The GFEI: Working towards efficient mobility

GFEI
GLOBAL FUEL ECONOMY INITIATIVE

UN environment

GFEI Senegal National Project Launch

École Supérieure Polytechnique

3rd November, 2017

David Rubia

UN Environment

Air Quality & Mobility Unit

UN Environment

Promoting Sustainable Low Emissions Transport

Avoid

Shift

Improve

- **Africa Sustainable Transport Forum** – develop and adopt action plans in Africa for sustainable and low emissions transport
- **Share the Road (StR)** – promote and develop non-motorized transport policies
- **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

Africa Sustainable Transport Forum ASTF

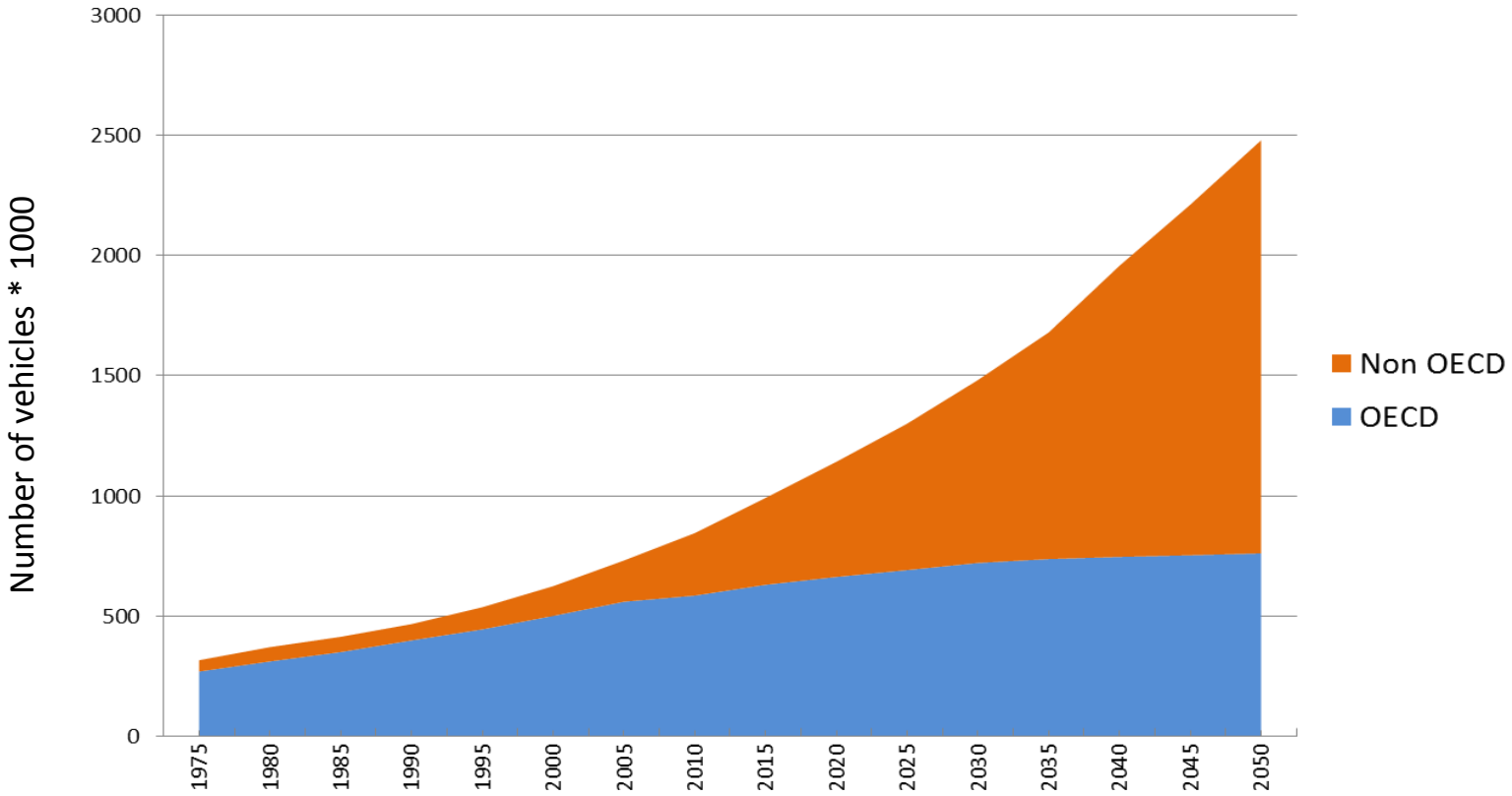
Partnership for Clean Fuels and Vehicles

GFEI

Electric Mobility eMob

GLOBAL CLEAN PORTS

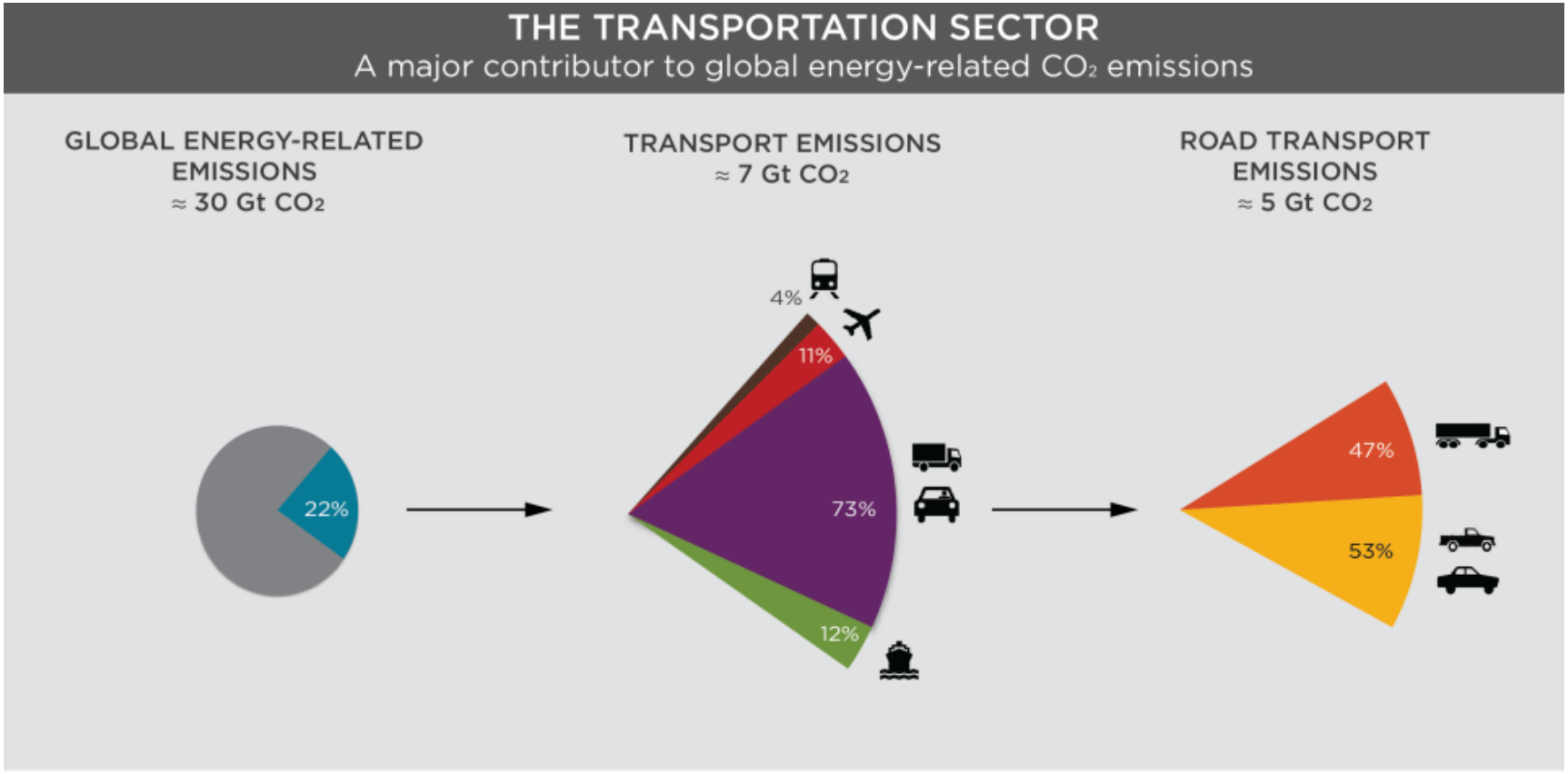
Motor vehicles ~ 1 billion today…
over 2.5 billion by 2050



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

Source: IEA

Increasing CO_2 emissions from transport



Sources:
ICCT (2014). Global Transportation Roadmap Model. Version 2.0. More information available at http://www.theicct.org/global-transportation-roadmap-model.
IEA (2012). CO2 Emissions from Fuel Combustion: Highlights. 2012 edition. Retrieved from https://www.iea.org/co2highlights/co2highlights.pdf.

What is fuel economy?

- 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.

Source: Lew Fulton, UCDavis ITS

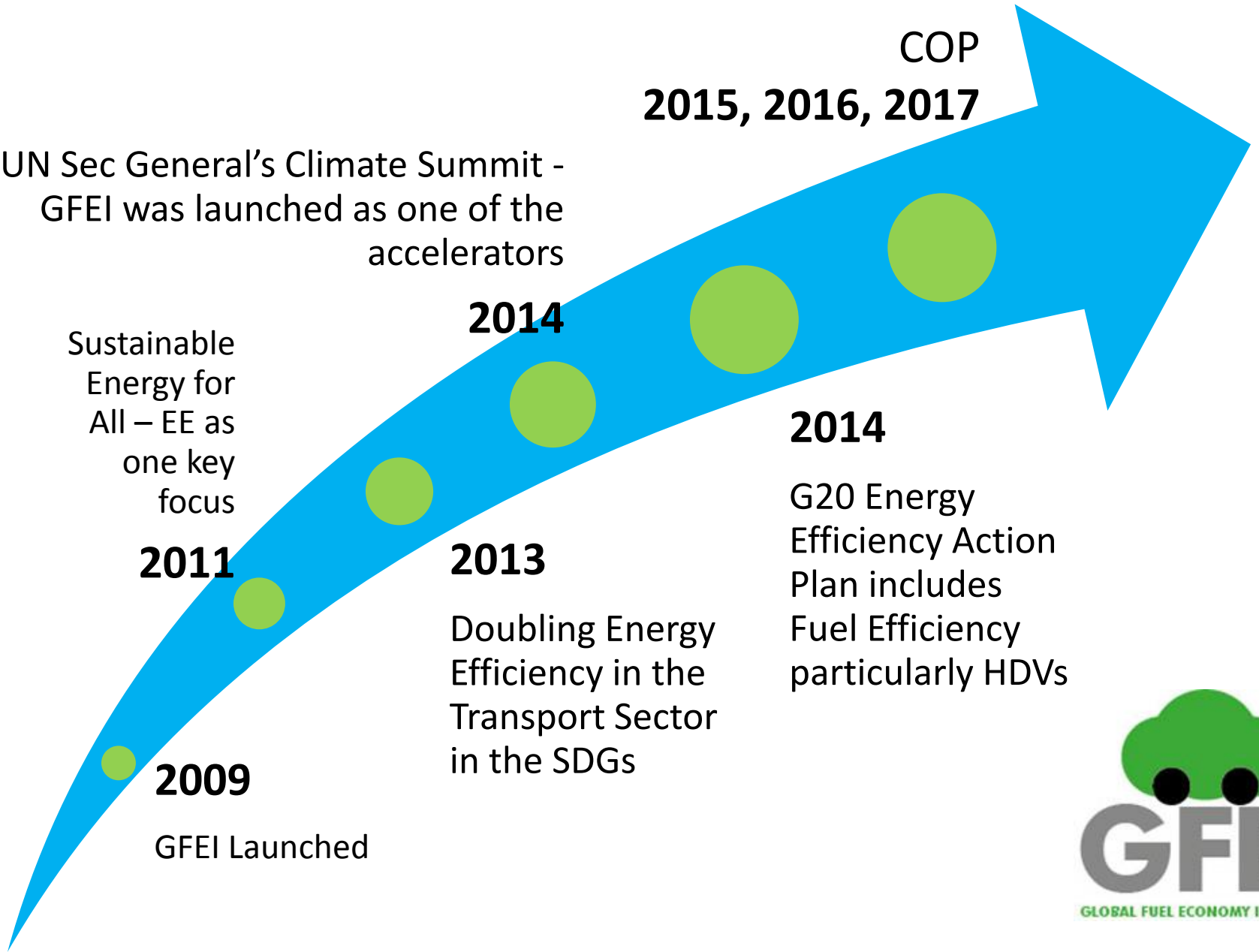
Doubling the efficiency of the global car fleet by 2050

			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

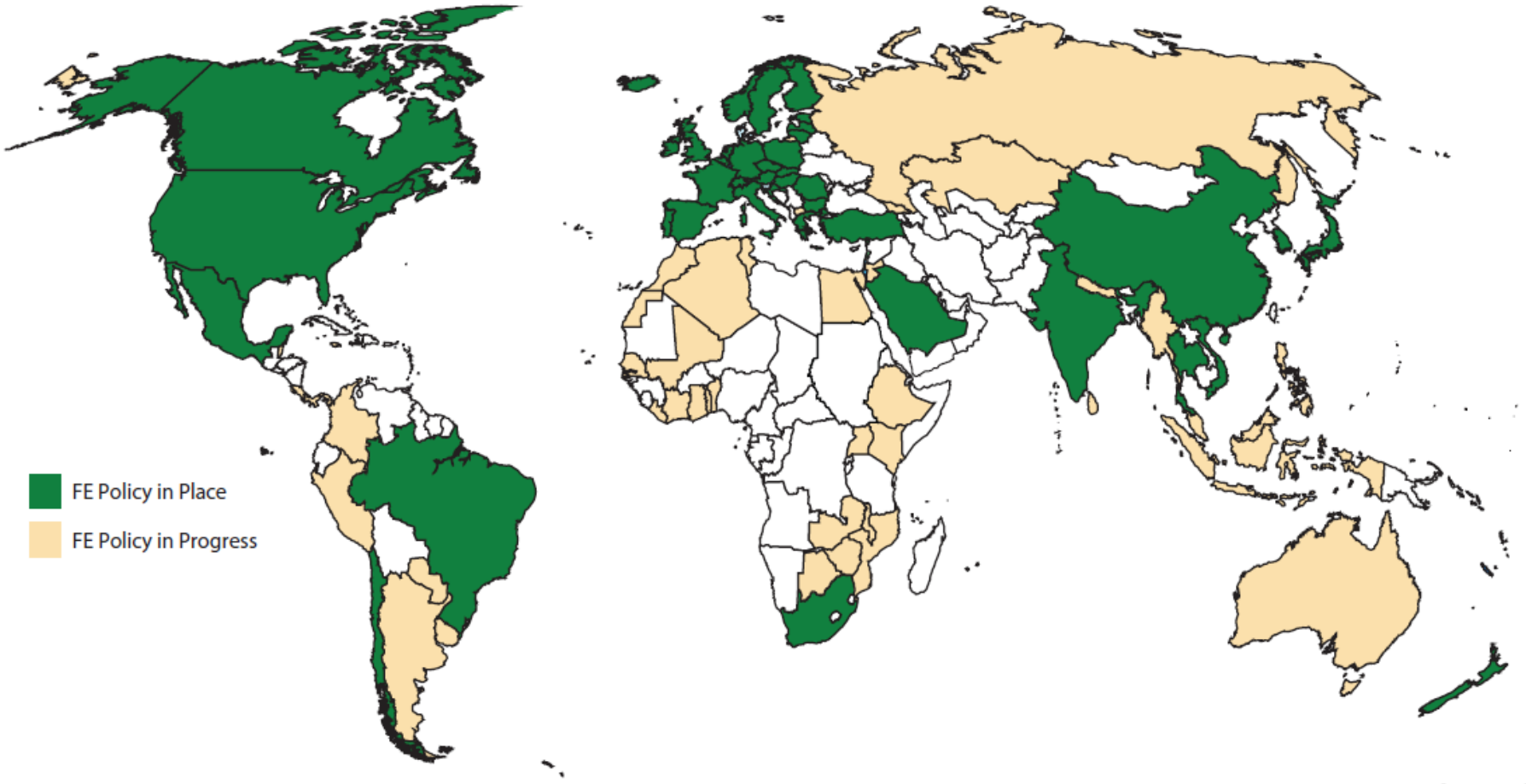
Source: IEA/ GFEI, 2017

GFEI at the global stage



GFEI
GLOBAL FUEL ECONOMY INITIATIVE

Global progress on fuel economy



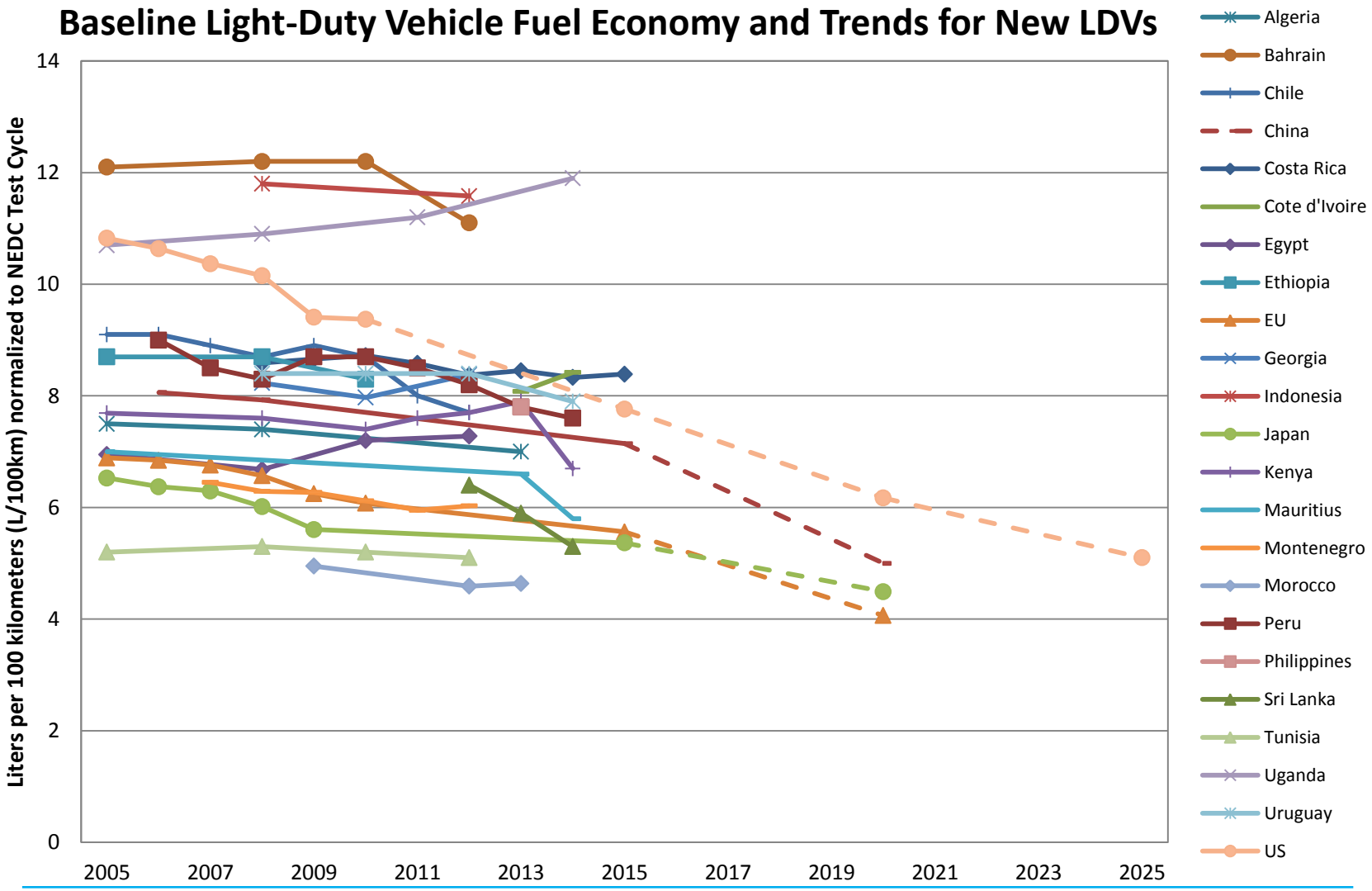
June 2017 - For more information visit www.globalfueleconomy.org

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		Ghana		Tajikistan	
	Philippines		Malawi		Armenia	
	Sri Lanka		Zimbabwe		Azerbaijan	

High average fuel economy in many developing countries and no policies



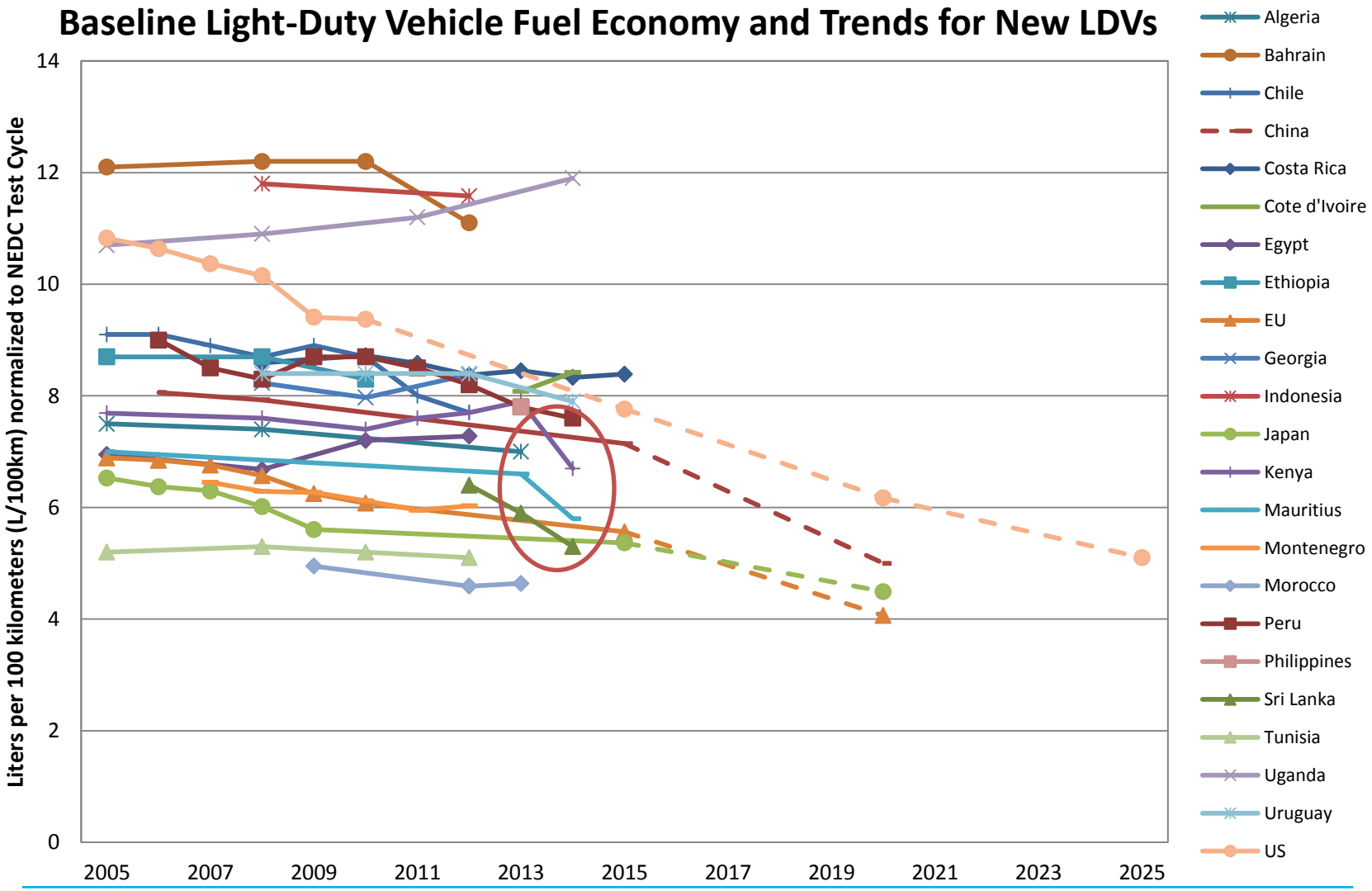
Source: UNEP, 2017 (unpublished).

Fuel Economy Policy Options

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.

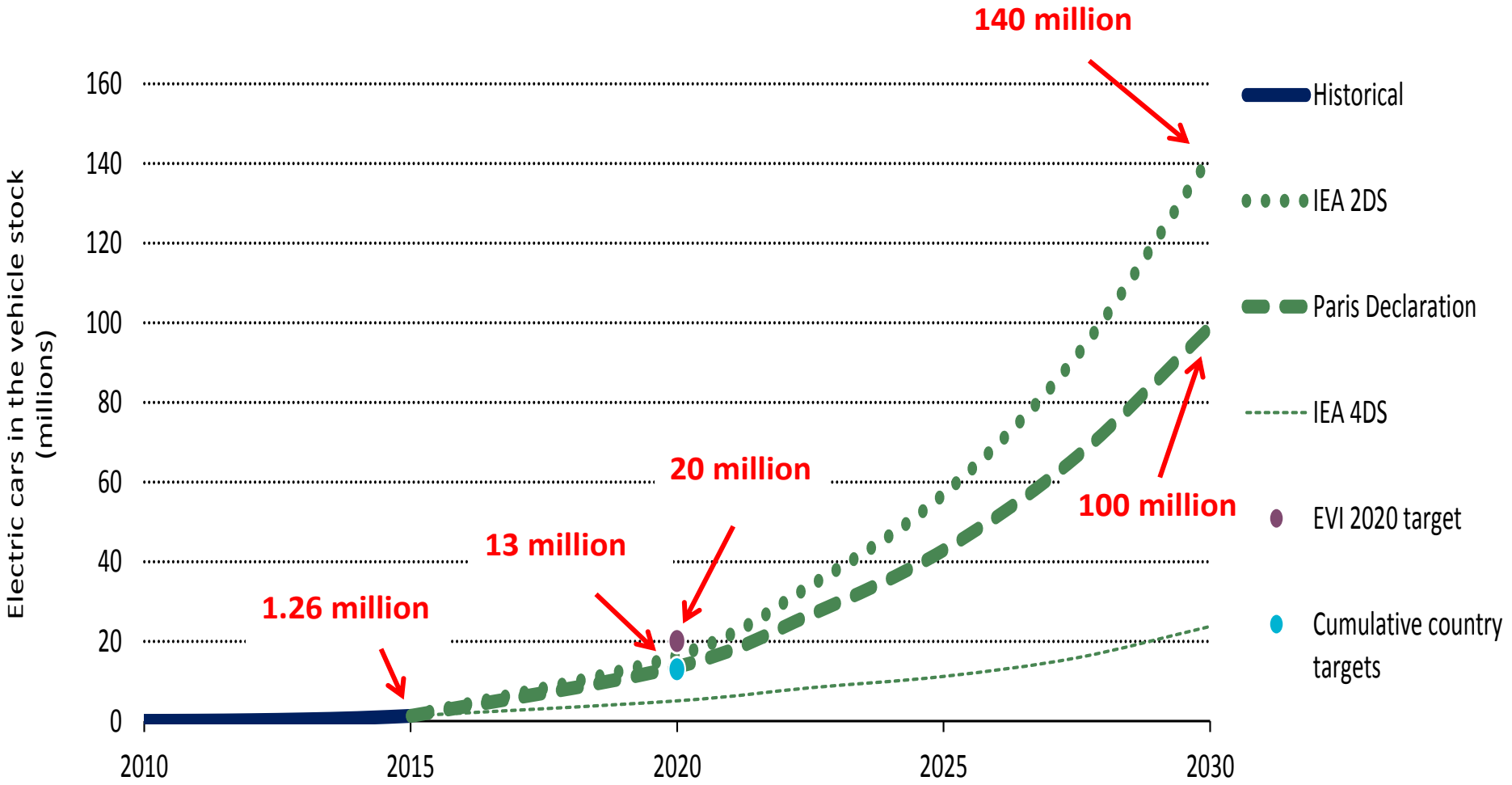
Source: ICCT

Fuel economy policies can work substantially



Source: UNEP, 2017 (unpublished).

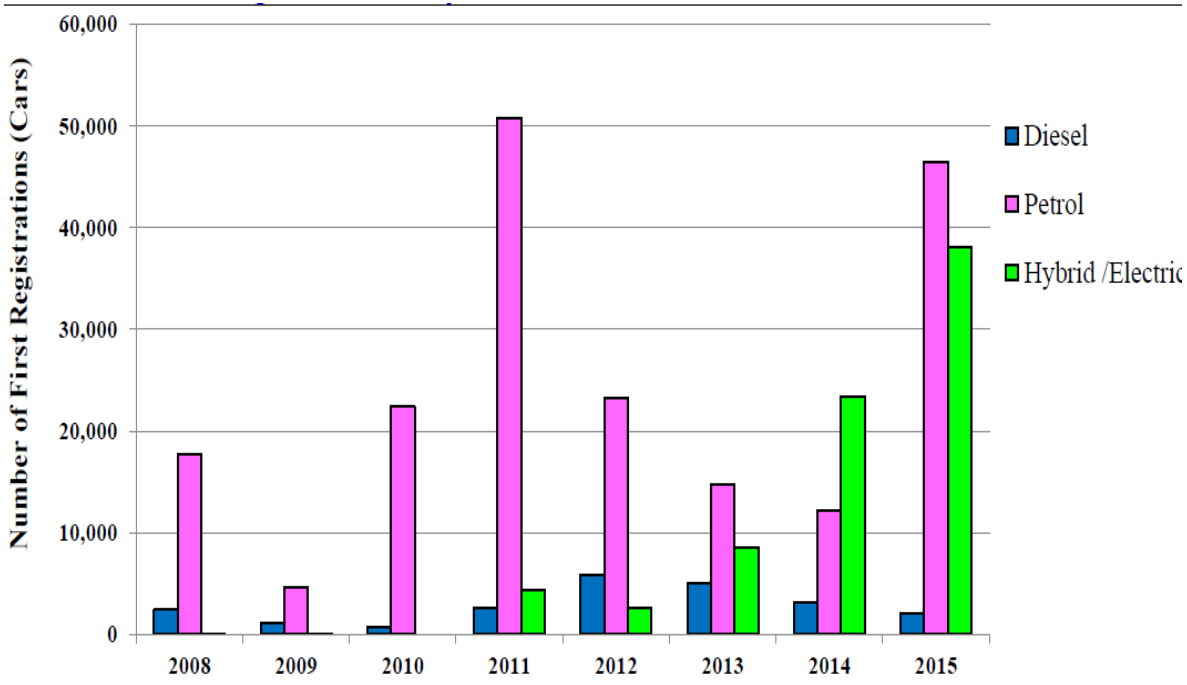
To meet ≤ 2°↑ scenario, **at least 20%** of all road vehicles must be **electric-powered by 2030** (IEA).



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

- 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

- Feebate scheme in 2011 = fee on cars above 158 CO2g/km starting from 55$ per g/km to 137$ per g/km for cars over 290 CO2 g/km and a rebate starting from 27$ per g/km for cars with CO2 ratings from 91 to 158 CO2g/km and 82$ for cars from 90 CO2g/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

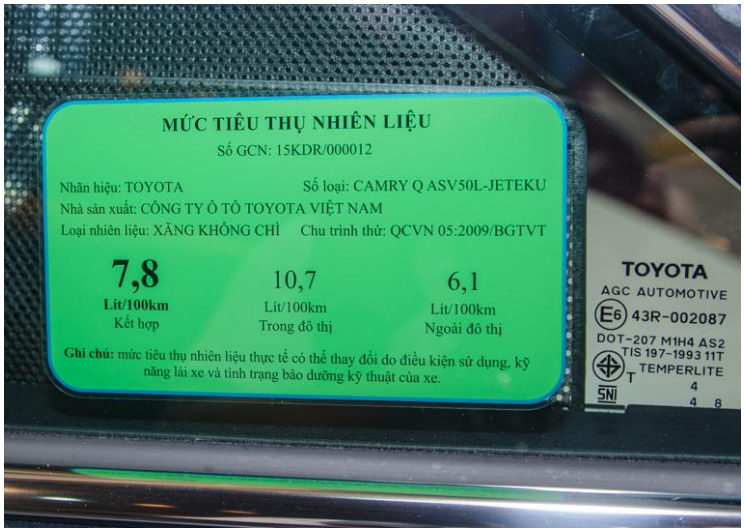
The main object of this Bill is to amend the Excise Act to provide, in addition to the excise duty chargeable on motor cars, for a CO_2 levy on motor cars or for the granting of a CO_2 rebate from the excise duty payable on motor cars, as the case may be, and for related matters.

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 to nine 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



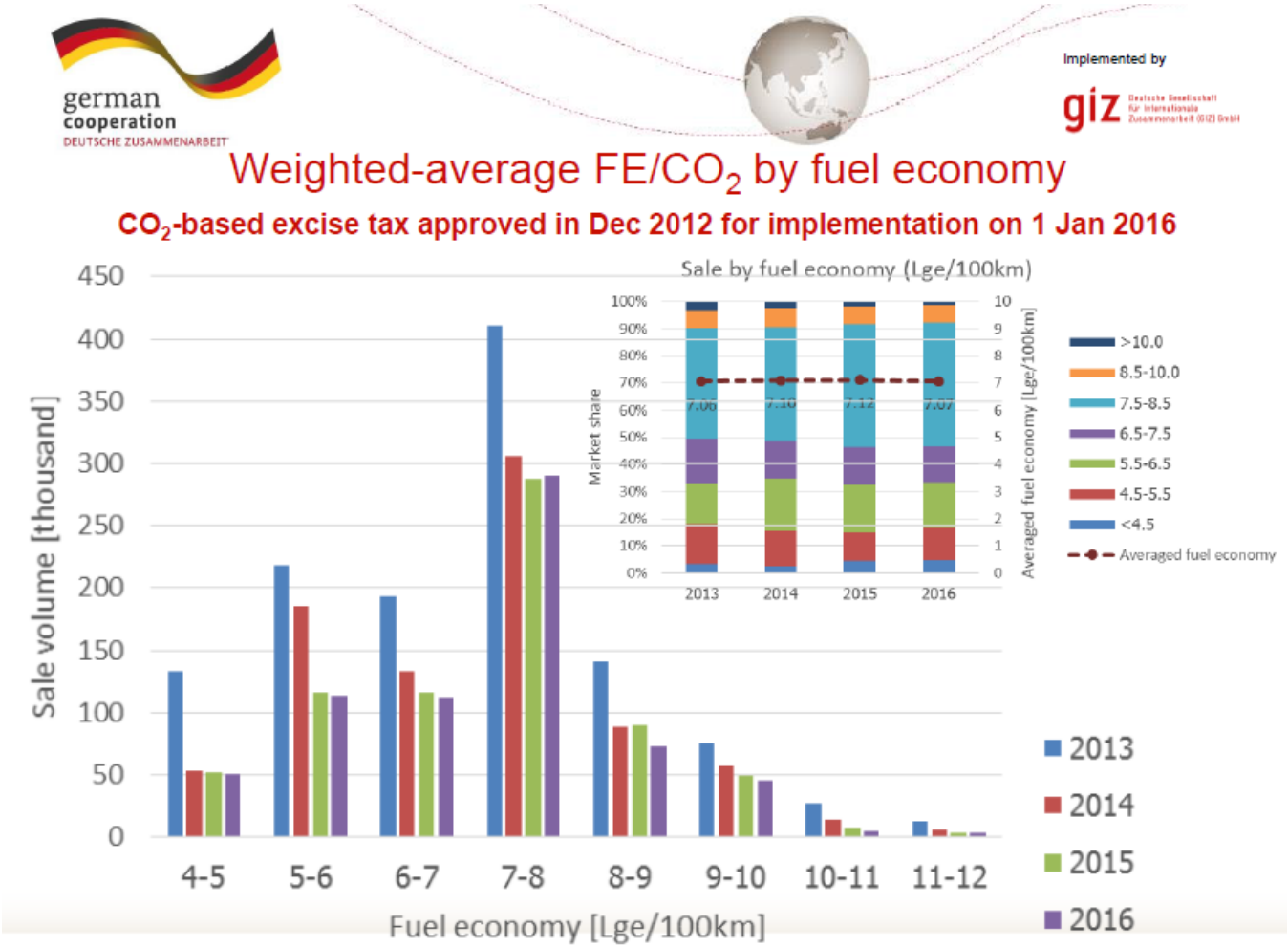
Labeling and CO_2-based Tax in Thailand

- Vehicle excise tax rates in Thailand combines CO2 ratings and engine capacity
- Mandatory eco-sticker

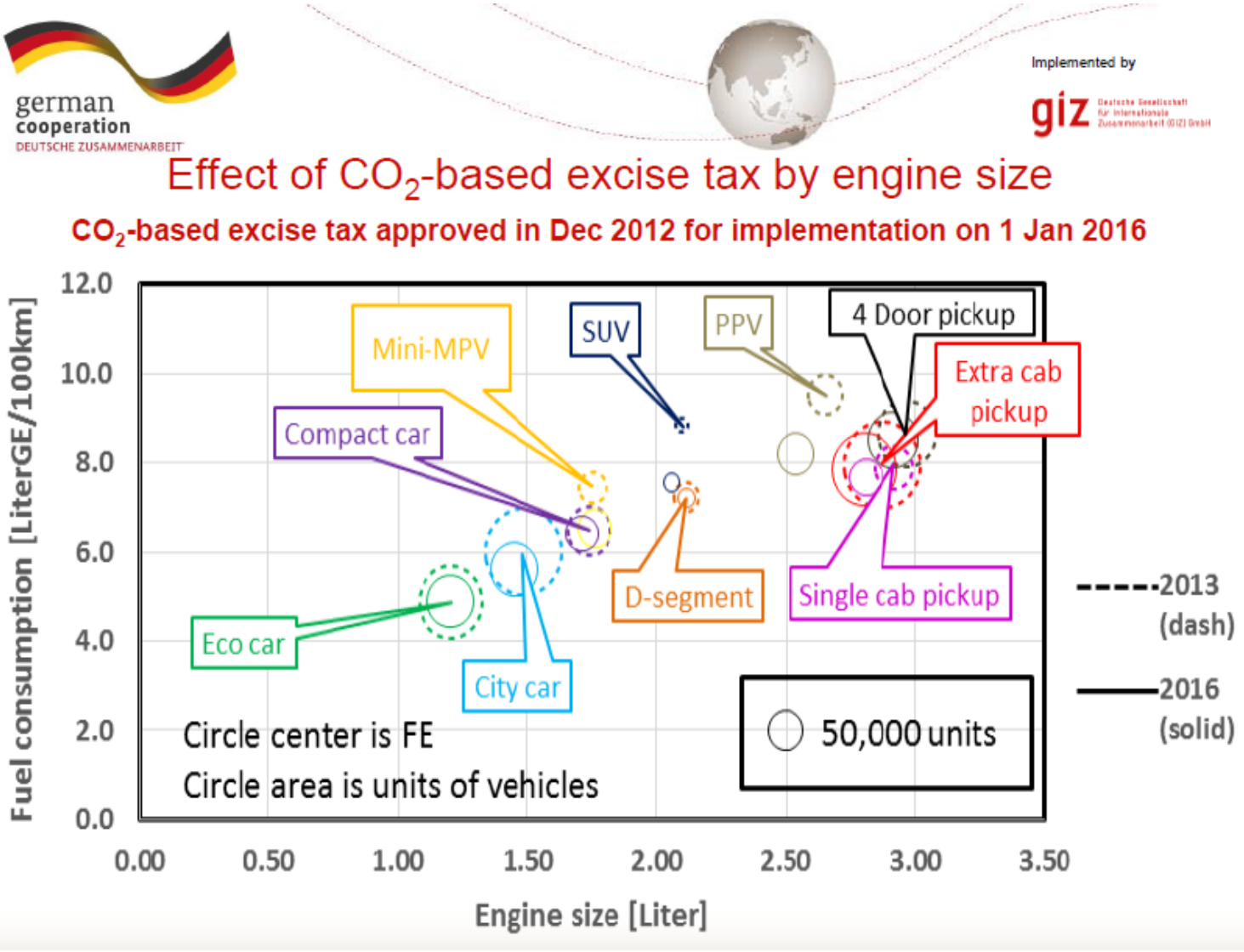
Types of Vehicles		Fuel type / Tax rates		
	CO2/ engine capacity	E10/ E20	E85/ NGV	Hybrid
Passenger vehicles – cars and vans with less than 10 seats	≤ 100 g/km	30	25	10
	101-150 g/km	30	25	20
	151-200 g/km	35	30	25
	>200 g/km	40	35	30
	>3,000 cc	50	50	50
~~				
Electric vehicle/ fuel cell	≤ 3,000 cc (180 Kw)	10		
	> 3,000 cc (180 Kw)	50		

Source: Energy Policy and Planning Office and Department of Alternative Energy Development, 2015

Impact of CO_2-based Tax in Thailand (1)



Impact of CO_2-based Tax in Thailand (2)



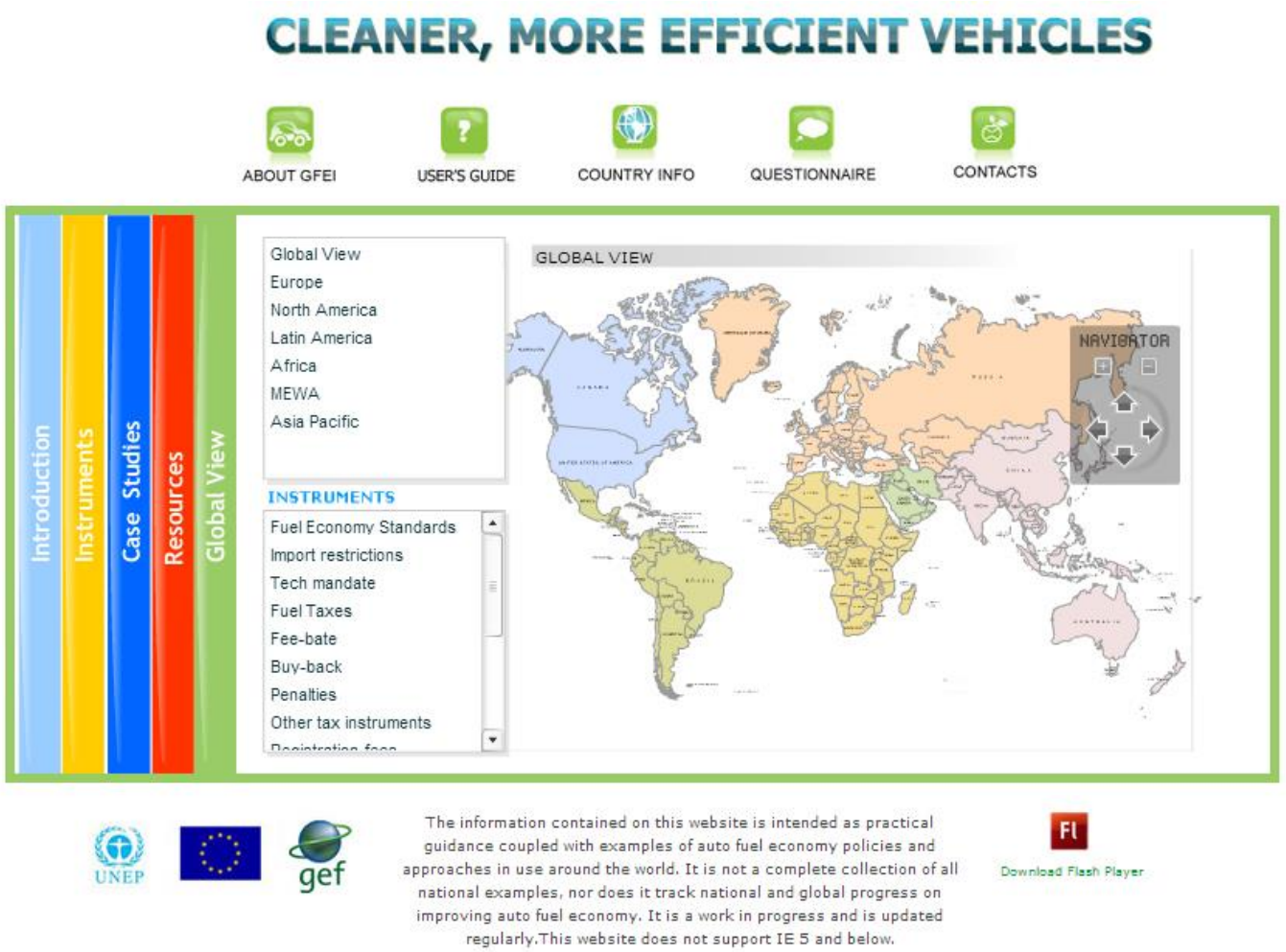
Labeling and taxation in Chile

- 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_2 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

- 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_2 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



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

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