



Fuel Economy Policies & Labeling for New Cars: *Improving Fuel Efficiency and CO₂ Emissions in Egypt*

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Centre for Environment and Development
in the Arab Region and Europe
(CEDARE)

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Among its diverse activities in advancing sustainable development, the Center for Environment and Development for the Arab Region and Europe (CEDARE) promotes sustainable transportation in the Middle East and West Asia (MEWA) region through technical assistance and research, policy advice, capacity building, and awareness-raising together with its national and international partners.



HIGHLIGHTS

- Egypt's car fleet is expected to almost double by 2030, approaching 8 million. Transport is already responsible for about 1/3 of air pollution in Cairo.
- Gradually doubling efficiency of new cars will save 1 billion liters/yr of gasoline and 2.4 million tons of CO2 emissions/yr by 2030, and other local pollutants.
- Emission reduction addresses both climate change action (CO2 reduction) and local air pollution (e.g. several carcinogenic pollutants and lung irritants, etc) that harm public health and damage the environment.
- To double the efficiency, all new cars need to go from 8 l/100 km (global baseline of 2005) to 4l/100 km by 2030; a target of the Global Fuel Economy Initiative (GFEI).
- Status: In 2015, Egypt's fuel economy of new vehicles hovered just below 7l/100km, with a much slower rate of improvement than required, and a lost opportunity for fuel savings and pollution prevention. It is therefore recommended that Egypt starts introducing fuel economy policies.
- To start the first step on the roadmap, Egypt must establish a fuel economy labeling scheme, which is the focus of this policy brief, in parallel with other FE policies.
- Support for policy development is offered by the Global Fuel Economy Initiative (GFEI) and CEDARE, its regional partner in the MEWA region.
- Parallel (or follow-up) policies can further include a set of economic instruments and regulatory measures to encourage a market shift toward more efficient vehicles as well as policies for cleaner alternative technologies such as tax reductions for electric vehicles.

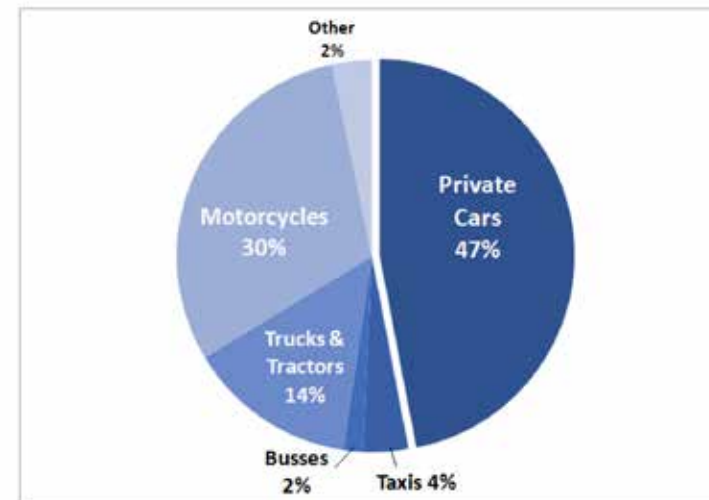
THE GLOBAL FUEL ECONOMY INITIATIVE (GFEI) TARGETS

From 2005 baseline:

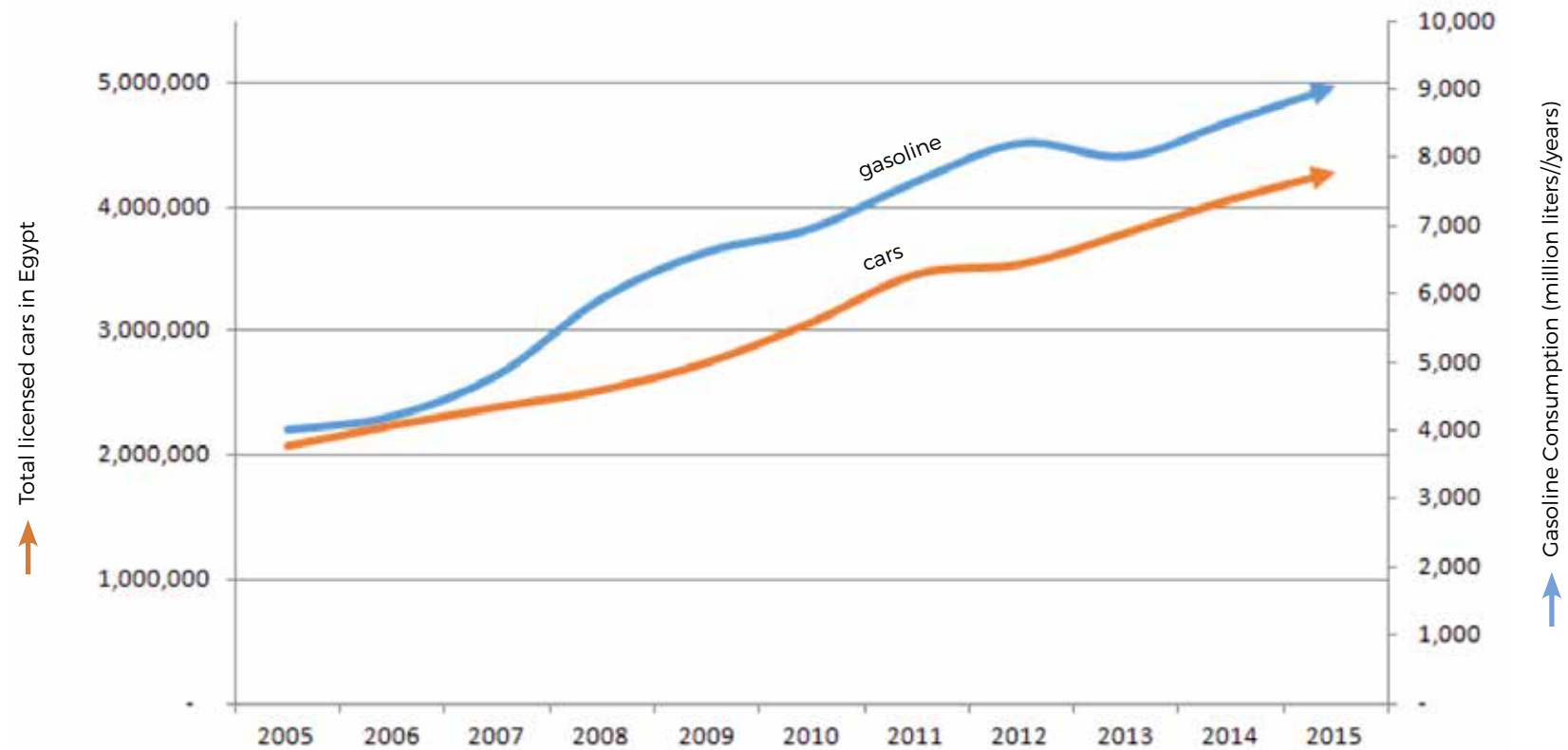


THE CHALLENGE IN EGYPT

The level of car ownership in Egypt is very low, at 46 cars/1000 inhabitants, i.e. ten times less than many European countries that today exceed 500 cars/1000 inhabitants. However, cars are increasing rapidly in Egypt. They have doubled in numbers over the past 10 years, reaching 4.3 million today. They are further expected to almost double in the next 15 years, currently increasing by approx. 200,000 new cars per year in terms of sales. This rapid increase in the number of vehicles is the main issue of concern when implementing fuel economy policies for new vehicles. This also raises concern related to scarcity of fuel resources, air pollution and public health, climate change and also costs of fuel subsidies.



Vehicle stock in Egypt by license type in 2015
(Source: CAPMAS, 2016)



Total licensed cars and gasoline consumption in Egypt, 2005-2015, if the lines are diverging, it means average consumption per car is increasing.

(Sources: OAPEEC, CAPMAS)

HOW ARE WE CURRENTLY ADDRESSING THIS CHALLENGE?



The Egyptian Environmental Affairs Agency (EEAA) has developed a five year program for reduction of vehicle emissions and fuel consumption updated in 2016. The plan identifies the various dimensions of transport problems, enlists the relevant ongoing programs, and presents the planned programs envisioned for the following 5 years. The ongoing programs can be summarized and classified in the following three categories, each comprising multiple programs and activities in cooperation with other authorities:

- 1.** Vehicle emission testing and inspection.
- 2.** Vehicle scrapping and replacement (targeting old taxis, and to a lesser extent, old minibuses and two-stroke motorcycles)

- 3.** Demonstrational activities in sustainable transport projects (a mix of demonstrational solutions for promotion of sustainable transport in terms of catering to pedestrians and cyclists, establishing new bus lines in underserved areas, providing parking solutions, and assessing vehicle emission factors).

Furthermore, the vision of EEAA is elaborated in the plan, indicating the discourse towards promotion of collective transport, and specific interest in electric-mobility (both electric public transport and other e-vehicles in general), as well as the move towards private sector involvement in management and operations (e.g. in vehicle inspection), as well as extending vehicle replacement programs to the rest of Egypt, and improving fuel quality.



Poster distributed throughout Egypt announcing that starting from 1/6/2013, vehicle exhaust will be inspected before licensing.

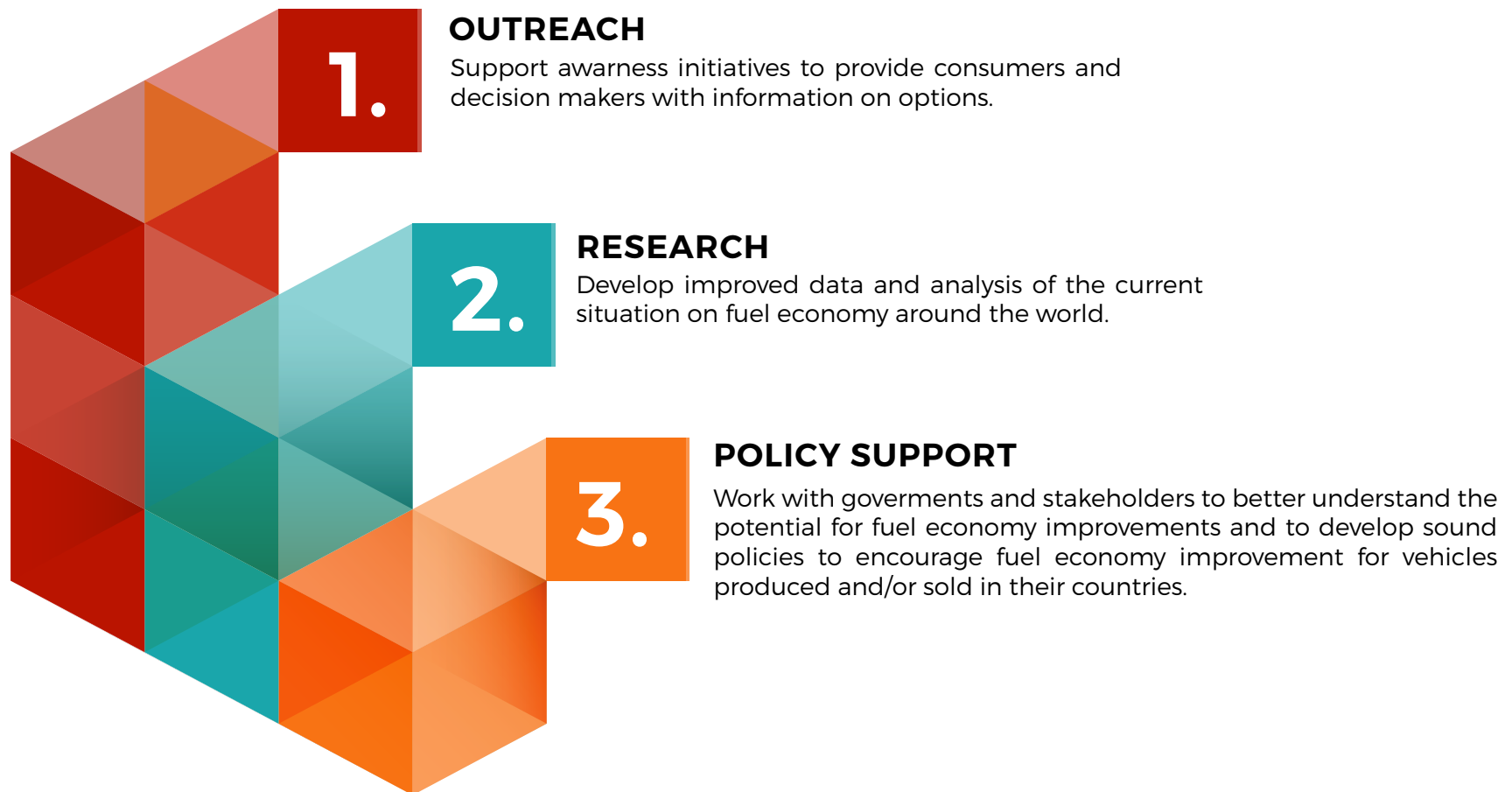


WHAT DOES THE GLOBAL FUEL ECONOMY INITIATIVE (GFEI) OFFER TO ADD TO THIS POLICY MIX?

Priority in Egypt is currently given to other issues that seem to stakeholders to be more urgent, such as addressing the unrestricted use of older deteriorated vehicles that require scrapping or require better inspection and maintenance schemes, and improving attractiveness of alternative modes of transport. However, policies for new vehicles are equally important, if not more important, because according to forecasts, by 2030, the vast majority of the vehicle stock will be these “new” vehicles entering the market between 2015-2030, and they will also be the main fuel consumers in the streets. For example, the number of cars more than doubled in 2005-2015, so if Egypt had implemented FE policies in 2005, the policies would have now affected the majority of cars today. This is an example of the missed opportunity that should not be repeated. **Today’s “new” is tomorrow’s majority.**

Therefore, as a parallel process, this policy brief suggests that policies must also be set in place for new cars in order to complete the gap in the current policy mix, so as to address the entire system. Eventually with greater penetration, all the stock of cars shall be improved. Such policies for new cars are currently not yet in place in Egypt. This is common in many countries today, and has therefore motivated the formation of the Global Fuel Economy Initiative (GFEI) to provide support and experience exchange that extends across the globe to fill in this gap in developing fuel economy policies. Policies can be economic instruments, regulatory policies, technology policies or information-related policies.

The GFEI uses a three-pronged approach the stated targets:





WHERE ARE WE NOW IN TERMS OF FUEL ECONOMY POLICIES IN EGYPT?

Presently, there is no explicit policy in place to ensure that the new cars are meeting standards of low emission rates and high efficiency (i.e. low fuel consumption per kilometer traveled). However, differential taxation and custom duties based on engine sizes are enforced, thereby encouraging a shift toward smaller engine sizes. Although being an effective measure in terms of the collective impact on average engine size, this approach is still inadequate since engine size is not an accurate indication of fuel economy.

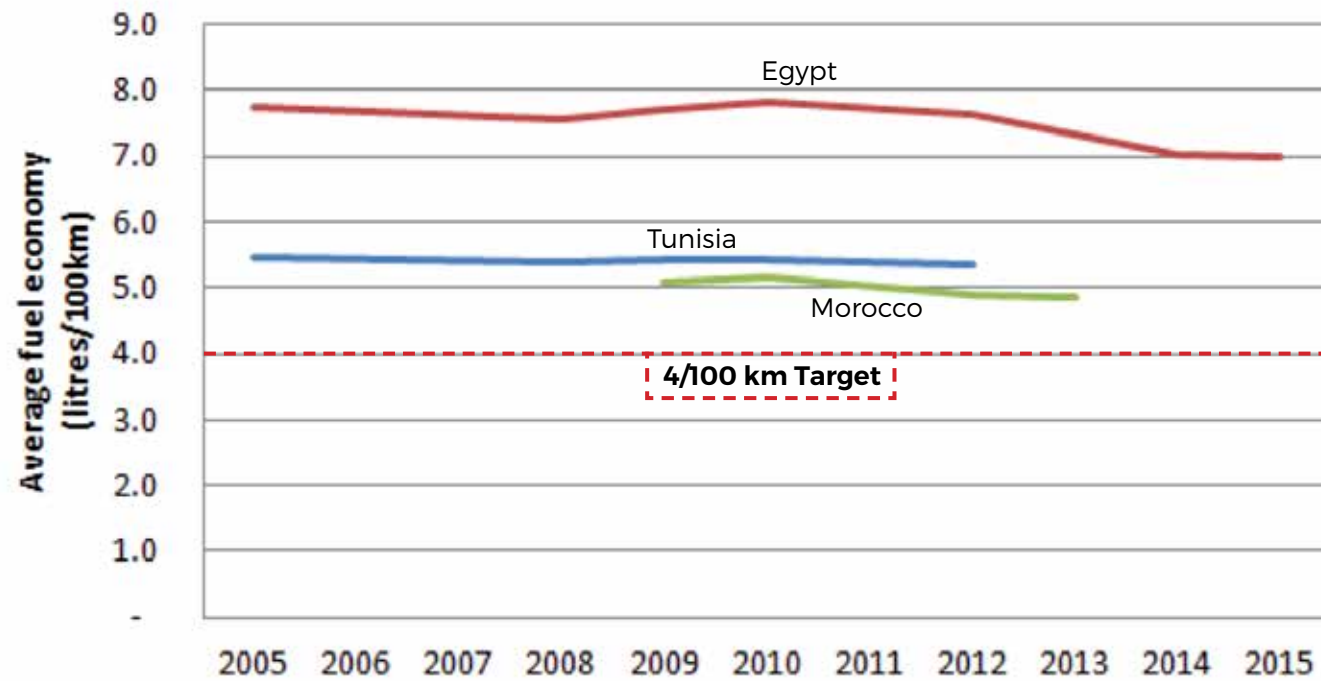
As an example, in energy-labeling of home appliances in Egypt, both policy makers and consumers soon developed a better understanding of how two air conditioners or two refrigerators with the same horsepower may vary greatly in energy

consumption. Similarly, there are differences and a substantial potential room for improvement between cars with the same engine size. This has implications for fuel savings, accuracy of efficiency-related information and awareness-raising.

Accurate information to the consumer will also be an important element in the coming years as fuel prices will increase through the planned gradual phase-out of fuel subsidies.

In 2015, Egypt's fuel economy of new vehicles hovered just below 7l/100km as indicated in Figure-1, with a much slower rate of improvement than required, and a lost opportunity for substantial fuel savings and pollution prevention.

¹ Using engine size as an approximate proxy for fuel economy levels is however a viable transitional solution until a fuel economy labeling scheme is set in place.



Trend of annual average fuel economy of new cars in Egypt and other countries in North Africa in the same income group.



WHAT HAVE OTHER COUNTRIES DONE?

International best practice in fuel economy policies includes a multitude of options: Setting national or regional fuel economy targets, developing CO₂-based or fuel-economy based vehicle registration or circulation taxes, as well as implementing feebate schemes (fees for inefficient vehicles and rebates for efficient vehicles), and imposing fuel taxation in accordance with the Polluter Pays Principle, among other measures or variants tailored to the local context.

Example of tools used to move towards cleaner fuels and vehicles:

- Mandatory standards (e.g. following EU roadmap for vehicle and fuel standards with a delay of a certain number of years, technology mandates, etc)
- Import restriction/incentives (e.g. incentivizing low-sulfur fuel, efficient or electric vehicles, etc)
- Use restrictions (e.g. Low-Emission Zones (LEZ) in the city)
- Special exemptions for advanced technologies (e.g. exemption from congestion charges, car pool lane privilege, etc)
- Economic incentives/disincentives (e.g. tax exemptions or reduction for cleaner cars, feebate schemes, fuel taxation or CO₂ taxation, etc)
- Vehicle scrappage programmes
- Inspection and maintenance programmes
- Information provision (e.g. labeling, consumer awareness, reporting, etc), which also facilitates implementation of other tools (e.g. labeling facilitates imposing minimum mandatory standards).



Image: www.algearth.com

Many fuel economy policies are already implemented at varying degrees and designs in both developed and developing countries (e.g. France, U.K. and other EU countries, Chile, Canada, South Africa, USA., China, etc). However, to enable the implementation of most policies, a scheme of Labeling must be introduced to differentiate between vehicles in terms of fuel economy and emissions, and to facilitate monitoring of policy impact, and also to better inform the consumer. Since Egypt is at this initial phase of policy development, this first step of labeling is recommended.

Regarding labeling in specific, many other countries have recently gone through this early stage of establishing a fuel economy labeling scheme (e.g. Vietnam, Thailand, Saudi Arabia, United Arab Emirates), and a common practice is to use an existing certification system of a major neighboring market such as the EU, especially in the case of non-manufacturing countries.

Transformational measures: Electro-mobility and climate change.

Acknowledging the fundamental role that electric-mobility will serve in improving vehicle fuel economy and emissions, GFEI has partnered with other global leaders in the Paris Declaration on Electro-Mobility and Climate Change launched at COP21 during the Lima-Paris Action Agenda (LPAA) Transport Focus. Many countries are already providing substantial incentives for e-vehicles.

Paris Declaration on Electro-Mobility and Climate Change & Call to Action (Excerpt)

According to the International Energy Agency, this (technological) transition will require, inter alia, pursuit of global rail transport electrification, already underway, as well as at least 20 percent of all road transport vehicles globally to be electrically driven by 2030 – if warming is to be limited to 2 degrees or less. Of this, light vehicles would primarily contribute: more than 400 million two and three-wheelers in 2030, up from roughly 230 million today; and more than 100 million cars in 2030, up from 1 million today.

To achieve this goal IEA modeling says electric drive vehicles (battery-electric, plug-in hybrid, and fuel cell vehicles, including two and three wheelers, cars, light commercial vans, buses, trucks and others) need to represent 35 percent of global sales in 2030.

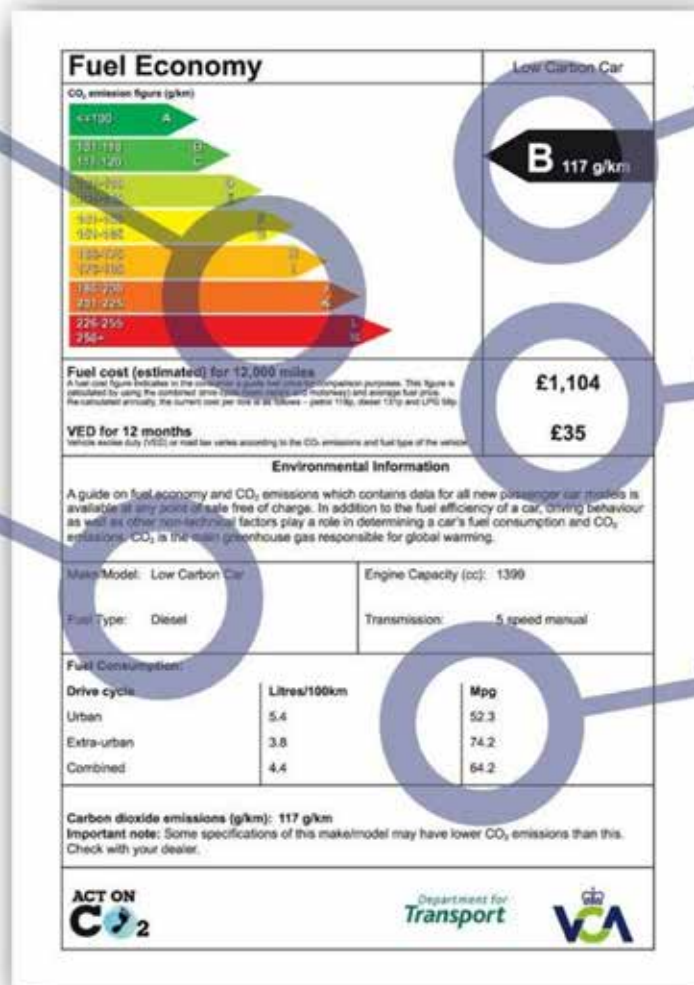
FUEL ECONOMY LABELS: UNITED KINGDOM

Thirteen VED bands

The figures on the coloured arrows (A-M) indicate the 13 ranges of emissions by g/km that correspond to levels of annual Vehicle Excise Duty (VED or Road Tax). Low carbon-emitting cars pay less tax. The lowest – Band A – pay no tax.

Make, model and engine details

The vehicle make, model, fuel type, engine capacity and transmission type are all listed. Together they determine the CO₂ emissions and running costs.



CO₂ emissions figure

The black arrow points to the vehicle's relevant band of CO₂ emissions on which Vehicle Excise Duty (VED or Road Tax) is based.

Running costs

Average yearly fuel costs are calculated and displayed together with the relevant level of Road Tax. Figures updated with recent prices.

Fuel consumption

Shows how efficient the car is in miles per gallon and litres per 100km in town, country and combined driving situations.

USA



CHILE



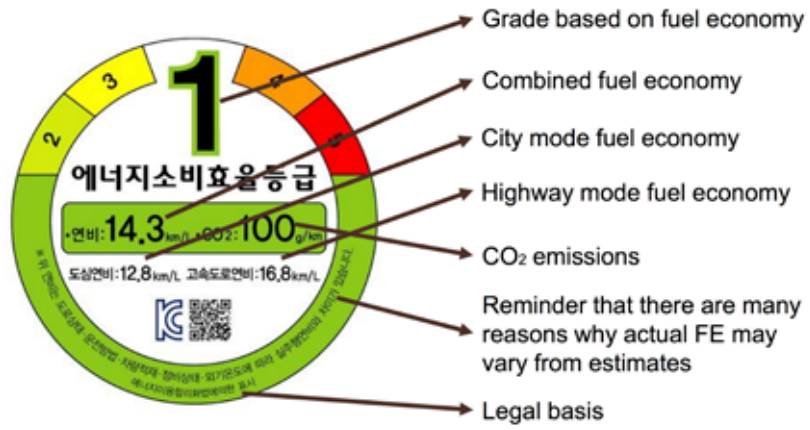
BRAZIL



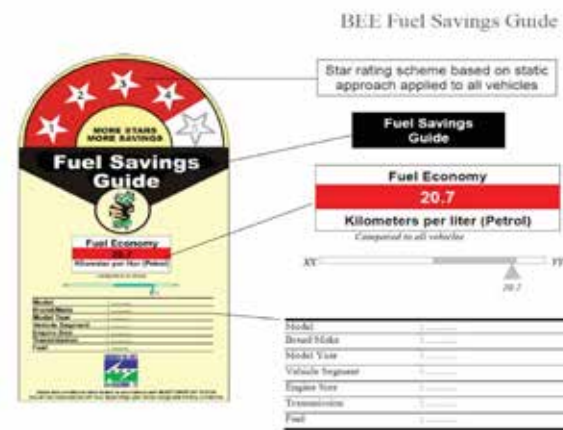
NEW ZEALAND



SOUTH KOREA



INDIA



CHINA



SINGAPORE



HOW WILL EGYPT BENEFIT FROM FUEL ECONOMY POLICIES?

Benefits from fuel economy labeling and other FE policies are as follows:

- 1. Fuel savings:** Market shift toward more efficient vehicles as efficiency information is provided, benefiting both the consumer and the government.
- 2. Pollution and GHG reduction:** Reduction of vehicle emissions as fuel consumption is reduced, public health is improved.
- 3. Preparedness for economic instruments:** Labeling will facilitate the next steps in fuel economy policy development if desired. This includes economic instruments that aim to incentivize efficient technologies and discourage inefficient technologies such as the fee/rebate (feebate) systems, registration and circulation taxes based on fuel economy, among other approaches economic and regulatory approaches.

Joining the global effort to meet the global GFEI targets of doubling efficiency of new vehicles by 2030 is estimated to save 1 billion liters/yr of gasoline and 2.3 million tons of CO₂ emissions/yr by 2030 as appropriate fuel economy policies are set in place.

What local experience can we build on?

In Egypt, although there is no experience in fuel economy labeling, there is local experience in implementing schemes for efficiency labeling for residential appliances and developing the necessary prerequisites such as the legal framework, and organizational structure, the Energy Efficiency Improvement and Greenhouse Gas Reduction project (EEIGGR)². The successful programme can be a key reference together with the global experience-exchange that is provided by GFEI.

²EEIGGR, based in the Ministry of Electricity and Energy, is a jointly funded Project by the Egyptian Electricity Holding Company (EEHC), the Global Environment Facility (GEF) and the United Nations Development Program (UNDP) (see: http://www.eeiggr.com/e_index.html). The project is hosted in the Ministry of Electricity and Energy and enforced jointly with the Egyptian Organization for Standards and Quality (EOS) among other public stakeholders.



Global partners training and networking event, Paris, 2015, with participation of Egyptian representatives from EEAA and the team of CEDARE.



NEXT STEPS IN PROMOTING FUEL ECONOMY IN EGYPT

At this stage of policy development in Egypt, it is concluded that the introduction of a Fuel Economy labeling scheme is recommended. It is a goal in itself, and also an enabler for subsequent policies and fiscal measures that can further enhance impact. It would be designed similar to the existing energy-efficiency labeling scheme for residential appliances in Egypt differentiating various levels of efficiency and setting a minimum standard that is subject to periodic improvement (periodic tightening of minimum standards). In this respect, the following actions are recommended:

1. Integration of the concept of Fuel Economy into current plans and visions, and into the vocabulary of policy makers. It is recommended to refer to existing labeling schemes.

Starting point:

- i.** Agree on a unified translation of the term Fuel Economy (a.k.a. Fuel Economy/Fuel Efficiency/Fuel Consumption) for the selection of the most intuitive and practical Arabic translation. It is recommended to use the unit of liters/100km.
- ii.** Explicitly incorporate the vision of fuel economy policy development in the sustainable transport plans of EEAA. This confirms political will and discourse.

2. Develop a conceptual framework for designing and mainstreaming a fuel economy labeling scheme in Egypt endorsed by EEAA and key stakeholders.

Starting point:

i. Identify the owner of the project (the competent authority) through consultation with the Ministry of Interior and Ministry of Transportation.

ii. Draft a programme proposal endorsed by EEAA in consultation with the identified competent authority, other national stakeholders, and with the support of CEDARE and the global network of GFEI to identify the resources needed, timeline, and initiate the planning for sources of funding.

On the longer term, subsequent policies can further include a set of economic instruments and regulatory measures to encourage a market shift toward more efficient vehicles as well as alternative technologies such as electric vehicles.

About the Global Fuel Economy Initiative (GFEI):

The Global Fuel Economy Initiative (GFEI) is a partnership of the International Energy Agency (IEA), United Nations Environment Programme (UNEP), International Transport Forum of the OECD (ITF), International Council on Clean Transportation (ICCT), Institute for Transportation Studies at UC Davis, and the FIA Foundation, which works to secure real improvements in fuel economy, and the maximum deployment of existing fuel economy technologies in vehicles across the world. The Initiative promotes these objectives through shared analysis, advocacy, and through the Cleaner, More Efficient Vehicles Tool for in-country policy support.

Source: www.globalfueleconomy.org

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In cooperation with the Egyptian Environmental Affairs Agency (EEAA), the Center for Environment and Development for the Arab Region and Europe (CEDARE) as a regional partner of GFEI, is conducting baseline assessments of fuel economy of new cars in Egypt among the set of studies conducted for other countries of the Middle East and West Asia (MEWA) as well.

Based on the baseline assessment reports, and building on the support of the global GFEI network, policy support is extended to Egypt to facilitate reaching the common GFEI targets. Activities are also implemented in tandem with the campaign of the Partnership for Cleaner Fuels and Vehicles (PCFV) currently focused on reducing sulfur content in fuels, among other projects implemented by CEDARE in sustainable transport.

CEDARE's activity in Egypt and MEWA region in Cleaner Fuels and Vehicles

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