



The 3rd Workshop on moving
Fuel economy policy forward in Thailand
Overview of GIZ study on FE policies in land transport sector in Thailand

Tali Trigg
Project Director

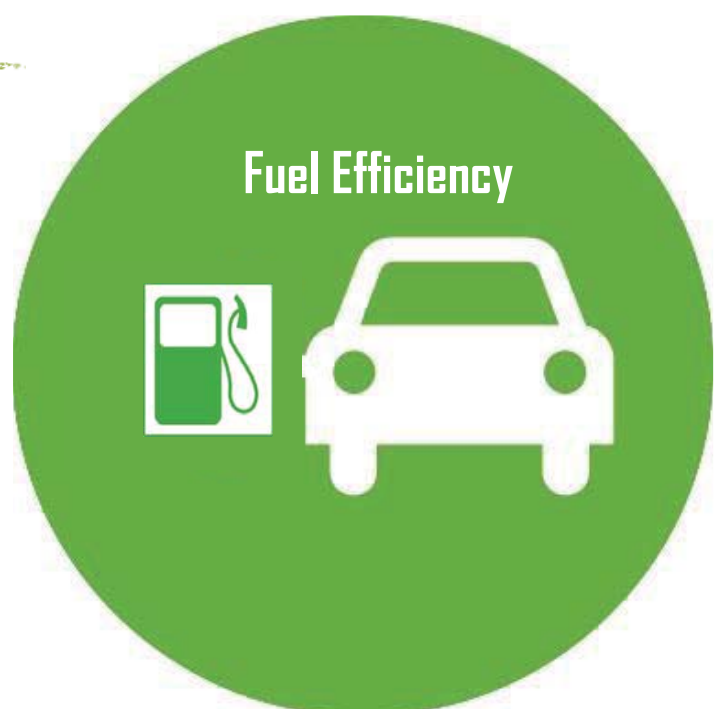
ASEAN-German technical cooperation project
"Energy efficiency and climate change mitigation in the land transport sector in the ASEAN Region"

10 August 2017

Room 501, OTP

Outline

- # Introduction - some definitions
- # Why is fuel efficiency (FE) improvement important for Thailand?
- # International best practices
- # GIZ's study on fuel efficiency policies
- # Conclusions



About GIZ

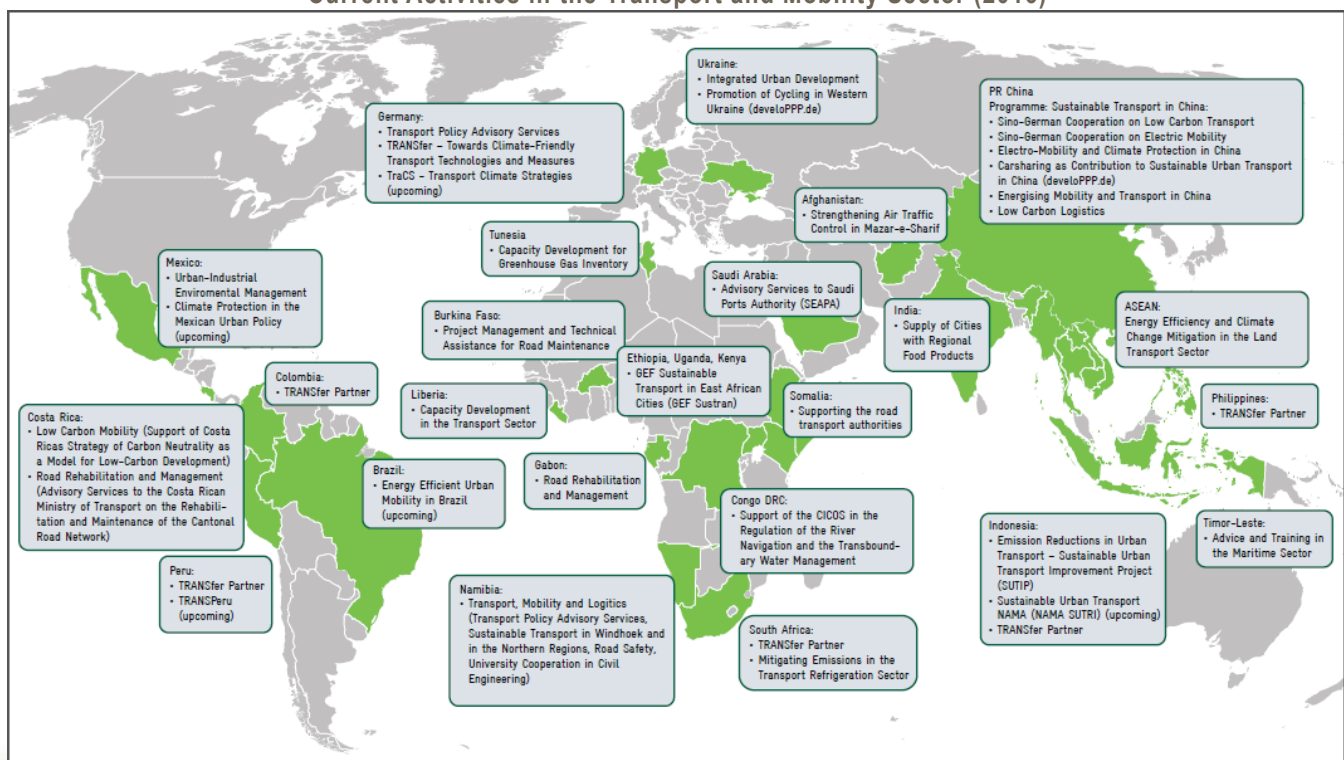
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH –
German International Cooperation

- GIZ's purpose is to promote international cooperation for sustainable development – supporting the objectives of the German Government
- Operations in 130 countries and employs 17,000 staff

The global challenges
of tomorrow drive our work
today. We shape sustainable
development worldwide.

About GIZ

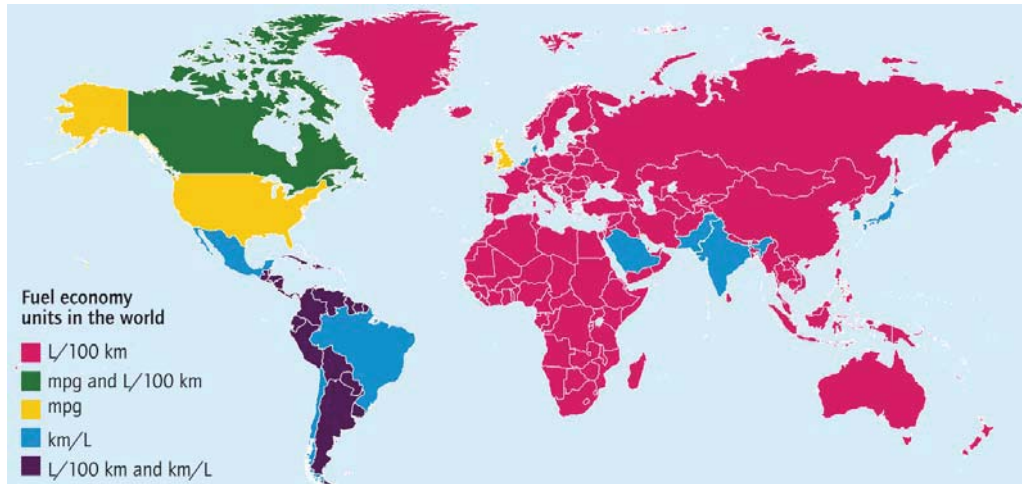
Current Activities in the Transport and Mobility Sector (2016)





Introduction - some definitions

Definitions: Fuel efficiency / fuel economy / fuel consumption



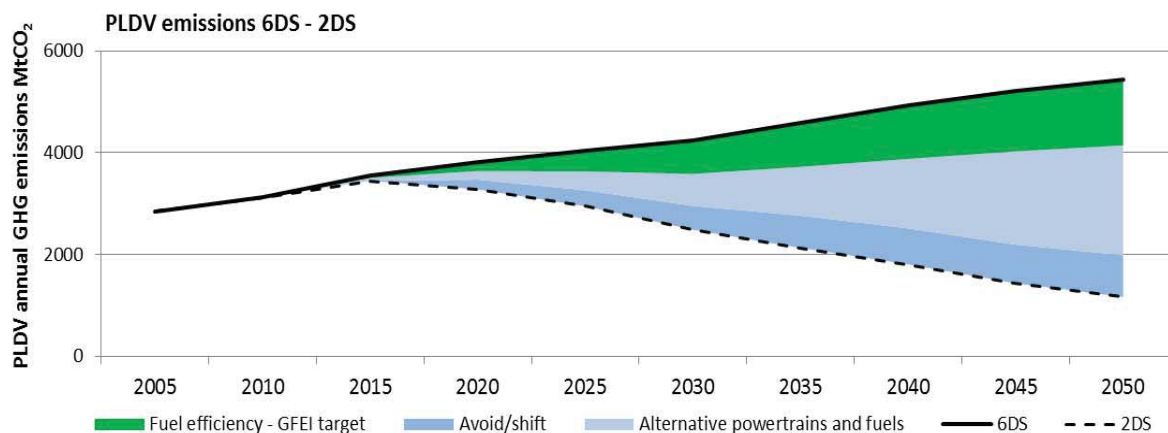
Source: IEA Technology Roadmap: Fuel Economy of Road Vehicles

- Fuel economy: km/l
- Fuel consumption: l/100km
- Fuel efficiency: MJ/pkm or MJ/tkm



Why is FE improvement important?

Car fuel efficiency is a "low-hanging fruit" for GHG mitigation



- Transport accounts for 23% of energy related carbon emissions
- Reducing fuel consumption (L/100km) by 50% until 2050 can save up to 33 Gt CO₂ and up to USD 8 trillion globally

Source: GFEI State of the World 2016



Why is FE improvement important?

Benefits from improved FE



6.5Gt/year of CO₂
from road transport

74% of transport CO₂ emissions from road vehicles

In 2014, total global CO₂ emissions were **38Gt**. Out of the **8.8Gt** of total transport emissions, **74% (6.5Gt)** were from road transport.



300 fewer power stations

The **33Gt** of CO₂ that could be saved between 2015 and 2050 is roughly the equivalent of closing **300** coal power stations over the same time period.



\$2 trillion savings

A total of **\$2 trillion** could be made in fuel savings by 2025, **\$500 billion** of which would fund the costs of initiating a transition to electric vehicles.



Source: GFEI State of the World 2016



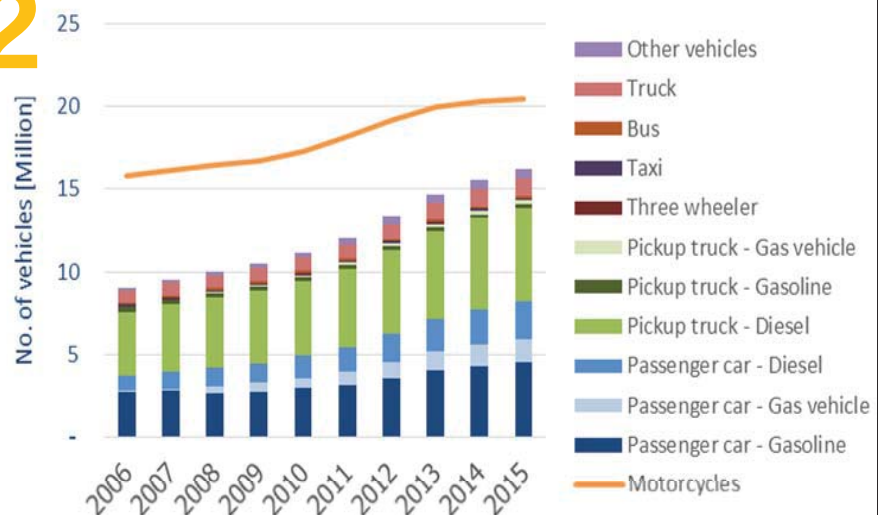
Why is FE improvement important for Thailand?

36.12
Million



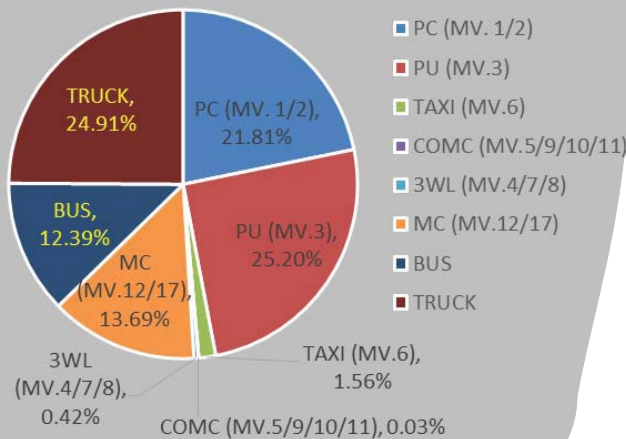
Number of Vehicle under Motor Vehicle Act Registered in Thailand as of 31 December 2016

Record of In-stock Vehicle Registration

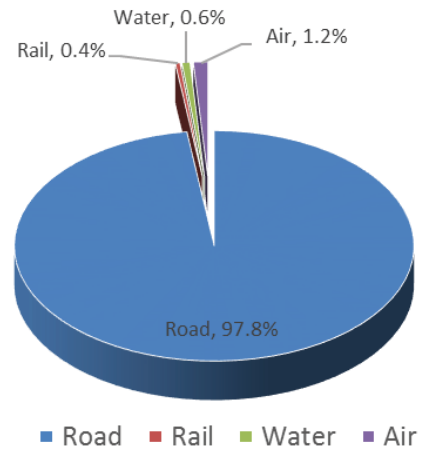


Why is FE improvement important for Thailand?

2014 Share of vehicular fuel consumption
(vehicle type in annex)

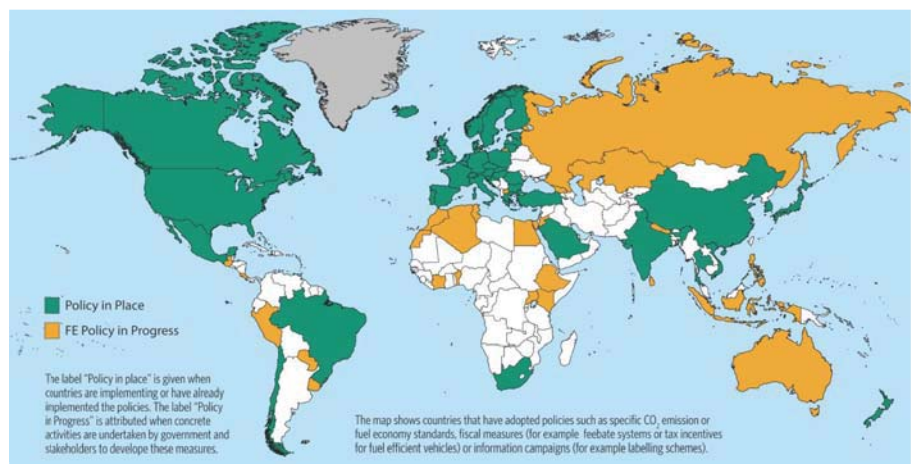
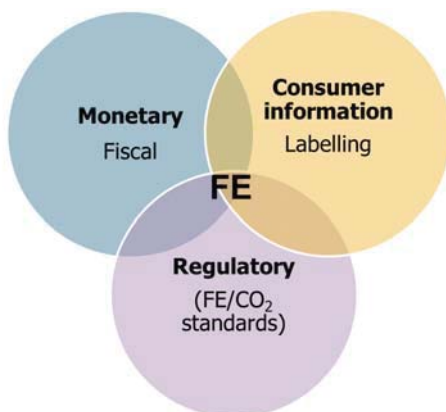


2015 GHG Emission from Transport Sector by Modes



Why is FE improvement important for Thailand?

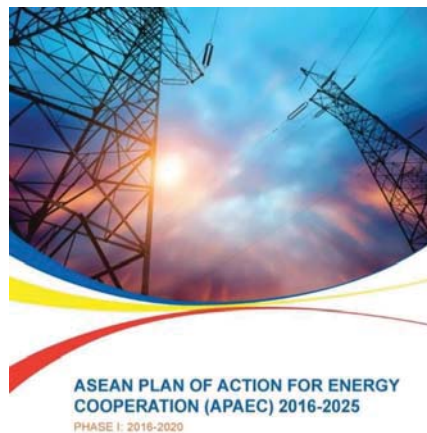
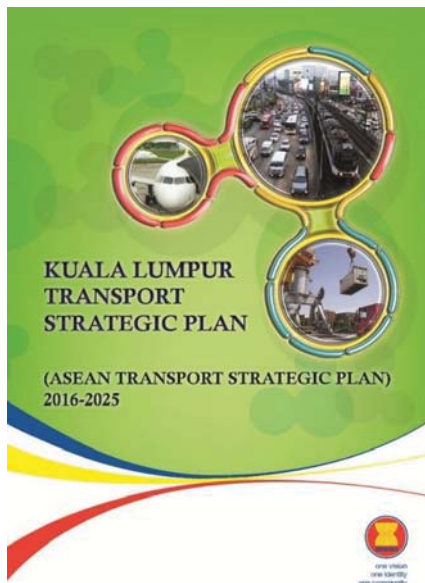
Fuel economy policies around the world



Source: GFEI State of the World 2016

- More than 80% of the global PLDV market is regulated
- Thailand and Vietnam have fuel economy policies in place. Indonesia, Malaysia, and the Philippines are on the way to develop FE policies

Why is FE improvement important for Thailand?



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FE Policy in ASEAN & Thailand

http://www.asean.org/storage/2016/01/11/publication/KUALA_LUMPUR_TRANSPORT_STRATEGIC_PLAN.pdf

<http://www.aseanenergy.org/wp-content/uploads/2015/12/HighRes-APAEC-online-version-final.pdf>

<http://www.ratchakitcha.soc.go.th/DATA/PDF/2559/A/115/1.PDF>

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Why is FE improvement important for Thailand?

Thailand Vehicle excise tax structure



Categories Of Vehicle	Tax Structure Before Jan'2016				Current Tax Structure			
	Engine Capacity (Horse Power)	Tax Rate (%)			CO ₂	Tax Rate (%)		
		E10	E20	E85		E10/E20	E85/NGV	Hybrid
Passenger Vehicles -Passenger Vehicles and, Vans less than 10 seats	≤2,000 CC 2,001-2,500 CC 2,501-3,000 CC >3,000 CC (เกิน 220 HP)	30 35 40 50	25 30 35 50	22* 27 32 50	≤ 100 g/km 101-150g/km 151-200 g/km >200 g/km >3,000 CC	30* 35 40 50	25 30 35 50	10 20 25 30 50
PPV / DC /Space Cab/Pick Up	≤3,250 CC >3,250 CC	20/12/- /3,18			≤ 200 g/km >200 g/km >3,250 CC	25*/12/5/3,18 30/15/7/5,18 50		
Eco Car (Benzine/Diesel) / E85	1,300/1,400 CC	17			≤100 g/km 101-120 g/km	14*/12 17/17		
Electric Vehicle /Fuel Cell/ Hybrid	≤ 3,000 CC >3,000 CC	10 10 50			>3,000 CC	10 ** 50		
NGV-OEM	≤ 3,000 CC >3,000 CC	20 50			>3,000 CC	** 50		

Remarks *: Assign safety standard for Active Safety (ABS+ESC) for Passenger Vehicles and, Vans less than 10 seats must obtain CO₂ ≤150 g/km / PPV must obtain

CO₂ ≤200 g/km / Eco Car must obtain CO₂ ≤100 g/km Source: <http://www.ratchakitcha.soc.go.th/DATA/PDF/2560/E/166/4.PDF>

** Depend on CO₂ emission

* less than 1,780 CC but not over 2,000 CC

HEV-PPV ≤175 g/km= 23%
HEV-DC ≤175 g/km= 10%
Updated on 20 June

EV tax=2%
Hybrid tax ÷ 2
Updated on 20 June

Why is FE improvement important for Thailand?

ECO sticker

ECO Sticker

- 1) **ECO Label ... Sustainability**
Mobility Performance:
 - **Clean:** CO₂ & Emission Standard
 - **Efficient:** Fuel Consumption
 - **Safe:** Active & Passive Safety Standard
- 2) **Car Specification:**
 Model, Type, VIN, Engine, Transmission, Weight, Tire size, No. of seats, Fuel type, Manufacturing Plant
- 3) **Factory Installed Equipments:**
- 4) **Manufacturer/Importer:**
 Logo, Name, Address, Website

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Why is FE improvement important for Thailand?

Fuel efficiency **targets**

There are 2 measurements in transport sector;

- 1) Increase energy efficiency in transport (with expected reduction potential 31 Mt CO₂e) and
 - **fuel efficiency in gasoline and diesel engine (8 Mt- CO₂e) and**
 - Modal shift measurement (PT promotion, intercity high speed rail) (23 Mt- CO₂e)
- 2) Bio-fuel (with expected reduction potential 10 Mt- CO₂e)

NDC
Roadmap
Transport

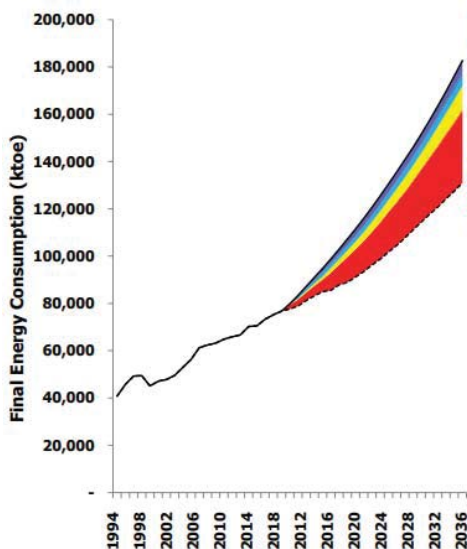
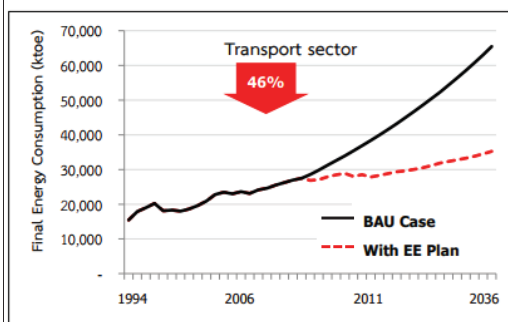
NDC = Naturally Determined Contributions
Source: NDC roadmap, ONEP

Why is FE improvement important for Thailand?

Fuel Efficiency **Targets**

Thailand Energy Efficiency Development Plan

(2015 - 2036)



Expected Energy Saving by Economic sector		Total	
		(ktoe)	(%)
EE1	Enforcement of energy conservation standard in designated factory/building	5,156	10%
EE2	Building Energy Code (BEC) for the new buildings	1,166	2%
EE3	Energy Labeling (HEPs & MEPS)	4,149	8%
EE4	Energy Efficiency Resource Standard (EERS) for large energy producers and distributors	9,524	18%
EE5	Financial incentives and support for energy performance achievement	991	2%
EE6	Promoting greater use of LED	500	1%
EE7	Energy saving measures in transport sector	30,213	58%
Total (ktoe)		51,700	100%

Economic Sector

1. Industry
2. Commercial
3. Residential
4. Transportation

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Why is FE improvement important for Thailand?

Year VFEL Program Implemented

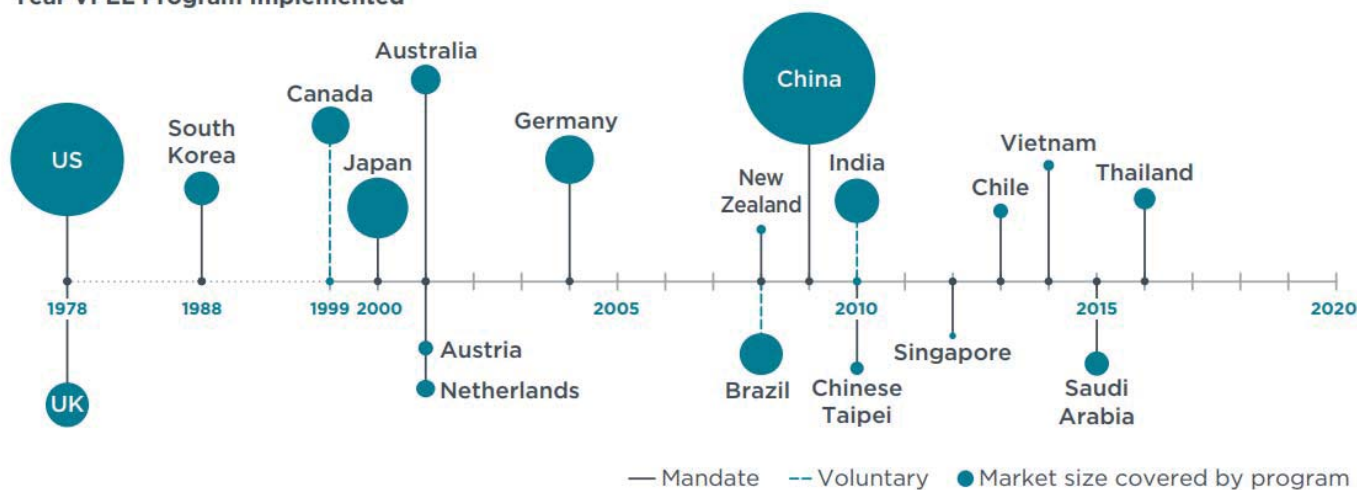


Figure 10. Year of implementation of vehicle fuel economy labeling programs

Source: http://www.theicct.org/sites/default/files/publications/2017-Global-LDV-Standards-Update_ICCT-Report_23062017_vF.pdf

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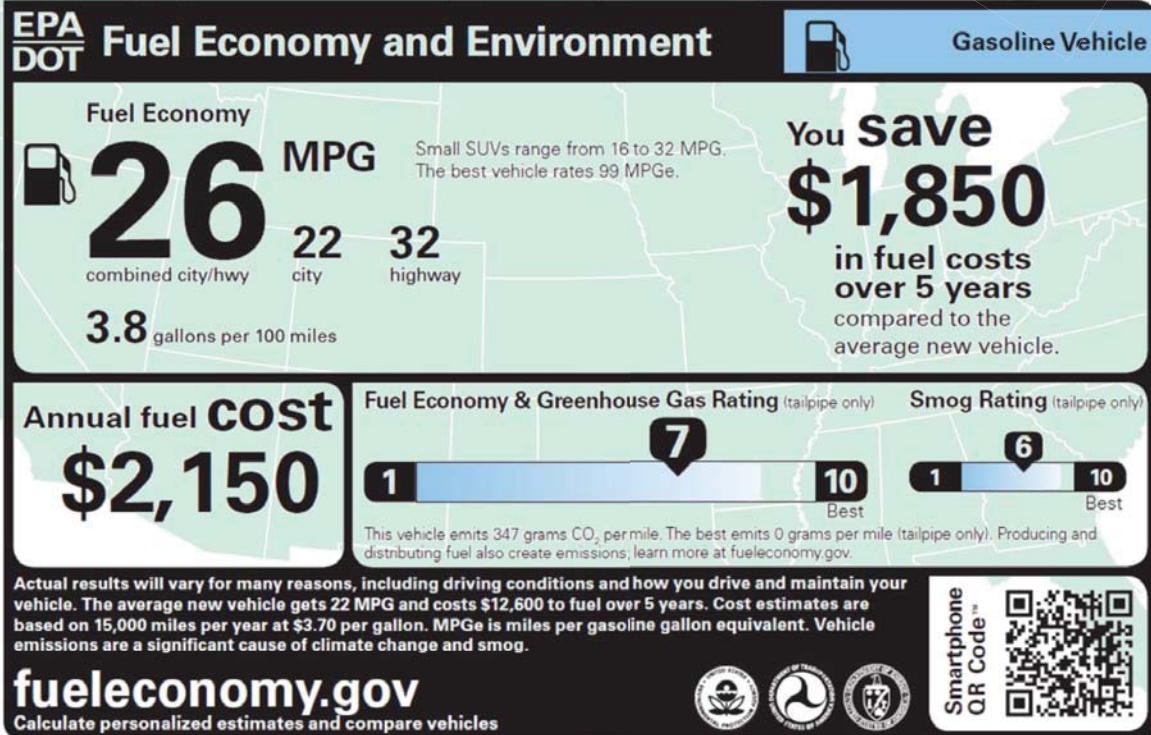
International best practices



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Car label in USA



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International best practices



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France's "Bonus/Malus"

- Since 2006, car labeling for new vehicles is compulsory at dealerships
- Label value based on NEDC test cycle fuel economy
- Political commitment after the « Grenelle de l'environnement »

CO₂ Le CO₂ (dioxyde de carbone) est le principal gaz à effet de serre responsable du changement climatique.
 Mesures effectuées selon la directive 80/1268/CEE modifiée 1990/100/CE

Émissions de CO₂ faibles



Émissions de CO₂ élevées

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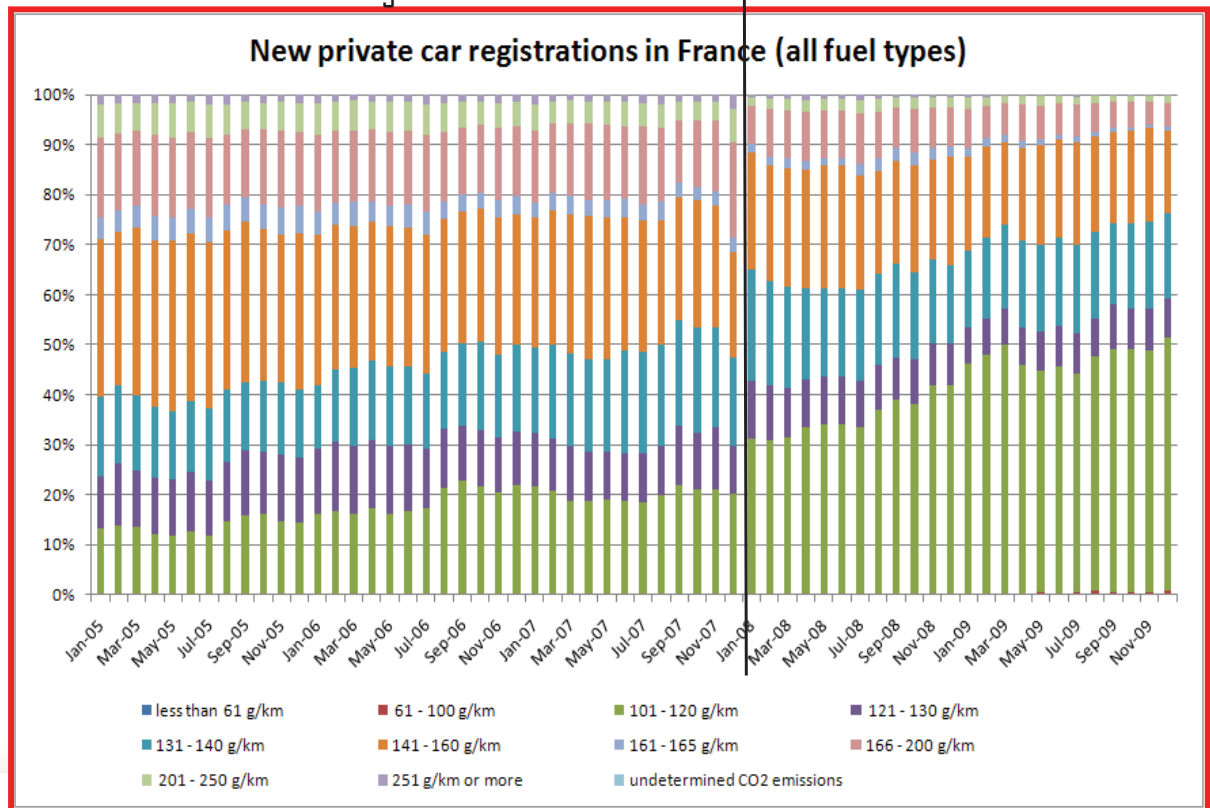
International best practices

Impact on sales was immediate and lasting



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Introduction of
bonus/malus Jan 2008



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International best practices

Bonus/Malus conclusions

- Bonus/Malus had an immediate and substantial effect on consumer purchase behavior (was not considered a new tax)
- Information (labels) was already in place.
- Mid term visibility of feebate evolution great asset for OEMs; better product planning
- Economic neutrality difficult to reach: design prior to feebate launch key to success
- France had Europe's most efficient new vehicle fleet (2009) as number of vehicle models meeting the standards steadily increased



GIZ's study on fuel efficiency policies



Picture © www.iconexperience.com

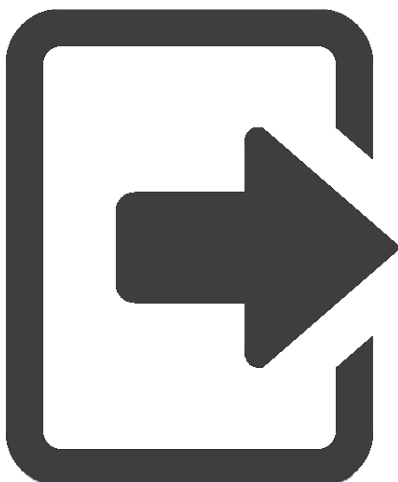
- The study aims to improve understanding regarding fuel efficiency policies of passenger light duty vehicles (PLDVs), including pick-up trucks, and motorcycles in Thailand to further a common understanding among stakeholders.



Improving FE policy and collaboration in Thailand will create benefits for consumers, businesses, government and the environment.

GIZ's study on fuel efficiency policies

Expected outputs:

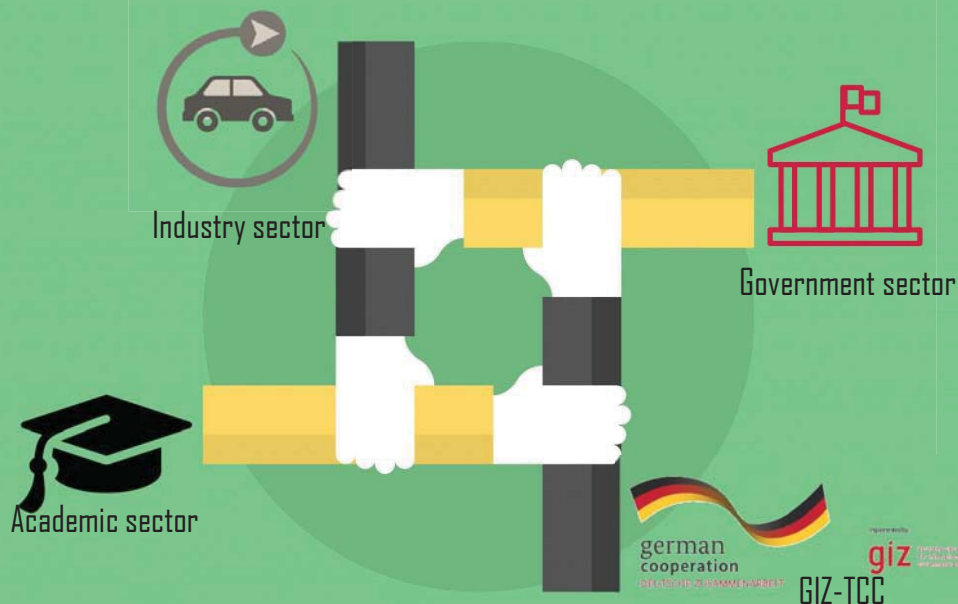


- Results of cost benefit analysis as a **basis for policy and technology decisions** toward FE improvement
- **Criteria** for model selection and data collection for cost benefit analysis that are replicable for other ASEAN countries
- **Best practice/lessons learned** for other ASEAN countries
- Practical policy **recommendations** for FE improvement



GIZ's study on fuel efficiency policies

Understand each stakeholder's role and find the mutual interest



LET'S WORK TOGETHER

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GIZ's study on fuel efficiency policies



Collect data of fuel
consumption of newly
sold vehicles



Conduct inventory of
existing policies,
strategies, and plans



Recommendations for improving
data collection and methodologies



Analyse gaps



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Conclusions

- Working together is crucial for success between the four parties; industry (Automotive Summit), government, academic (EASTS, ATRANS) and GIZ
- Important of cost benefit analysis
- Best practices of other countries and Thailand
- Thailand can benefit on three levels; government, industry, and consumer



THANK YOU

for your kind attention!



Pic © ecofiscal.ca

All information on FE study can be found at



For more information, please visit
www.TransportandClimateChange.org



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