

# The GFEI: Working towards efficient mobility



## **Ghana GFEI Dissemination Workshop**

Institute of Environmental Studies

Amasaman, Accra

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**David Rubia**

UN Environment

Air Quality & Mobility Unit

# UN Environment

## Promoting Sustainable Low Emissions

### Transport

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#### Avoid

- **Africa Sustainable Transport Forum** – develop and adopt action plans in Africa for sustainable and low emissions transport

#### Shift

- **Share the Road (StR)** – promote and develop non-motorized transport policies

#### Improve

- **Global Fuel Economy Initiative (GFEI)** – double vehicle fuel efficiency by 2050
- **E-Mob** – supporting electrification of the vehicle fleet
- **Partnership for Clean Fuels and Vehicles (PCFV)** – reduce emissions from light-duty vehicles
- **Reducing Emissions from Heavy-Duty Vehicles**
- **Clean Ports** – reduce emissions from port activities

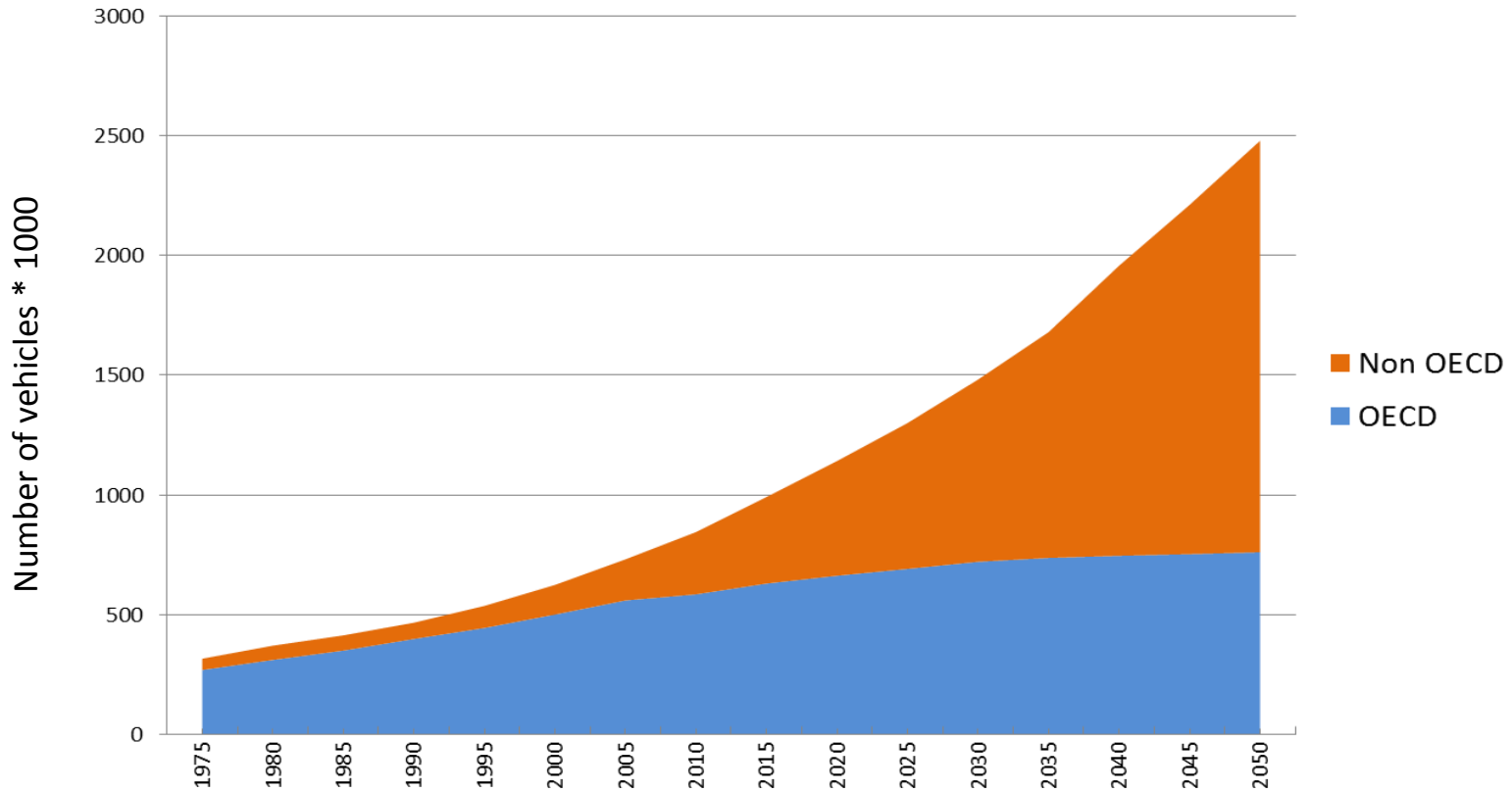


StR



# Motor vehicles ~ 1 billion today... over 2.5 billion by 2050

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- 90%+ of growth in developing, emerging economies
- Opportunity for energy efficiency, green economy innovation

# Increasing CO<sub>2</sub> emissions from transport

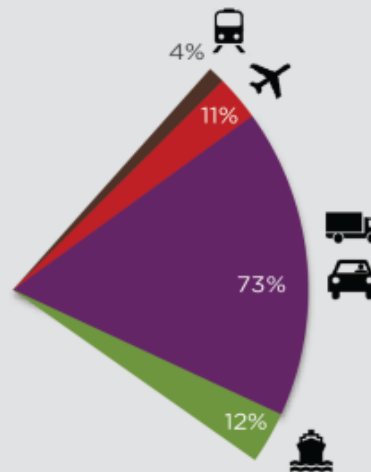
## THE TRANSPORTATION SECTOR

A major contributor to global energy-related CO<sub>2</sub> emissions

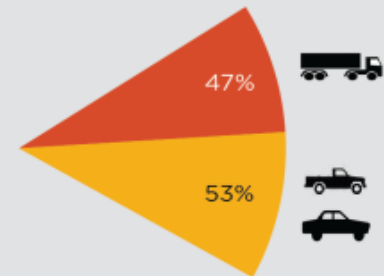
GLOBAL ENERGY-RELATED  
EMISSIONS  
≈ 30 Gt CO<sub>2</sub>



TRANSPORT EMISSIONS  
≈ 7 Gt CO<sub>2</sub>



ROAD TRANSPORT  
EMISSIONS  
≈ 5 Gt CO<sub>2</sub>



## LEGEND

RAIL

AIR

ROAD

SEA

HEAVY-DUTY  
VEHICLES

LIGHT-DUTY  
VEHICLES

Sources:

ICCT (2014). Global Transportation Roadmap Model. Version 2.0. More information available at <http://www.theicct.org/global-transportation-roadmap-model>.

IEA (2012). CO<sub>2</sub> Emissions from Fuel Combustion: Highlights. 2012 edition. Retrieved from <https://www.iea.org/co2highlights/co2highlights.pdf>.

# What is fuel economy?

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- Vehicles use energy, and fuel economy measures energy per unit of vehicle travel. It is the RATE of energy use.
  - Litres per 100km (Europe)
  - Km per litre (Japan)
  - Miles per gallon (United States)
- Fuel economy, fuel efficiency, fuel intensity are all fairly interchangeable terms. But fuel economy always refers to fuel use relative to distance travelled.

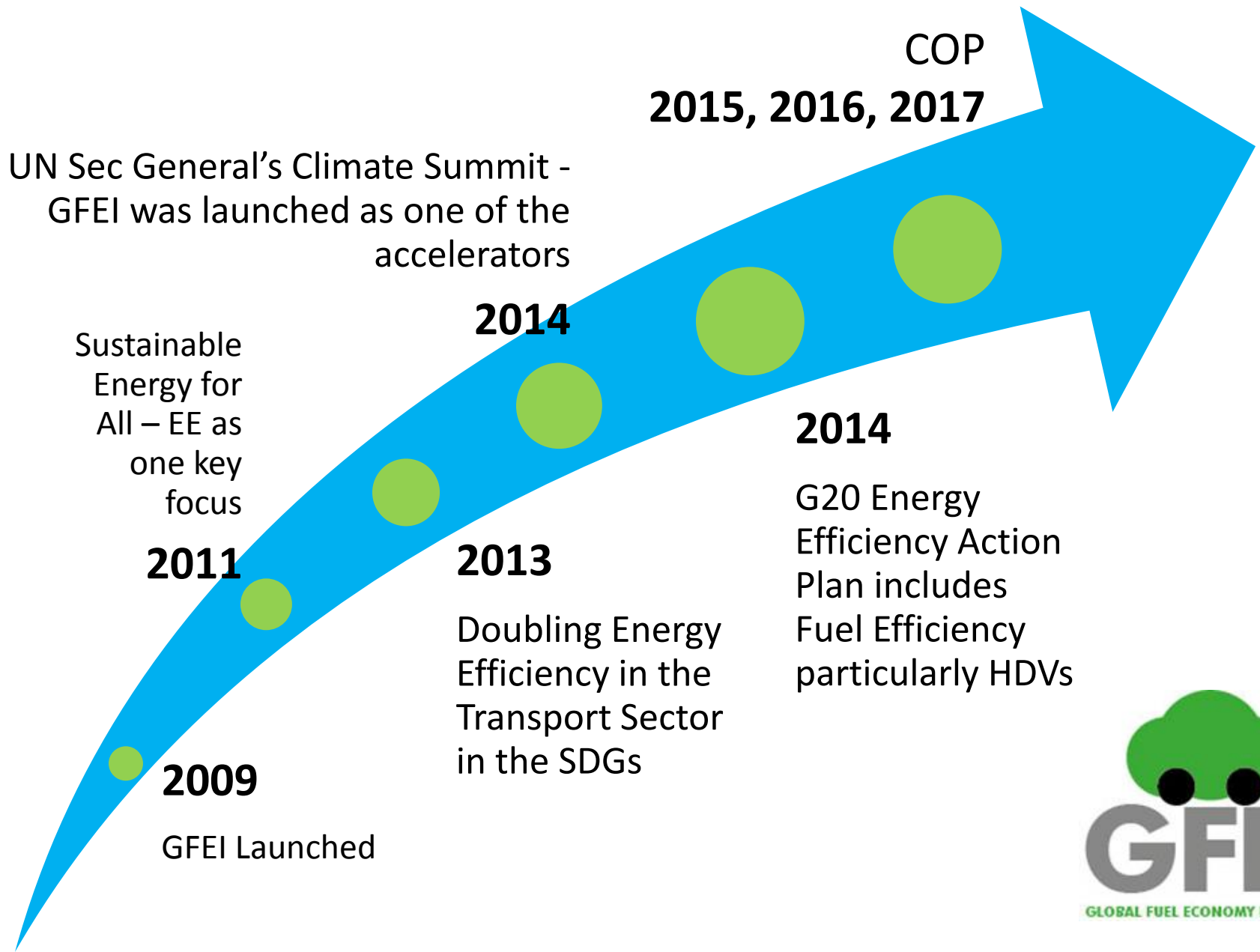
# Doubling the efficiency of the global car fleet by 2050



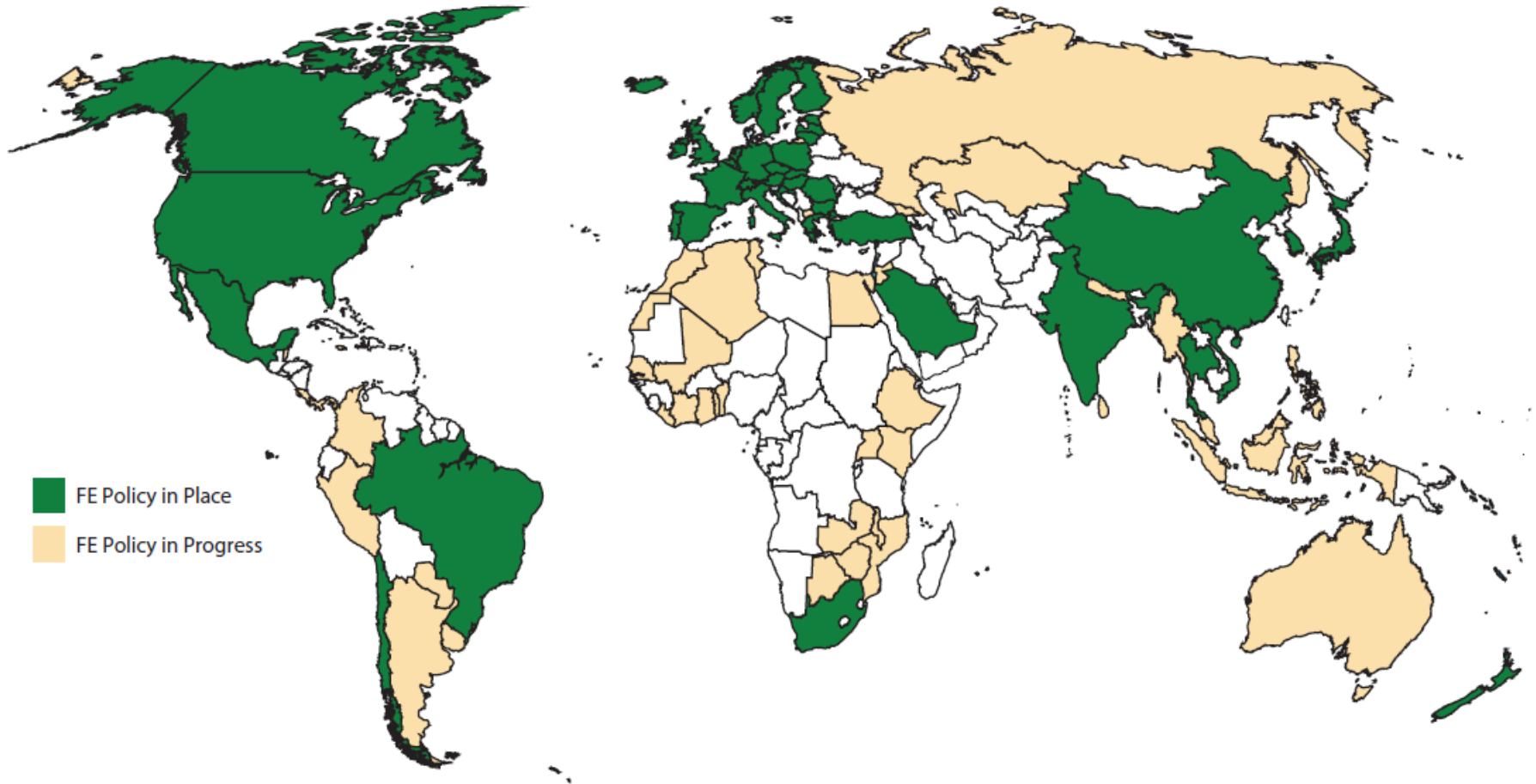
			2005	2008	2010	2012	2014	2015	2030
OECD & EU average	average fuel economy (Lge/100km)		8.8	8.2	7.8	7.6	7.4	7.3	
	annual improvement rate (% per year)		-2.3%	-2.8%	-1.6%	-1.3%	-0.5%	-1.8%	
Non-OECD average	average fuel economy (Lge/100km)		8.5	8.5	8.4	8.2	8.0	7.9	
	annual improvement rate (% per year)		-0.1%	-0.3%	-1.4%	-1.2%	-1.6%	-0.8%	
Global average	average fuel economy (Lge/100km)		8.8	8.3	8.1	7.8	7.6	7.6	4.4
	annual improvement rate (% per year)		-1.8%	-1.6%	-1.3%	-1.3%	-1.1%	-1.5%	
GFEI target	required annual improvement rate (% per year)	2005 base year	-2.8%						
		2015 base year							-3.7%

- Slowing improvement in OECD countries
- Increasing improvement in non-OECD but not enough
- Still far from meeting the GFEI target

# GFEI at the global stage



# Global progress on fuel economy



June 2017 - For more information visit [www.globalfueleconomy.org](http://www.globalfueleconomy.org)

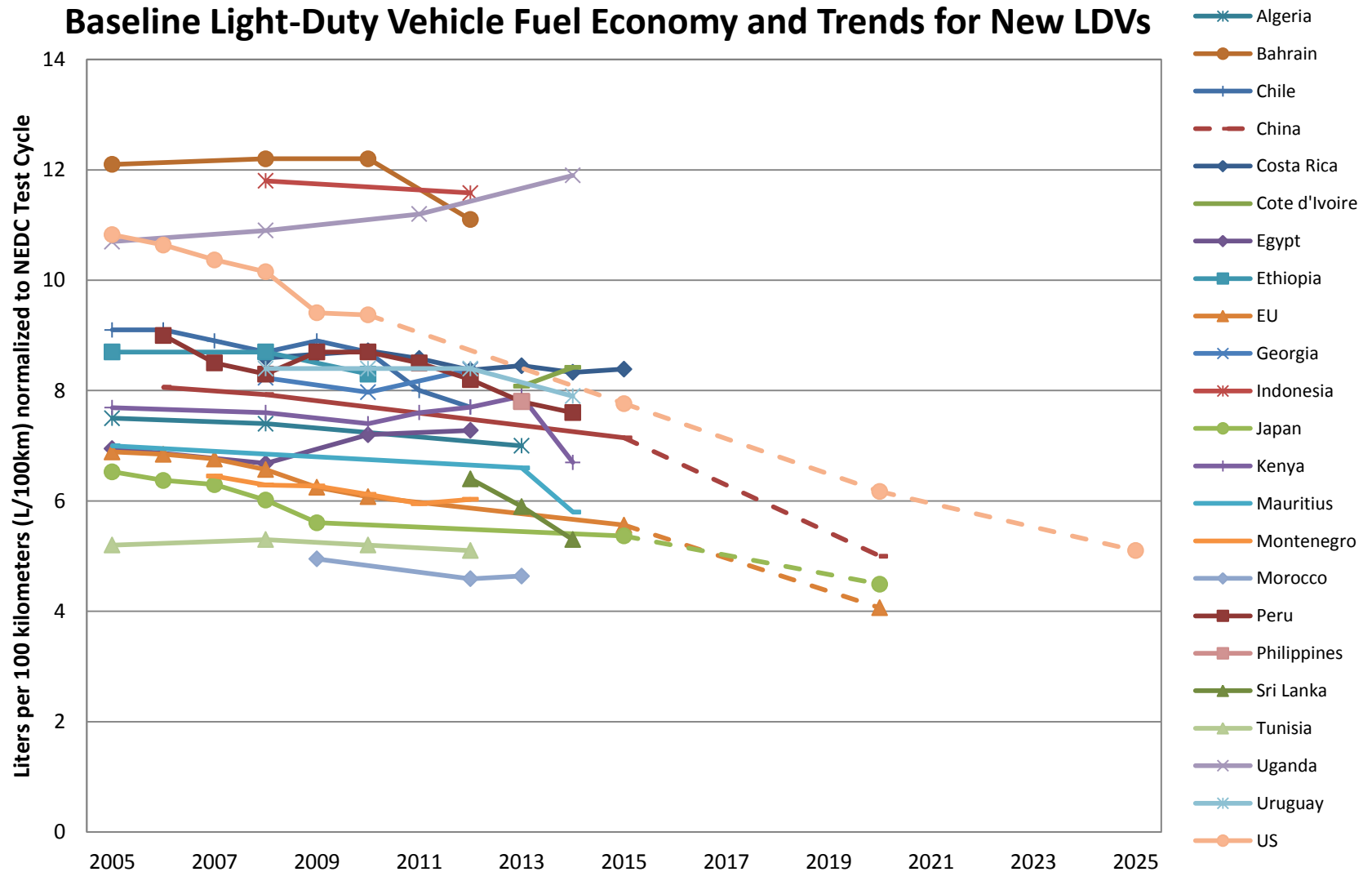
**Global Fuel Economy Initiative (GFEI)**



# Supporting low-middle income and transitional countries

Phase 1 – Pilot countries and tool development	Phase 2 – Regional Rollout		Phase 3 – Global Rollout		Pending Resources	
Chile	Mauritius	Uganda	Nigeria	Honduras	Angola	Serbia
Ethiopia	Vietnam	Ukraine	Tanzania	Namibia	Bhutan	Solomon Islands
Indonesia	Thailand	Malaysia	Rwanda	El Salvador	Burkina Faso	Sierra Leone
Kenya	Georgia	Egypt	Argentina	Botswana	Cambodia	Albania
	Ivory Coast	Kazakhstan	Jordan	Mozambique	Cameroon	Brunei
	Costa Rica	Mali	Brazil	Liberia	Cape Verde	Afghanistan
	Peru	Togo	Colombia	Myanmar	D.R. Congo	Yemen
	Algeria		Panama	Bangladesh	Eritrea	Turkmenistan
	Montenegro		Belize	Burundi	Guinea	Samoa
	Russia		Dominican Republic	South Africa	Pakistan	Gambia
	Jamaica		Djibouti	Mongolia	Kyrgyzstan	Uzbekistan
	Macedonia		Guatemala	Fiji	Laos	Nicaragua
	Morocco		Moldova	Bolivia	Lesotho	
	Bahrain		Iran	Ecuador	Marshall Islands	
	Tunisia		Barbados	Senegal	Oman	
	Benin		St. Lucia	Lebanon	Kuwait	
	Uruguay		Zambia		Niger	
	Nepal		<b>Ghana</b>		Tajikistan	
	Philippines		Malawi		Armenia	
	Sri Lanka		Zimbabwe		Azerbaijan	

# High average fuel economy in many developing countries and no policies



Source: UNEP, 2017 (unpublished).

# Fuel Economy Policy Options

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## VEHICLE FUEL EFFICIENCY STANDARDS

- Introduce and regularly strengthen mandatory standards
- Establish and harmonize testing procedures for fuel efficiency measurement.

## FISCAL MEASURES

- Fuel taxes and vehicle taxes to encourage the purchase of more fuel-efficient vehicles.
- Infrastructure support and incentive schemes for very fuel-efficient vehicles.

## MARKET-BASED APPROACHES

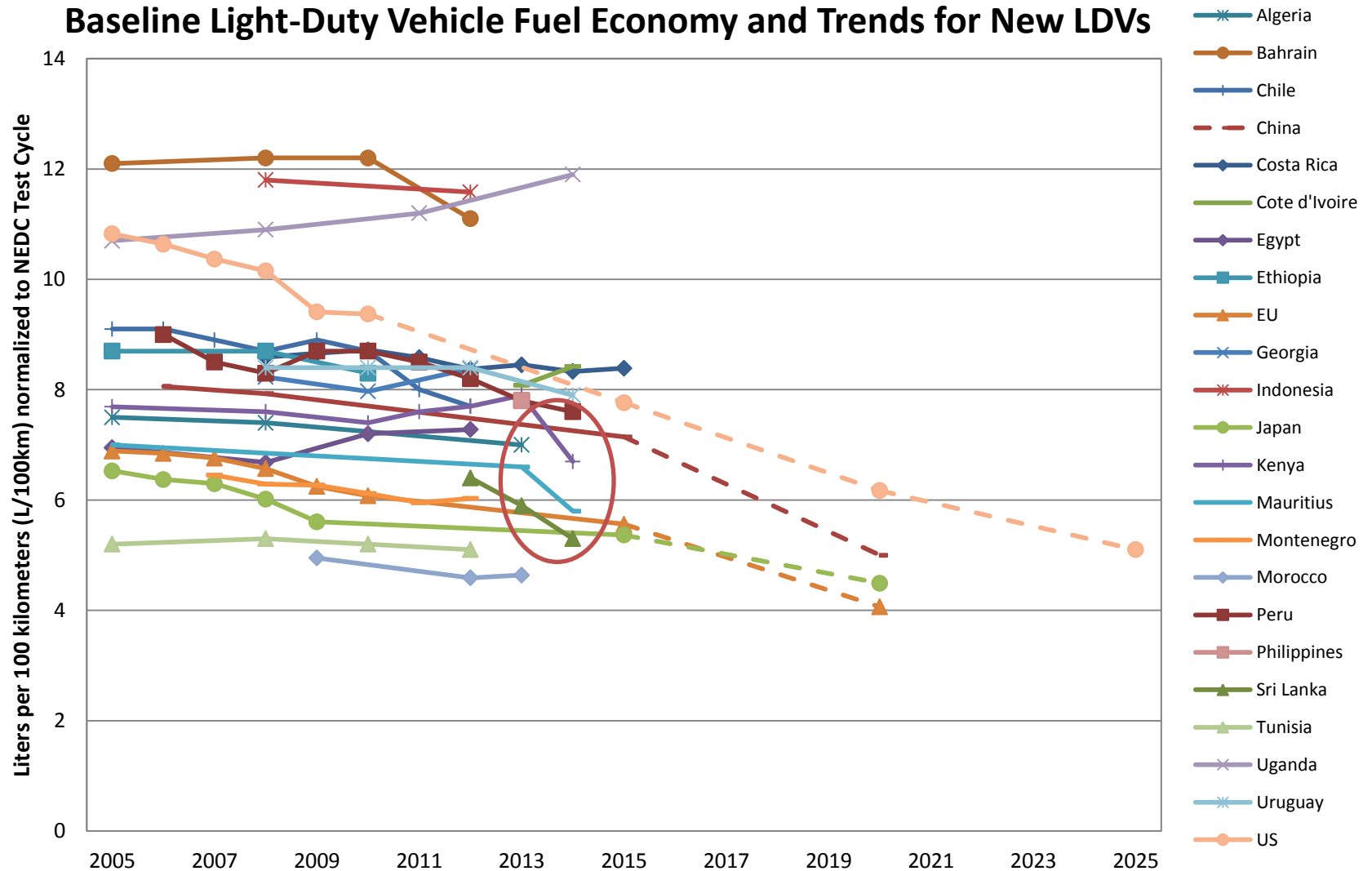
- Voluntary programs such as U.S. SmartWay and other green freight programs

## INFORMATION MEASURES

- Vehicle fuel economy labels
- Improving vehicle operational efficiency through eco-driving and other measures.

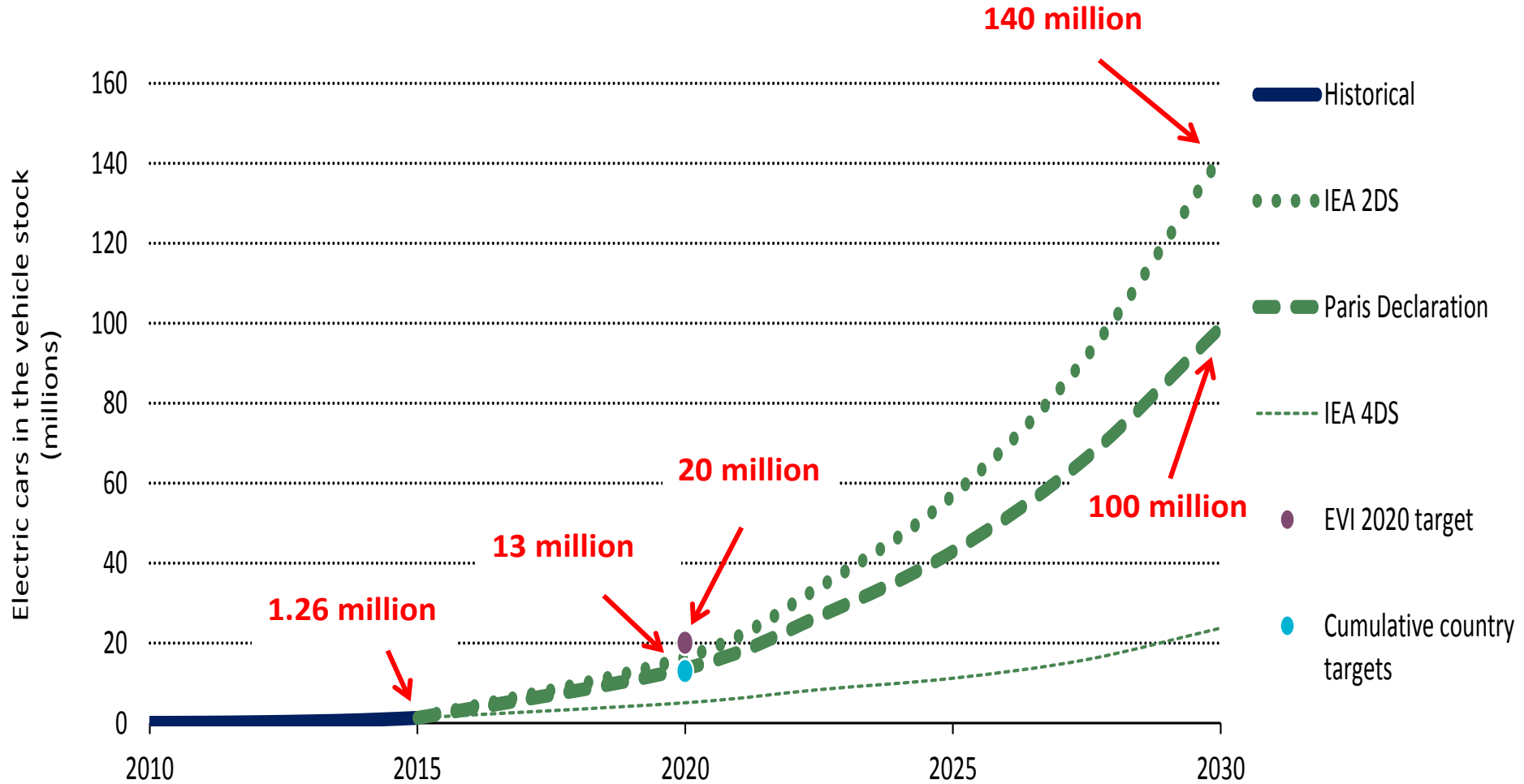
# Fuel economy policies can work substantially

## Baseline Light-Duty Vehicle Fuel Economy and Trends for New LDVs



Source: UNEP, 2017 (unpublished).

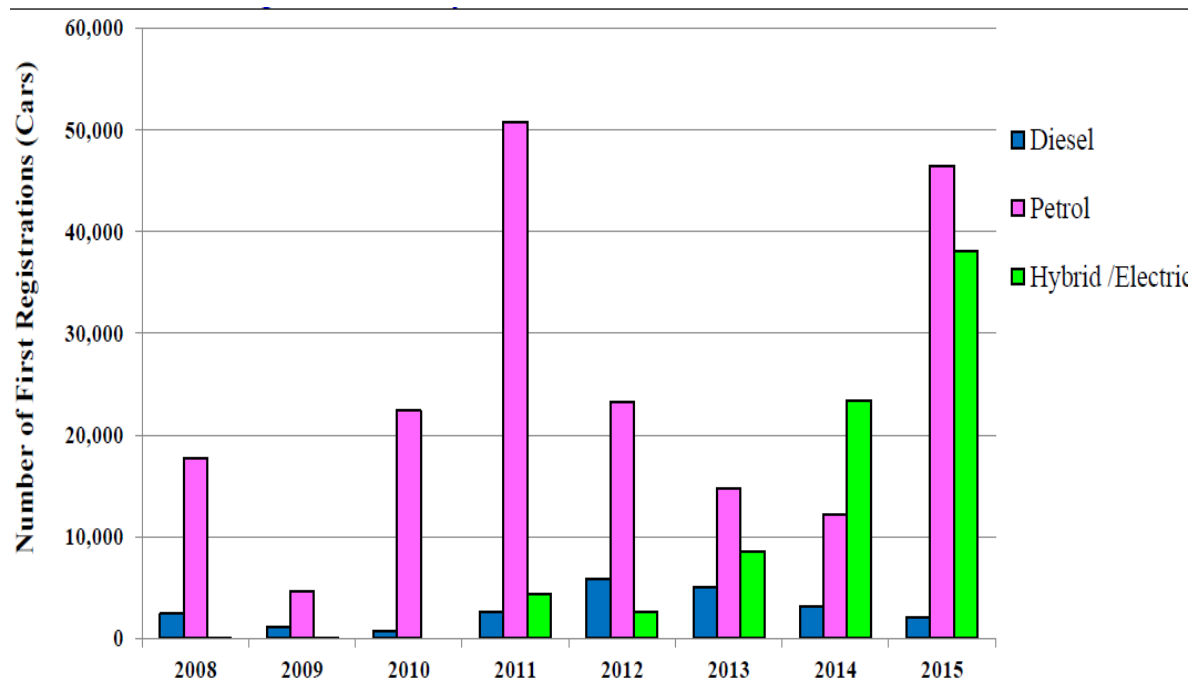
To meet  $\leq 2^\circ\uparrow$  scenario, at least 20% of all road vehicles must be electric-powered by 2030 (IEA).



Projections indicate that a **MAJOR** disruption is needed to increase electric mobility uptake

# Hybrid and Electric cars in Sri Lanka

- Hybrid and electric cars in 2014 was 56% of the total number of cars
- Hybrid-petrol, petrol and diesel vehicles attract 58%, 253% and 345%, respectively, in excise tax
- Fully electric vehicles are levied at 25%.



# Age-based taxation scheme in Kenya

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- New fuel economy policy included in new budget presented by treasury June 2015 to parliament
- Adopted an age-based taxation system that raised the tax for imported second-hand vehicles older than 3 years with an additional 2,000\$ and reduced tax by 1,500\$ for vehicles younger than 3 years

# CO2-based Feebate Scheme in Mauritius

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- Feebate scheme in 2011 = fee on cars above 158 CO<sub>2</sub>g/km starting from 55\$ per g/km to 137\$ per g/km for cars over 290 CO<sub>2</sub> g/km and a rebate starting from 27\$ per g/km for cars with CO<sub>2</sub> ratings from 91 to 158 CO<sub>2</sub>g/km and 82\$ for cars from 90 CO<sub>2</sub>g/km and below
- From 7l/100km in 2005 to 5.8l/100km in 2014 and rapid increase of new hybrid vehicle sales from 337 in 2011 to 1418 in 2013

**THE EXCISE (AMENDMENT) BILL**  
(No. XVIII of 2011)

**Explanatory Memorandum**

The main object of this Bill is to amend the Excise Act to provide, in addition to the excise duty chargeable on motor cars, for a CO<sub>2</sub> levy on motor cars or for the granting of a CO<sub>2</sub> rebate from the excise duty payable on motor cars, as the case may be, and for related matters.

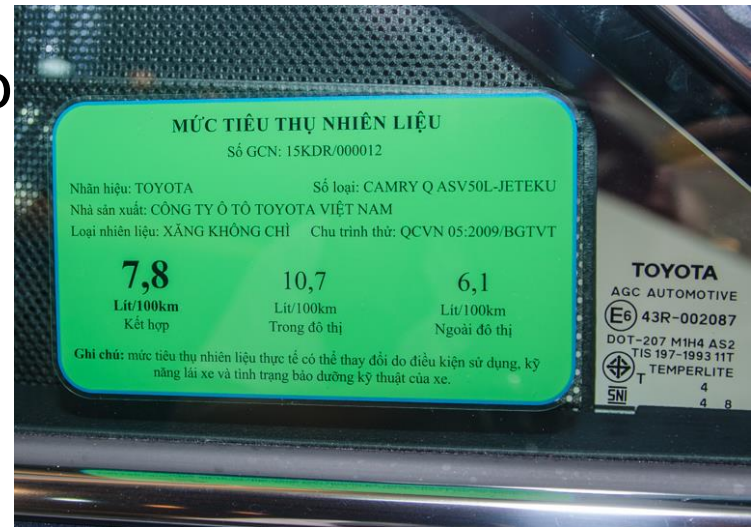
**P. K. JUGNAUTH**  
*Vice-Prime Minister, Minister of Finance  
and Economic Development*

8 July 2011



# Vehicle Labeling in Viet Nam

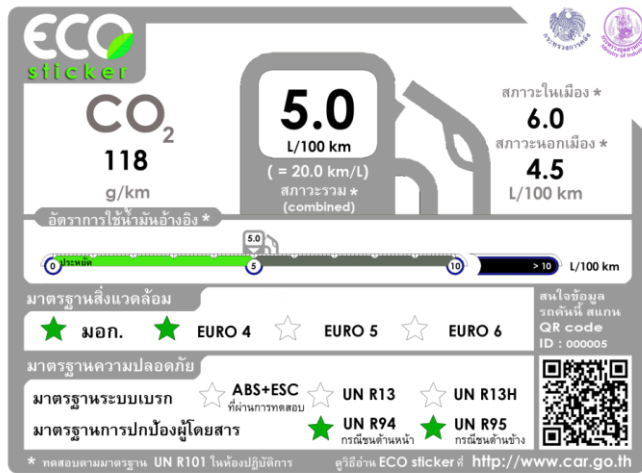
- Seven-seater cars and smaller ones are required to carry energy rating labels
- Labeling for those with more than seven seats will be voluntary until December 31, 2017 and for motorcycles until December 31, 2019 and required on cars from January 1, 2018 and motorcycles from January 1, 2020



# Labeling and CO<sub>2</sub>-based Tax in Thailand

- Vehicle excise tax rates in Thailand combines CO<sub>2</sub> ratings and engine capacity
- Mandatory eco-sticker

Types of Vehicles	Fuel type / Tax rates			
	CO <sub>2</sub> / engine capacity	E10/ E20	E85/ NGV	Hybrid
Passenger vehicles – cars and vans with less than 10 seats	≤ 100 g/km	30	25	10
	101-150 g/km	30	25	20
	151-200 g/km	35	30	25
	>200 g/km	40	35	30
	>3,000 cc	50	50	50
~~~~~				
Electric vehicle/ fuel cell	≤ 3,000 cc (180 Kw)		10	
	> 3,000 cc (180 Kw)		50	



# Labeling and taxation in Chile

- Adopted a mandatory fuel economy labelling scheme from February 2013 becoming the first Latin American country to adopt such a scheme
- In September 2014 adopted a taxation scheme that puts a tax on less efficient and polluting vehicles, based on CO<sub>2</sub> and NOx ratings
- In 2015 is adopting a scheme to provide subsidies for cleaner and more efficient taxis based on the fuel economy labeling scheme, with the aim to replace the 60,000 taxi fleet over the next 8 years



# Summary

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- High growth rate of passenger car sales (and other vehicles) with high fuel consumption in developing countries will persist
- Implementing fuel economy can substantially reduce CO<sub>2</sub> emissions – supporting the Paris Agreement
- And also reduces fossil fuel consumption and national expenditures on fossil fuels
- Improves air quality through adoption of more advanced vehicles and technologies
- To meet 2DS, we must see huge increase in **electric & hybrid vehicles**

# GFEI Toolkit



## CLEANER, MORE EFFICIENT VEHICLES

-  ABOUT GFEI
-  USER'S GUIDE
-  COUNTRY INFO
-  QUESTIONNAIRE
-  CONTACTS



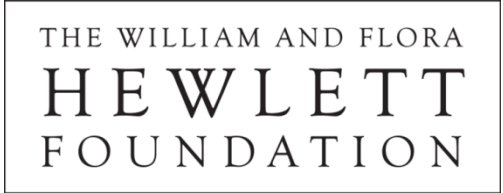
The information contained on this website is intended as practical guidance coupled with examples of auto fuel economy policies and approaches in use around the world. It is not a complete collection of all national examples, nor does it track national and global progress on improving auto fuel economy. It is a work in progress and is updated regularly. This website does not support IE 5 and below.



Download Flash Player

<http://www.globalfueleconomy.org/in-country/gfei-toolkit>

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Thank you

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