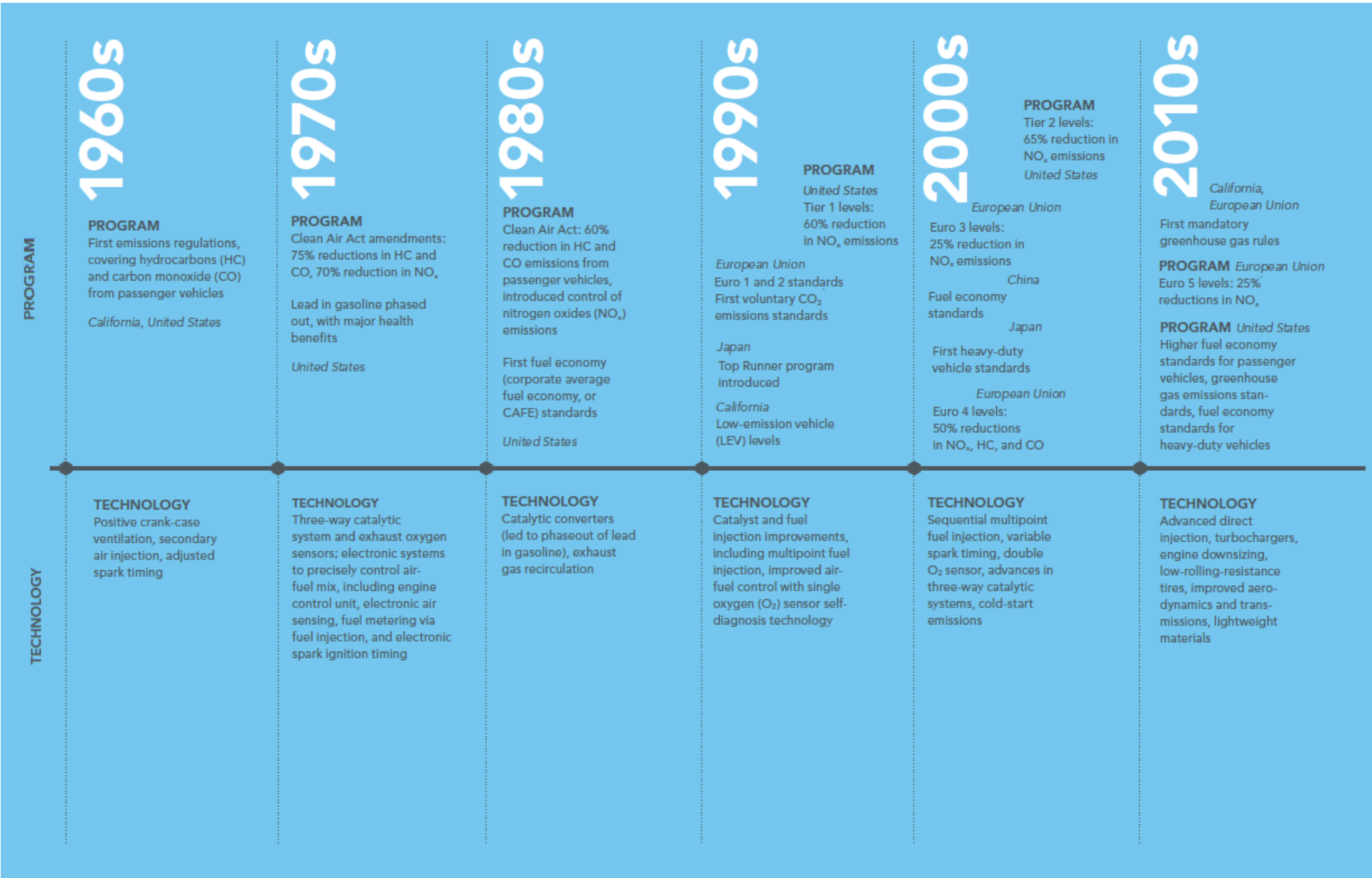
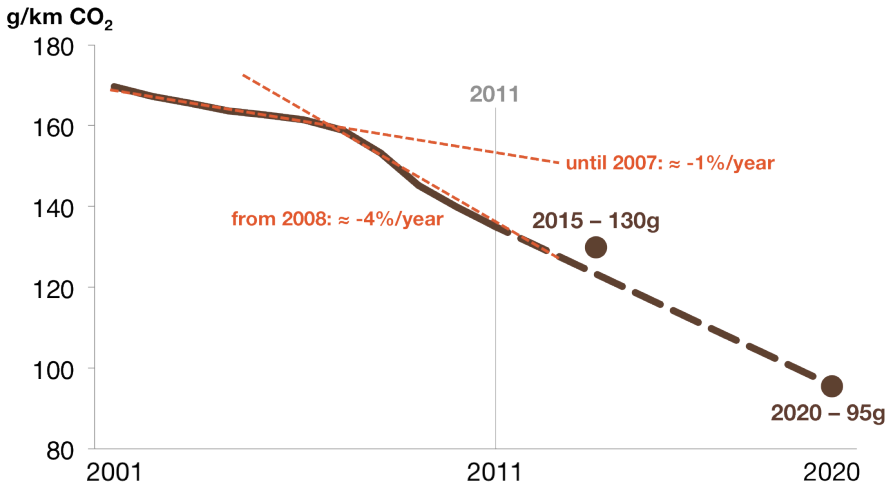
Vehicle Standards - history

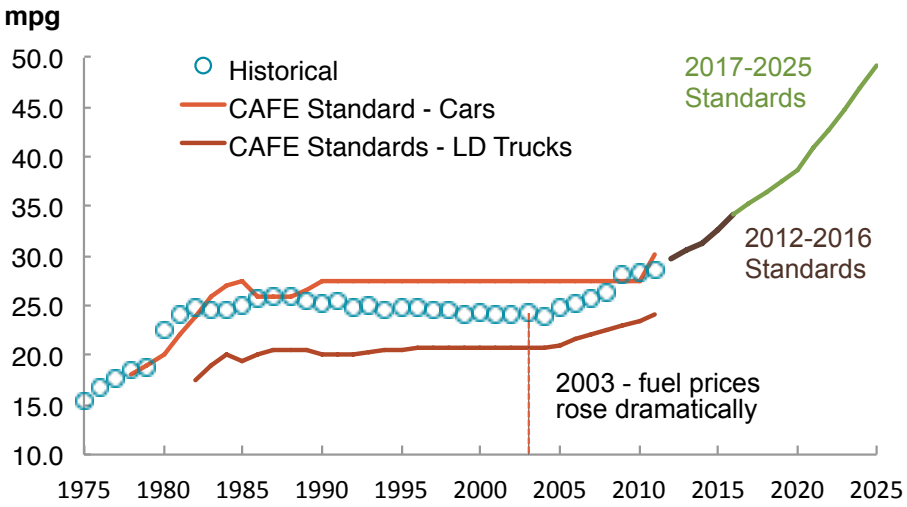


Vehicle CO_2/FE Standards

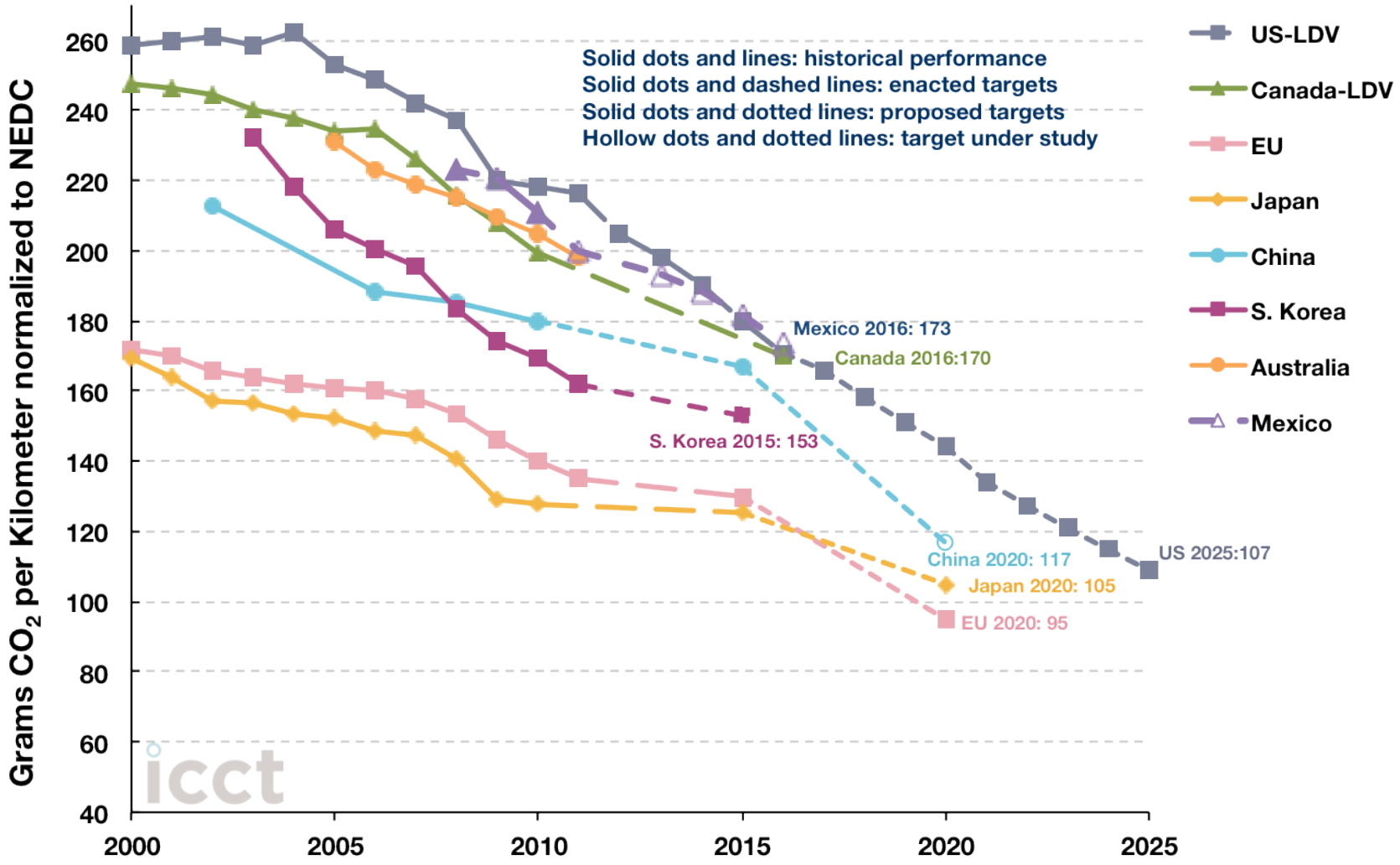
EU Passenger new vehicle CO_2 Standards



US Passenger new vehicle fleet average fuel economy



Global Vehicle Performance Standards



[1] China's target reflects gasoline vehicles only. The target may be lower after new energy vehicles are considered.
[2] US , Canada, and Mexico light-duty vehicles include light-commercial vehicles.

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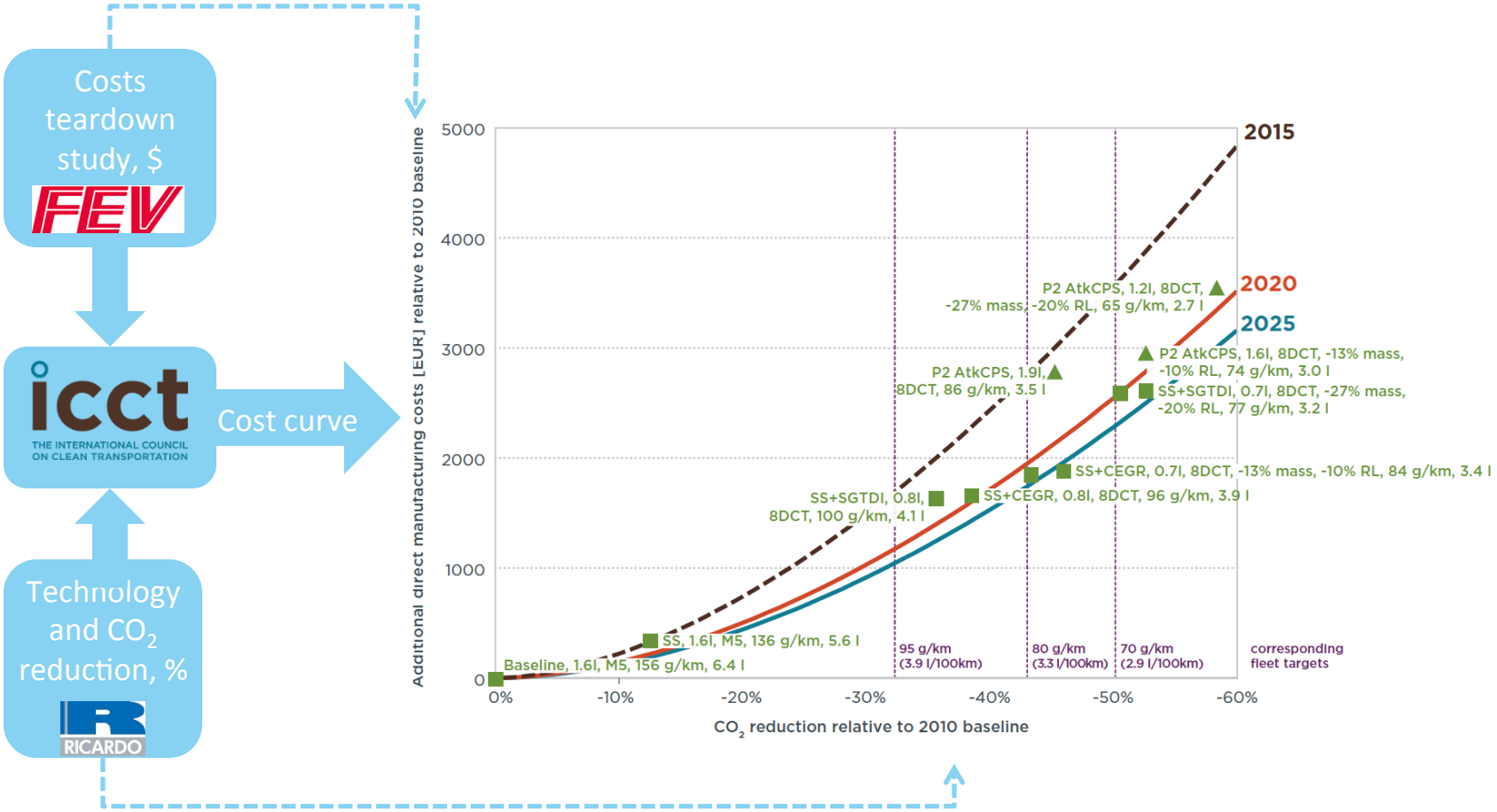
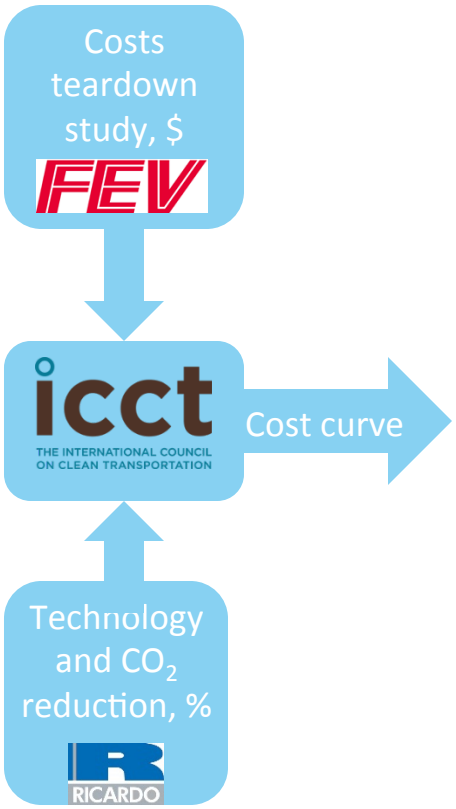
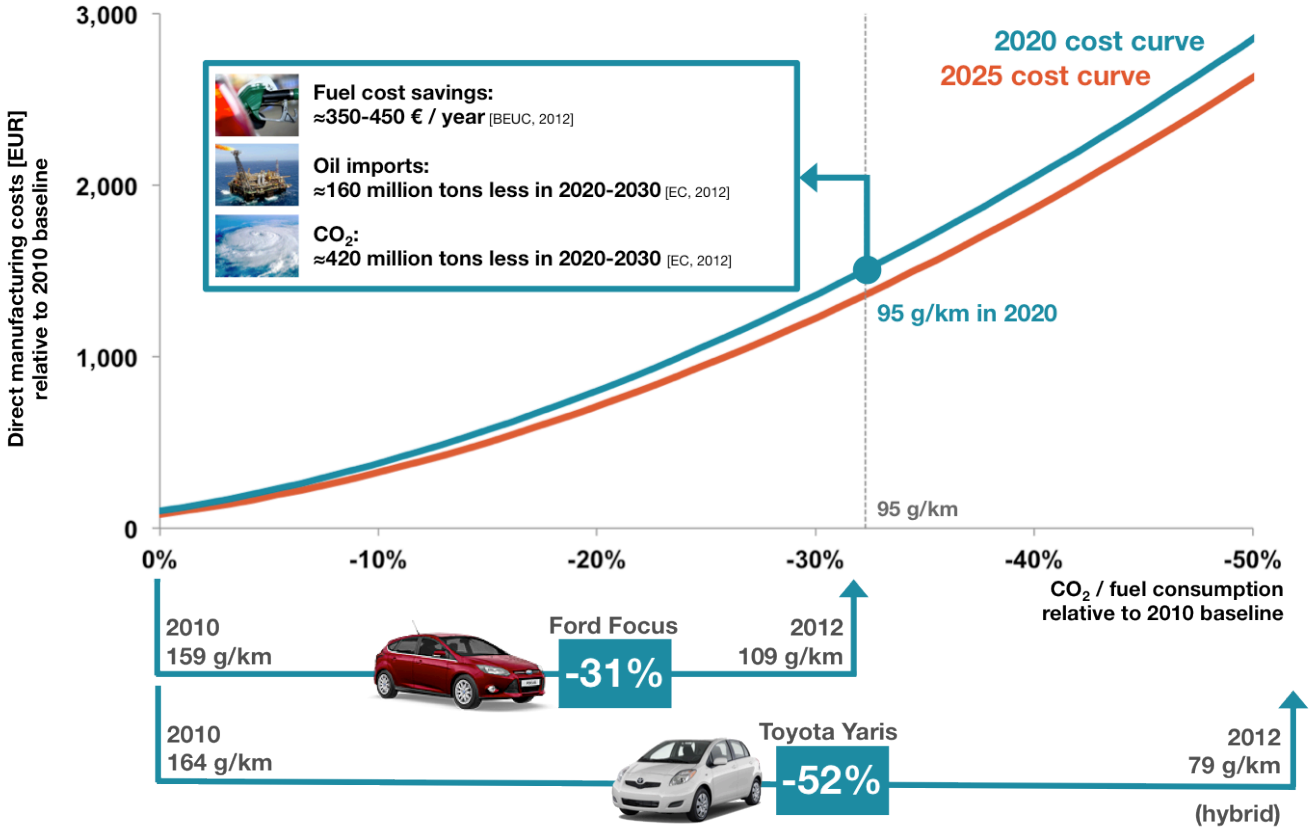
Cost and Benefit of CO_2 reduction technologies



- 2020 targets can be attained by improvements to internal combustion engines and moderate lightweighting

Cost and Benefit of CO_2 reduction technologies





- The estimated additional manufacturing cost for attaining a CO_2 target of 95 g/km for passenger vehicles by 2020 is approximately €1000 per vehicle
- Fuel cost savings for drivers €350-450/year.

Effective Vehicle Standards

Set the goal	• Let the market choose the most cost effective technology
Go upstream	• Targert small number of market players, manufacturers, rather than consumers
Use GHG as the metric	• GHG (gCO2e/km) has advantages over Fuel Economy (mpg or km/L) as the metric is fuel neutral. • Can accomodate non-CO2 gases
Base the standard on Vehicle footprint over vehicle weight	• Weight based standards are more lenient for heavier vehicles, • Footprint[1] encourages implementation of lightweighting techniques
Long term standard	• Rate of improvement at 3%-6% per annum to encourage constant innovation • Sufficient lead time
Continual rather than stepwise standard	• Stepwise standards lead manufacturers to meet only the minimum requirements for each class • A continual standard requires improvements across all models

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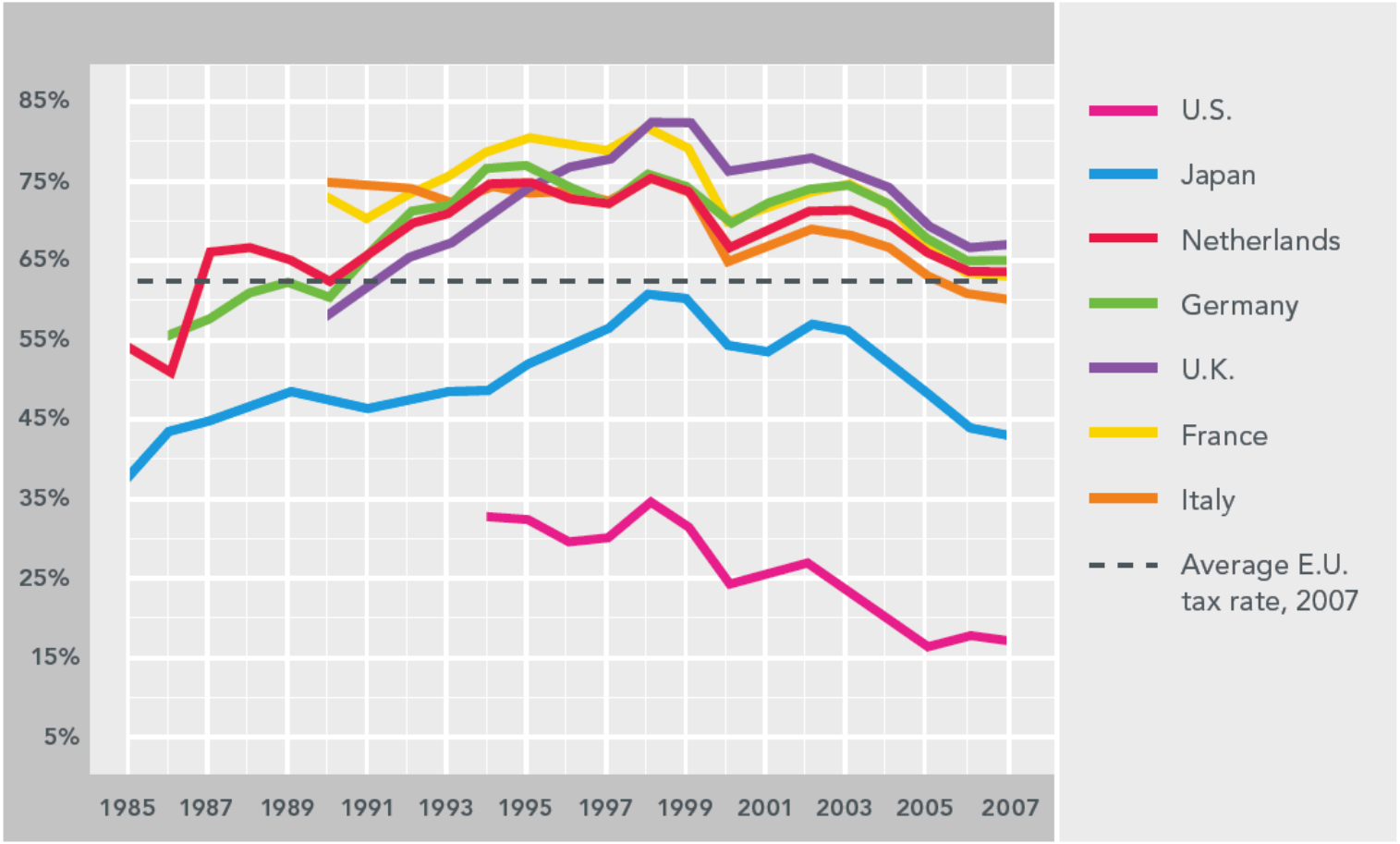
[1] Footprint= wheelbase x track width

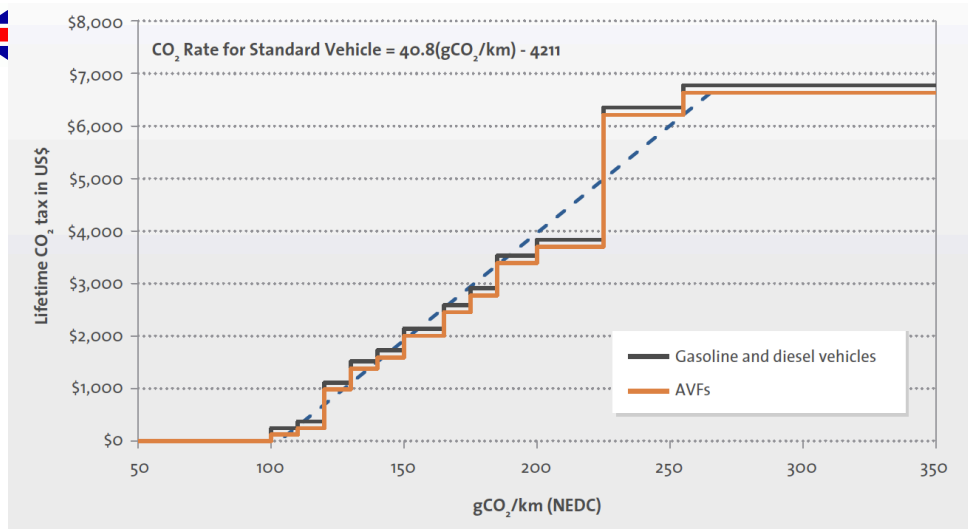
Fuel Taxes



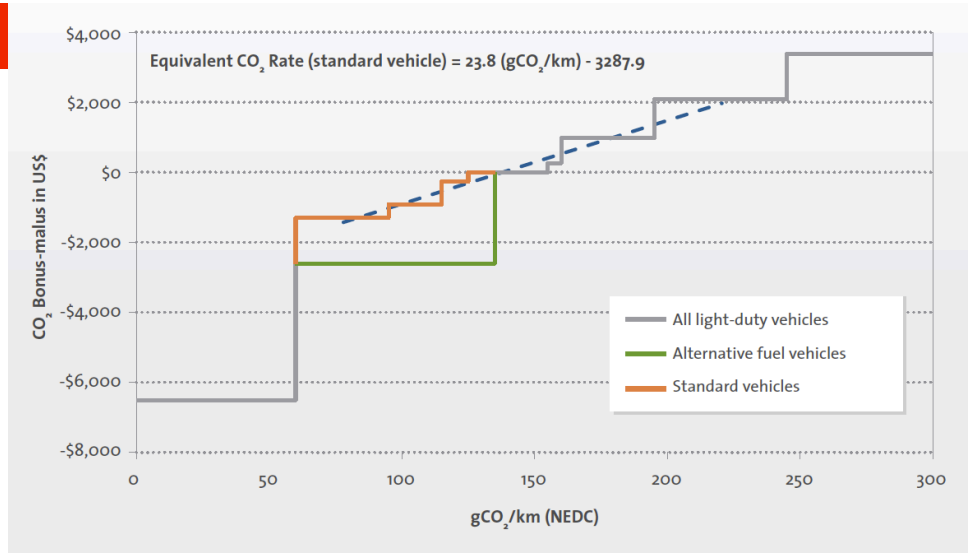
Source: International Energy Agency and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Vehicle Fees Examples

CO_2 Tax on conventional and alternative fuel vehicles (AFVS)

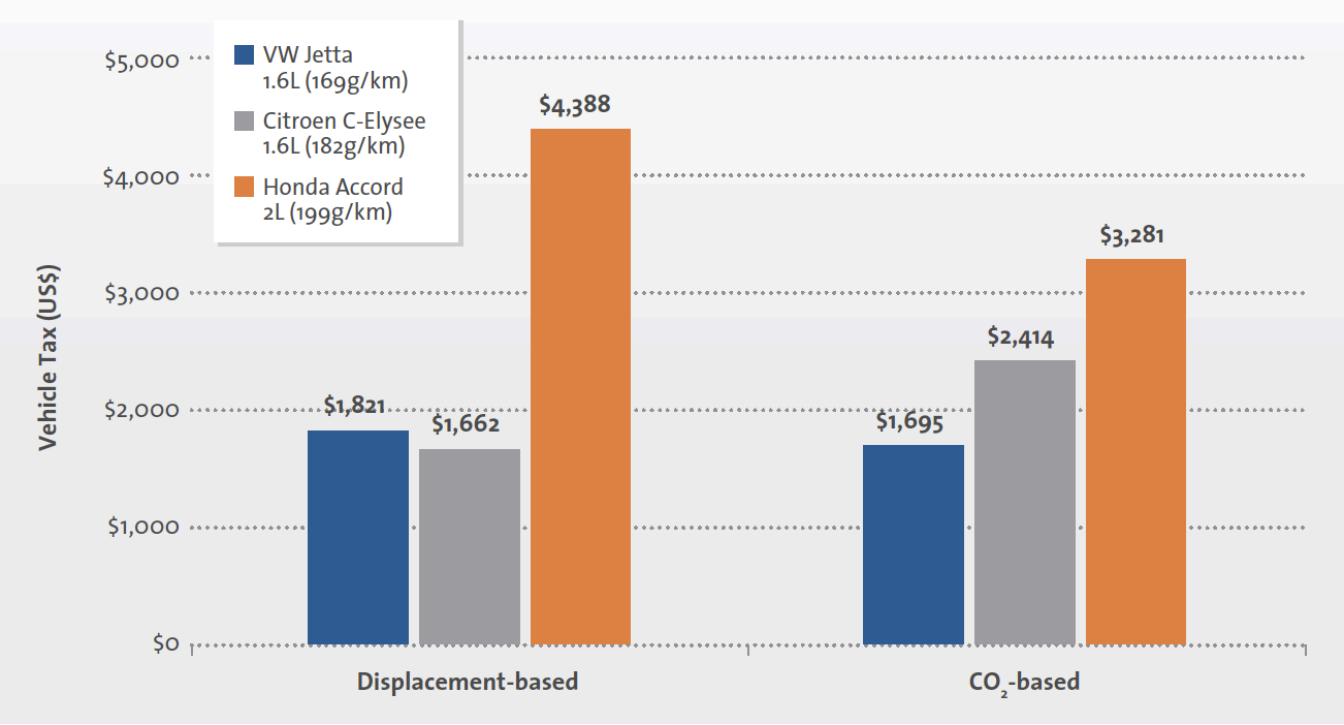


CO_2 Feebate program for conventional and alternative fuel vehicles (AFVS)



http://theicct.org/review-and-comparative-analysis-fiscal-policies

Vehicle fees based on CO_2 vs Attributes



http://theicct.org/review-and-comparative-analysis-fiscal-policies

Effective Vehicle and Fuel Fees

Set the goal	• Adjust fees to meet revenue targets
Use GHG as the metric	• GHG (gCO_2e/km) is fuel and technology neutral. • Can accomodate non-CO_2 gases
Cover all vehicles and fuels	• Selective taxation can shift consumer demand to untaxed options and circunvent policy goals
Feebates	• For vehicles fees, the pricing strucure charges high emitters, while rewarding low emission models with rebates
Long term signals	• Transparent fees allow sufficient lead time to implement new technologies • Increase rate annually and predictably
Linear rather than stepwise fees	• Stepwise fees lead consumers to purchase vehicles that only meet the minimum requirements for each class • A linear standard requires improvements across all models

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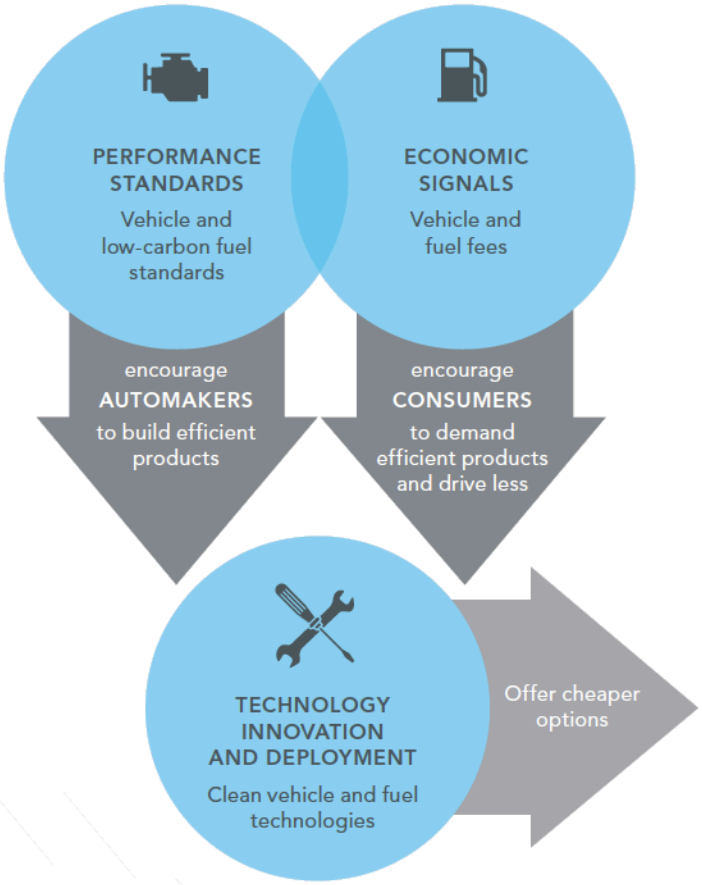
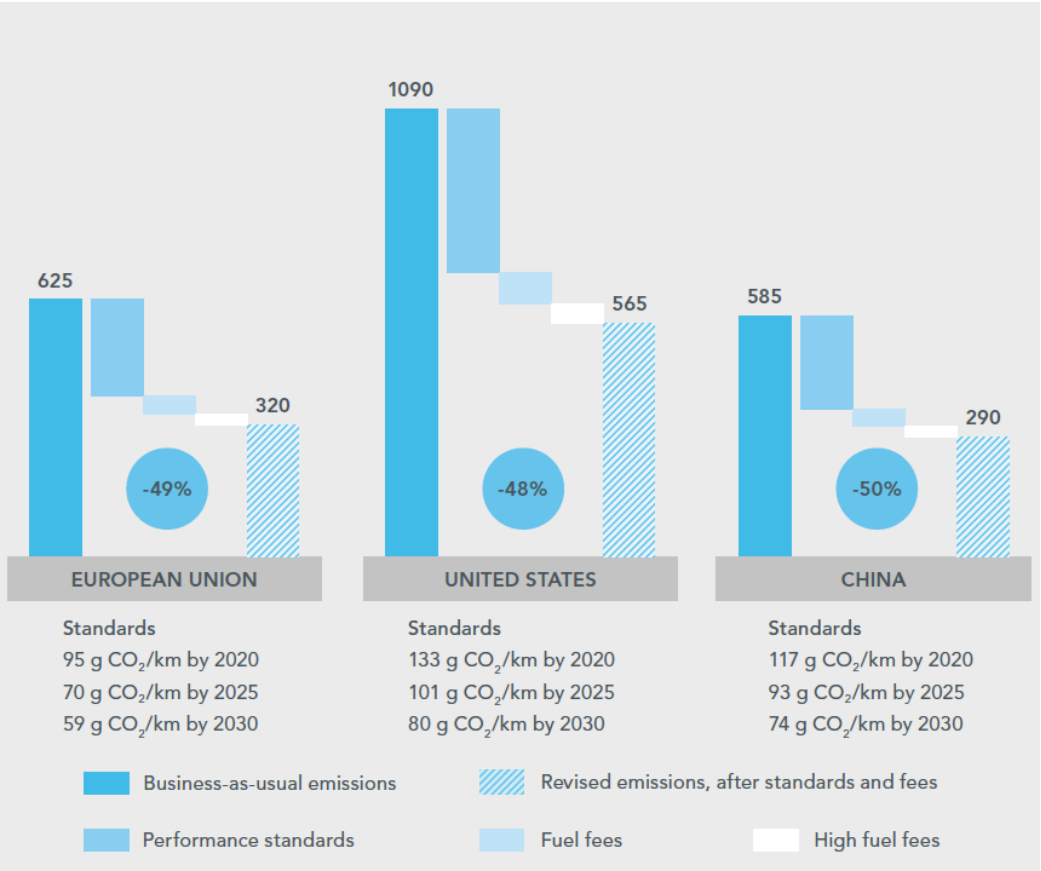
Combining Standards and Fees



Potential Reduction in CO_2 Emissions



[1] Fuel fees: 10% of current fuel price
[2] High Fuel fees: 25% of current fuel price

Conclusions – Vehicle Performance Standards

- Emissions performance standards increase efficiency without dictating a specific technology solution
- Development and adoption of GHG reduction technologies implies a cost, but also promotes investment and labor while providing fuel savings to costumers
- Fuel and vehicle fees complement performance standards and can align market forces with social benefits
- Long-term policies are crucial to provide manufacturers and investors the reliable signals they need to boost R&D, deploy new technologies, and transform the market
- Our conservative analysis show that we could reduce CO_2 emissions from the U.S., China, and the E.U. by more than 1 Gt in 2030
- Fuel cost net savings of roughly $130 billion in 2030, or a cumulative savings of approximately $800 billion to $1.5 trillion by 2030

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THANK YOU!

francisco@theicct.org

laura.segafredo@climateworks.org