



The 3<sup>rd</sup> Workshop on moving

# Fuel economy policy forward in Thailand

GIZ study on FE policies in land transport sector in Thailand: Phase II

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"Energy efficiency and climate change mitigation in the land transport sector in the ASEAN Region"

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Room 501, OTP



## # Outline

- # GIZ's study (Phase II)
- # FE standard: Cost-benefit analysis
- # Examples of FE impact from various measures
- # Key elements of FE standard development
- # FE Standard: Definition of long-term target
- # How to move forward fuel efficiency policy in Thailand

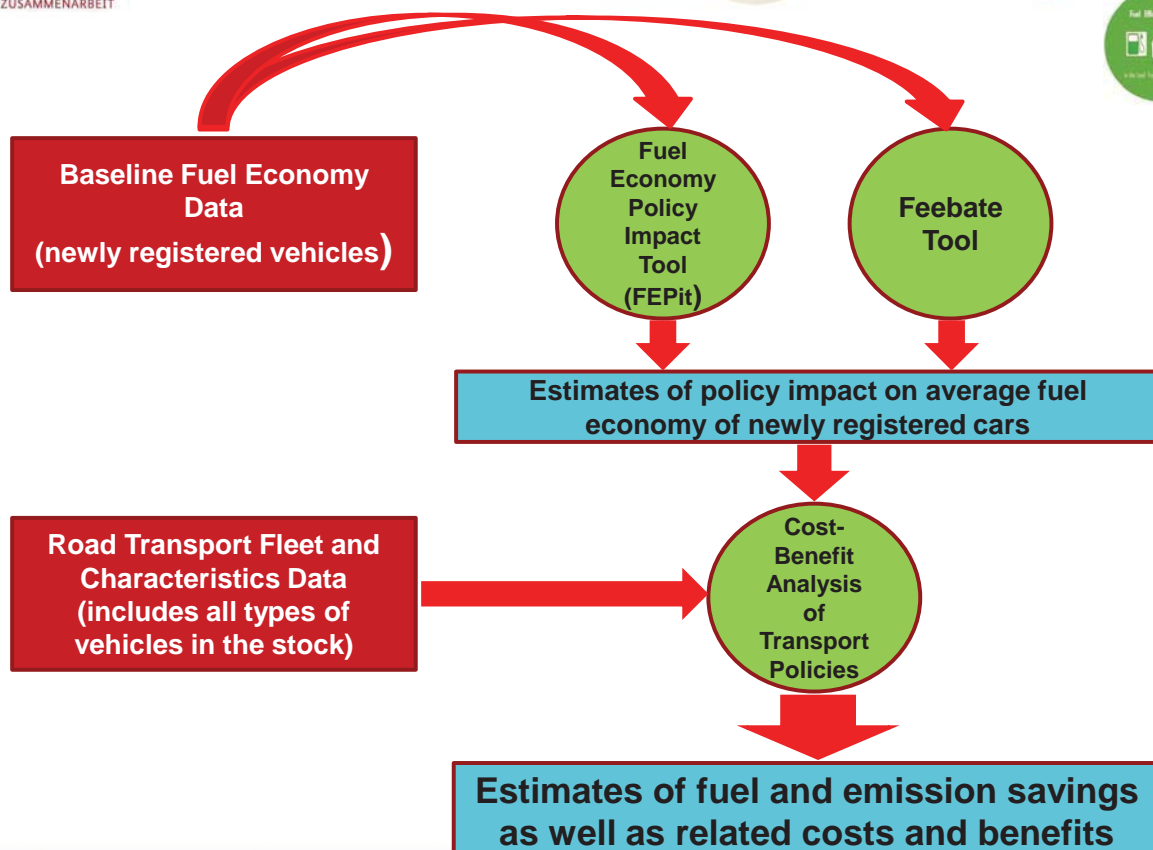
### Fuel Efficiency





## # GIZ's study (Phase II)

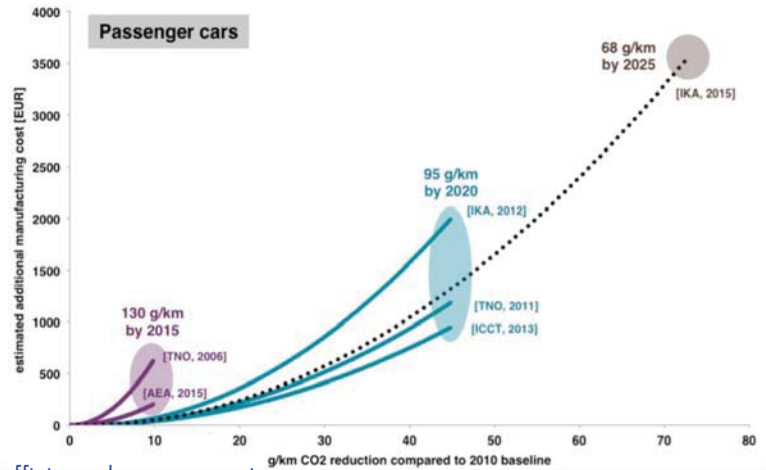
- Objectives
  - To analyse **cost-benefit** of FE policies/measurements implementation,
  - To model the **impacts** of possible scenarios and
  - To create **recommendations**/key considerations on implementing proposed FE policies/measurements and improving the FE technology
- Scope of FE improvement proposals (from Phase I)
  - Proposal for FE-based (and possibly pollutants) **vehicle registration tax**/feebate schemes
  - Proposal for revised **fuel taxation**
  - Proposal for a refined FE label (**Eco-sticker**)
- Methodology: **Cost Benefit Analysis** (CBA)
  - Fuel Economy Policies Implementation Tool (**FEPIT**) by IEA





# # FE standard: Cost-benefit analysis

- Assessment of region-specific **technology costs** to achieve the FE target based on:
  - baseline FE
  - estimates of additional costs per vehicle by predominant size/powertrain classes
  - projected vehicle sales and estimated size class distribution
- Assessment of **savings** due to reduced fuel use based on:
  - targeted FE development of new vehicles over time
  - projected vehicle sales
  - assumptions on average annual driving distance per car
  - assumptions on future fuel prices



<http://www.theicct.org/blogs/staff/estimating-costs-vehicle-efficiency-lessons-experience>

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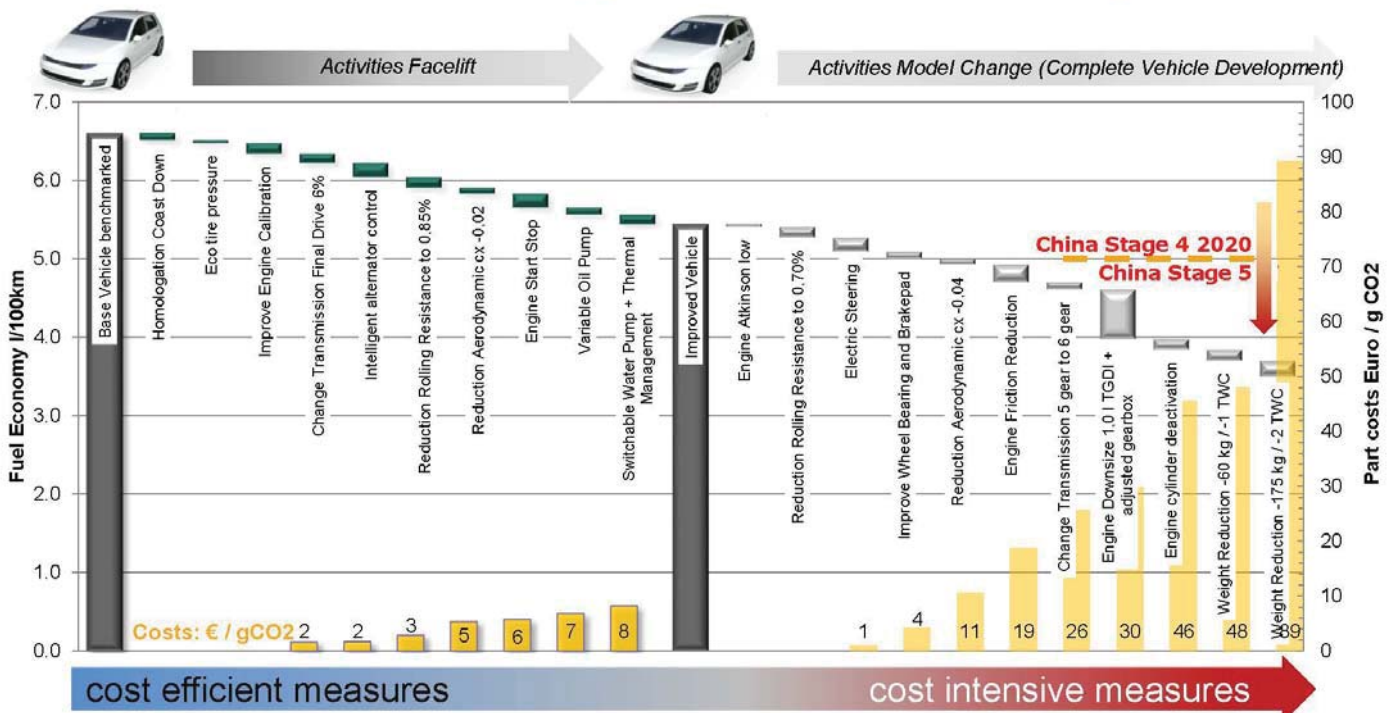
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## FUEL ECONOMY AND COST EFFICIENCY



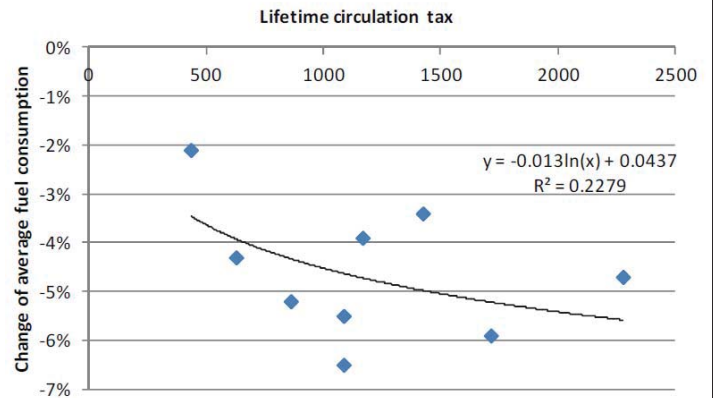
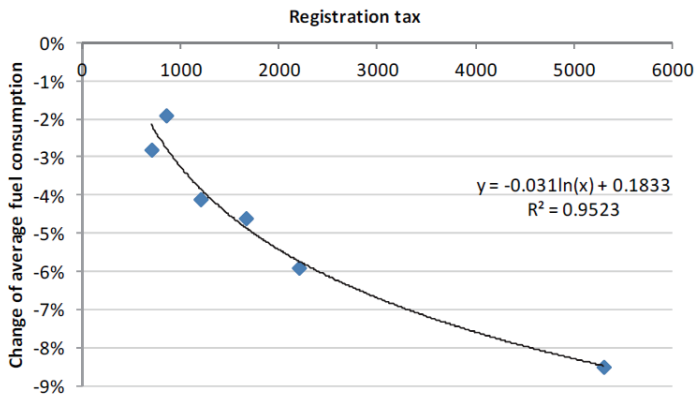
MODEL CHANGE: simulation approach towards realization of China stage 5 limit



**Cost efficient fuel reduction requires a collective engineering approach from powertrain and vehicle measures!**



## # Examples of FE impact from various measures



<https://www.iea.org/media/topics/transport/FEPITMethodologyReport.PDF>

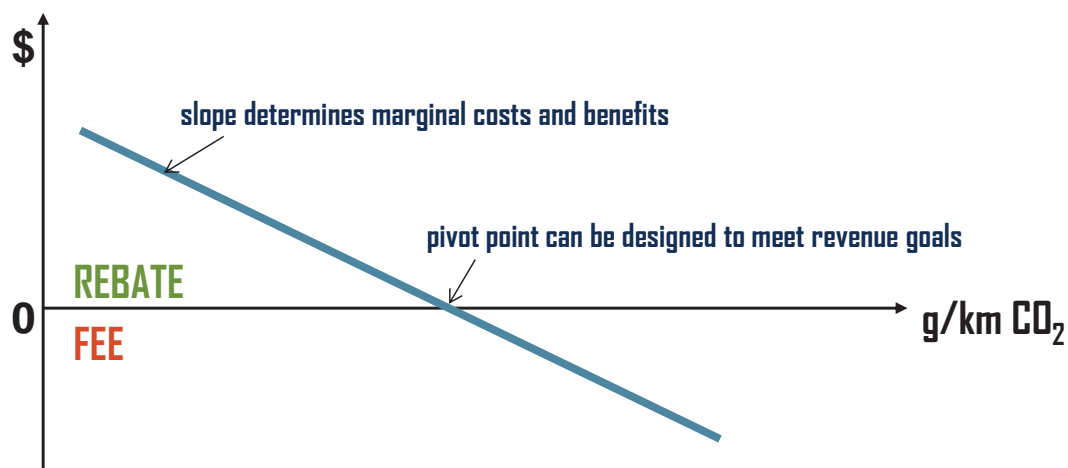
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## Feebate = Fee + Rebate



- Market-based policy that shifts consumer purchases (and potentially manufacturer production) to lower emission vehicles by placing a fee on higher-emitting vehicles and providing a rebate to lower-emitting vehicles
- Based on fuel economy or CO<sub>2</sub> differential between vehicles
- Could also take into account vehicle attributes like size or weight

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# Feebate – Case studies

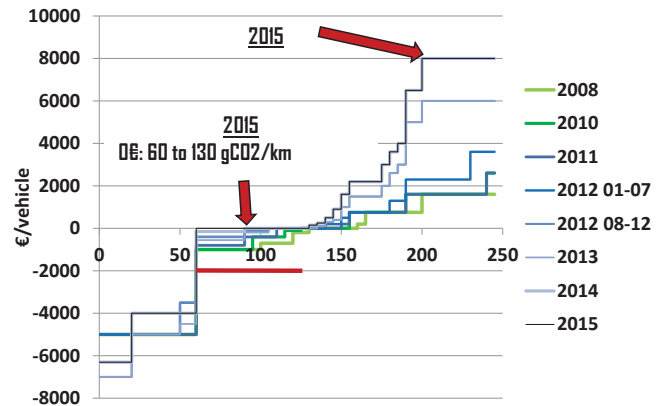
## Singapore

CEVS BANDINGS					
Band	Carbon emission (CO <sub>2</sub> g/km)	REBATE (FROM 1 JAN 2013)		SURCHARGE (FROM 1 JULY 2013)	
		Cars	Taxis	Cars	Taxis
A1	0 to 100	\$20,000	\$30,000		
A2	101 to 120	\$15,000	\$22,500		
A3	121 to 140	\$10,000	\$15,000		
A4	141 to 160	\$5,000	\$7,500		
B	161 to 210	\$0	\$0	\$0	\$0
C1	211 to 230			\$5,000	\$7,500
C2	231 to 250			\$10,000	\$15,000
C3	251 to 270			\$15,000	\$22,500
C4	271 & above			\$20,000	\$30,000

Source: <http://www.lta.gov.sg/apps/news/page.aspx?c=2&id=12e099d1-e037-450b-80e3-5cb6b8293c4a#1>

- Singapore introduced a feebate scheme (Carbon Emissions based Vehicle Scheme CEVS) in January 2013
- Rebates and fees are offset against the Additional Registration Fee (ARF)
- Fees and rebates are relatively high

## France

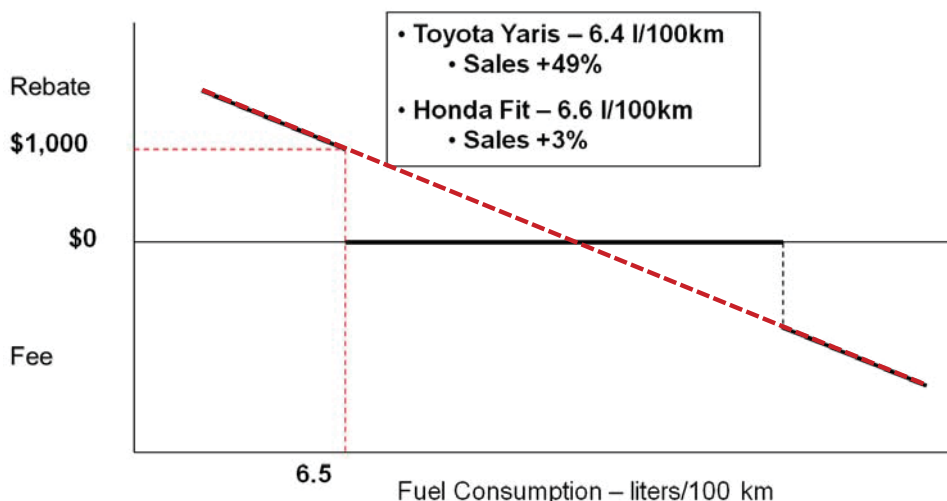


- The introduction of the Bonus-Malus system led to a drop of emissions by 9 gCO<sub>2</sub>/km in 2008 and 7gCO<sub>2</sub>/km by 2009, from on average 1gCO<sub>2</sub>/km in earlier years
- The fees/rebates are adjusted each 2 years
- The scheme was not cost neutral in 2008/09



# Feebate scheme: continuous slope vs. step function

## Canada

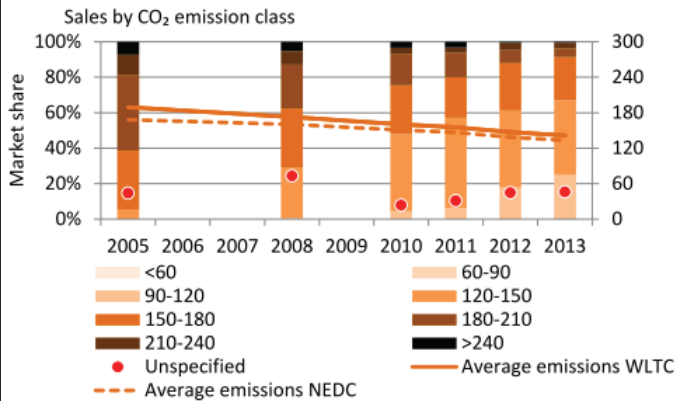


- Step function for feebate scheme distorted car market in Canada



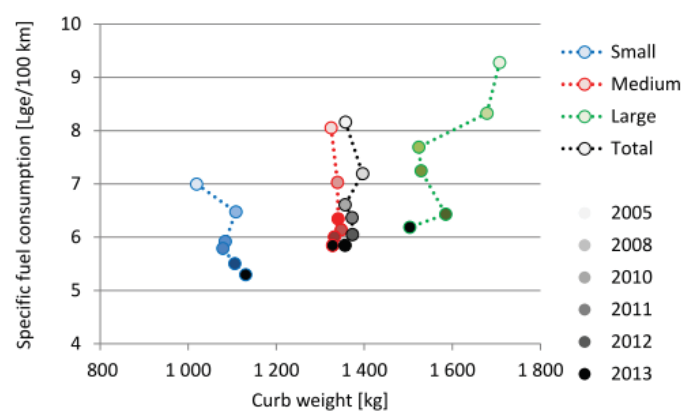


## Fuel taxation: Turkey



Source: GFEI WPI12

- Turkey's new vehicle fleet is amongst the most efficient in the world, although there are almost no or even contradictory FE policies
- Between 2005 and 2013 the sales weighted average weight of the Turkish new vehicle fleet decreased
- The high fuel price (2014: ~USD 1.90/L) suggests its significant effect on the consumers decisions to buy efficient vehicles



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## # Key elements of FE standard development

- Establishment of the fuel economy base-line: **Necessary for all FE policies!**
- Definition of long-term target based on comparative assessment and cost-benefit analysis
- Establishment of the methodology: footprint or weight based corporate average target, incorporation of additional measures to foster the uptake of alternative fuel vehicles (e.g. super credits for EVs/PHEVs), selection of underlying test protocol – e.g. WLTP
- Setup of institutional framework
  - Annual reporting of data – data format, selection of institution in charge of the process
  - Set-up of control mechanisms: in-use FE testing
  - Enforcement – definition of fines, selection of institution in charge of the process, who is getting fined: manufacturers, importers?
- Phase in of the FE standard over a defined period

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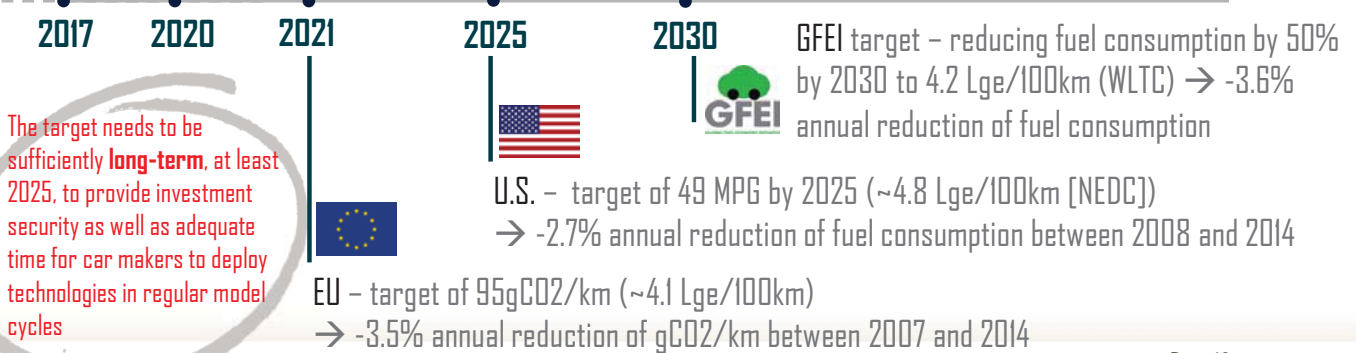
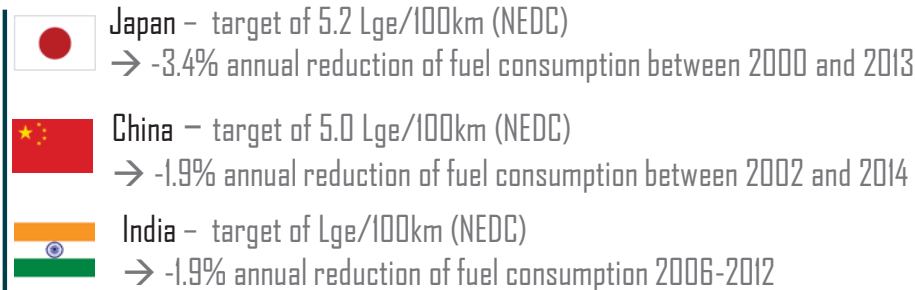
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## # FE Standard: Definition of long-term target

Comparative assessment of absolute targets and relative improvement rates in countries with FE standards around the world:



The target needs to be sufficiently **long-term**, at least 2025, to provide investment security as well as adequate time for car makers to deploy technologies in regular model cycles



## # How to move forward fuel efficiency policy in Thailand

- Government long-time direction
- Private sector (car maker) participation
- Benefit to car users and country



**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](http://www.TransportandClimateChange.org)



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