The GFEI: Working towards efficient mobility

GFEI Senegal National Project Launch
École Supérieure Polytechnique
3rd November, 2017

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UN Environment
Air Quality & Mobility Unit
UN Environment
Promoting Sustainable Low Emissions Transport

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
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 CO₂ emissions from transport

THE TRANSPORTATION SECTOR
A major contributor to global energy-related CO₂ emissions

GLOBAL ENERGY-RELATED EMISSIONS
≈ 30 Gt CO₂

TRANSPORT EMISSIONS
≈ 7 Gt CO₂

ROAD TRANSPORT EMISSIONS
≈ 5 Gt CO₂

Sources:
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

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<th>GFEI target</th>
<th>required annual improvement rate (% per year)</th>
<th>2005 base year</th>
<th>-2.8%</th>
<th>2015 base year</th>
<th>-3.7%</th>
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- 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

2009
GFEI Launched

2011
Sustainable Energy for All – EE as one key focus

2013
Doubling Energy Efficiency in the Transport Sector in the SDGs

2014
G20 Energy Efficiency Action Plan includes Fuel Efficiency particularly HDVs

2015, 2016, 2017
COP

UN Sec General’s Climate Summit - GFEI was launched as one of the accelerators
Global progress on fuel economy

Global Fuel Economy Initiative (GFEI)

FE Policy in Place
FE Policy in Progress

June 2017 - For more information visit www.globalfuelleconomy.org
### Supporting low-middle income and transitional countries

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<th>Phase 1 – Pilot countries and tool development</th>
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<th>Pending Resources</th>
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<td>Sri Lanka</td>
<td>Zimbabwe</td>
<td>Azerbaijan</td>
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High average fuel economy in many developing countries and no policies

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

## 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

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

To meet ≤ 2°C 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
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 CO₂-based Tax in Thailand

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

<table>
<thead>
<tr>
<th>Types of Vehicles</th>
<th>Fuel type / Tax rates</th>
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<tbody>
<tr>
<td><strong>CO₂/ engine capacity</strong></td>
<td>E10/ E20</td>
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<tr>
<td>Passenger vehicles – cars and vans with less than 10 seats</td>
<td></td>
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<tr>
<td>≤ 100 g/km</td>
<td>30</td>
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<tr>
<td>101-150 g/km</td>
<td>30</td>
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<tr>
<td>151-200 g/km</td>
<td>35</td>
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<tr>
<td>&gt;200 g/km</td>
<td>40</td>
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<tr>
<td>&gt;3,000 cc</td>
<td>50</td>
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Electric vehicle/ fuel cell

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<tr>
<th></th>
<th>≤ 3,000 cc (180 Kw)</th>
<th>&gt; 3,000 cc (180 Kw)</th>
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<td></td>
<td>10</td>
<td>50</td>
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Impact of CO$_2$-based Tax in Thailand (1)

Weighted-average FE/CO$_2$ by fuel economy

CO$_2$-based excise tax approved in Dec 2012 for implementation on 1 Jan 2016

- Sale by fuel economy (Lge/100km)
- Market share
- Averaged fuel economy (Lge/100km)
- Sale volume [thousand]
- Fuel economy [Lge/100km]

- 2013
- 2014
- 2015
- 2016
Impact of CO\textsubscript{2}-based Tax in Thailand (2)

Effect of CO\textsubscript{2}-based excise tax by engine size

CO\textsubscript{2}-based excise tax approved in Dec 2012 for implementation on 1 Jan 2016

![Diagram showing the impact of CO\textsubscript{2}-based excise tax on different types of vehicles. The diagram includes various categories such as Mini-MPV, SUV, PPV, 4 Door pickup, Extra cab pickup, Compact car, D-segment, Single cab pickup, Eco car, and City car. The graph plots fuel consumption against engine size, with circle centers representing fuel effectiveness (FE) and circle areas representing units of vehicles.]}
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

CLEANER, MORE EFFICIENT VEHICLES

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.

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