


GFEI
GLOBAL FUEL ECONOMY INITIATIVE

# Global Fuel Economy
# An update for COP22


# 1 Global Fuel Economy Initiative

The Global Fuel Economy Initiative (GFEI) is widely recognised as the leading partnership working to improve vehicle efficiency. GFEI is accelerating action on fuel economy, with significant progress among many countries in every region of the world, saving fuel, resources, improving air quality and helping tackle climate change by reducing $CO_2$. GFEI's '100 for 50by50' initiative, launched ahead of the Paris Climate Change Conference in December 2015, is already having an impact, supporting training and offering in-depth country support in over 40 countries, and leading to new waves of action on vehicle fuel economy across the world.

## BACKGROUND

The global vehicle fleet is set to grow rapidly due to new demand from developing countries. The transport sector has had the highest growth in $CO_2$ emissions of any sector in recent decades. Without action, emissions of black carbon and other pollutants will also increase with major health and short term climate impacts. GFEI has shown that huge gains can be made simply by using existing, cost-effective, incremental fuel economy technologies. These gains could help every country to address the pressing issues of climate change, energy security and sustainable mobility.

GFEI's goal is to double the average fuel economy of new vehicles by 2030, and all vehicles by 2050, which will have many benefits from $CO_2$ reductions, to costs savings, reduced air pollution, and less oil dependence. If we achieve GFEI's target of improving fuel economy by 50% by 2050, we will be able to reduce carbon emissions by 33Gt – the equivalent of closing 50 coal power stations over the same period – and support efforts to limit global temperature rises to 1.5 degrees.

## GFEI'S TARGETS

**DOUBLING AVERAGE FUEL ECONOMY IN ALL NEW VEHICLES BY 2030**

**DOUBLING AVERAGE FUEL ECONOMY IN ALL VEHICLES BY 2050**

**100 COUNTRIES COMMITTING TO ACTION ON FUEL ECONOMY IN LINE WITH GFEI'S TARGETS** ('100 FOR 50 BY 50')

## THE GFEI APPROACH

GFEI brings together experts in low emissions vehicles policy from around the world. The six core partners (FIA Foundation, the International Council on Clean Transportation (ICCT), UN Environment Programme (UNEP), International Energy Association (IEA), University of California at Davis (UC Davis), and the International Transport Forum (ITF) of the OECD) combine specialist analytical expertise with real hands-on experience of supporting countries in improving the efficiency of their vehicles. It also provides an unrivalled network with excellent connections in OECD countries, the G20 and in emerging and developing economies. Most importantly, GFEI provides capacity building through a series of regional partners in the form of practical support and training which directly engages policy makers. These regional partner organisations, including Clean Air Asia, CEDARE, Sustainable Transport Africa, and Centro Mario Molina Chile, have extensive experience in bringing about policy change in the countries where they work together with national partners, on which they can build in order to support fuel economy policy.

*"GFEI is helping to reduce oil demand, by supporting the development and uptake of fuel-saving technologies. This is good news for consumers, good news for energy security and good news for the environment."*

**Dr. Fatih Birol**
Executive Director
International Energy Agency


## 2 GFEI's global commitment

GFEI's combination of expert analysis, in-country experience, and strategic awareness-raising has been key to putting fuel economy on the global agenda. GFEI continues to work to ensure that clean and sustainable mobility forms a strong thread throughout all the major global development and climate processes, and that all countries take opportunities for action.

## 100 FOR 50BY50
SAFE CLIMATE AND CLEAN AIR AT COP22

Ahead of COP21, GFEI launched '100 for 50 by 50' which aimed to increase the number of countries that GFEI works with in order to achieve GFEI's goal of improving average fuel economy globally by 50% by 2050. At COP21 GFEI was able to announce the engagement of a further 40 new countries. Achim Steiner, then Executive Director of UNEP, described GFEI as a 'model alliance that should inspire other sectors'.

Throughout 2016 GFEI has begun to support some of the countries which joined our work at COP21, whilst also continuing to highlight the importance of fuel economy for tackling climate change. The issues which GFEI addresses have been presented to key audiences at major conferences in Australia, the US, Germany, Brazil, the UK and Korea, as well as many regional and in-country workshops and training events.

Improved energy efficiency and vehicle fuel economy formed a significant part of many countries' Intended Nationally Determined Contributions for the Climate Change Agreement. Fuel economy is part of the energy Sustainable Development Goal 7 and GFEI continues to work closely with initiatives such as Sustainable Energy for All, as its 'accelerator' initiative on vehicles to deliver on SDG 7 and in particular SDG target 7.3 on energy efficiency. Fuel Economy was also included in the G20 Energy Efficiency Action Plan and the 2016 G20 Communique welcomed "the progress on the voluntary international collaboration on energy efficiency in six key areas ... including ... improving the efficiency of these vehicles."

The inclusion of fuel economy in these processes also reflects the vital importance of the issue in terms of sustainable development, climate mitigation, national security and economic prosperity. The Global Fuel Economy Initiative was recognised by the Partnership on Sustainable Low Carbon Transport (SLoCaT) global partnership as a 'quick win' initiative, as well as being one of eight partnerships featured in the session on 'Planet & Prosperity' in the High Level Political Forum for the Sustainable Development Goals in New York. Rachel Kyte, CEO of Sustainable Energy for All (SE4All), and moderator of the session, described GFEI as an "extremely dynamic partnership."

GFEI's orginal focus has been exclusively on the light duty fleets (LDVs). The partnership is now developing ambitious new international fuel economy targets for heavy duty vehicles to help chart the course of global action.


# 3 GFEI raises global awareness

GFEI continues to raise global awareness, and engage in the key international policy processes to drive action. GFEI regularly shares updates at strategic conferences globally to engage with policy makers and shape the agenda.

GFEI Executive Secretary Sheila Watson spoke at the global Climate Chance summit in Nantes in September. The event brought together non-state actors, including local authorities and charities, to share experiences, strategies and resources in the efforts to tackle climate change, in order to help meet the commitments made at COP21 in Paris.

Gianni Lopez of GFEI implementing partner Centro Mario Molina Chile addressed the Brazilian Association of Automotive Engineering conference in Sao Paolo. He challenged Brazilian policy makers to go further in promoting innovation and improved vehicle fuel economy.

GFEI led sessions on 'Institutionalizing Fuel Economy in Asia' and 'Real World Emissions' at the Better Air Quality Conference in Busan, South Korea. GFEI also held a Fuel Economy Experts and Stakeholders meeting to guide Asian countries in developing fuel economy policies


At the High Level Political Forum for the Sustainable Development Goals in New York in July, Natalie Draisin, the FIA Foundation's US Manager, presented information about the Global Initiative for Child Health and Mobility and the Global Fuel Economy Initiative (GFEI) to delegates at a high-profile 'Partnership Exchange' event. Of the 2,119 registered, 26 were chosen to present at the forum.

In June Sheila Watson addressed businesses, investors and policymakers at the annual Business and Climate Summit in London. Held in the Great Hall of the Guildhall in the heart of the City, she explained how the Global Fuel Economy Initiative is successfully clearing the 'roadblocks' to improved fuel economy in order to reduce harmful emissions from vehicles.

On 23 May 2016, Sheila Watson had the honour of chairing a Technical Experts Meeting (TEM) in Bonn, Germany, on Shifting to More Efficient Public Transport and Increasing Energy Efficiency of Vehicles. Technical Expert Meetings are organised by the UNFCCC secretariat in order to identify policy options, practices and technologies with high mitigation potential, and bring together a range of leading transport stakeholders. The meeting was the first of its kind focusing on the transport sector.

GFEI held a high profile side-event at the Annual Summit of the OECD's International Transport Forum in Leipzig, Germany on 19th May 2016. At the event GFEI partners shared important new research in 3 areas: in-depth analysis of the technology and policy drivers that affect vehicle fuel economy trends; an overview of the opportunities for new fuel economy standards for heavy duty vehicles (HDVs); and the potential of electric vehicles to contribute to vehicle energy efficiency improvements.

In March, John German, Senior Fellow of the International Council on Clean Transportation (ICCT), shared GFEI's 'State of the World 2016' report at the Fuel Economy Detroit event. His presentation highlighted the status of light and heavy-duty vehicle fuel economy and greenhouse gas emission standards in the US and globally and highlighted the challenge of responding to in-use emissions data which reveals a growing gap between test cycle and real world emissions.

In February, Henry O'Clery from Future Climate Australia shared the importance of light vehicle emission standards and how the GFEI might assist Australia in a session on 'Doubling Energy Productivity in Passenger Transport' as part of the Australian Summer Study on Energy Productivity in Sydney.


In January, GFEI hosted a side event in Washington D.C. as part of the US Academy of Science Transport Research Board's annual conference - TRB. The meeting highlighted exciting new work that GFEI is undertaking to analyse the potential efficiency savings in electric vehicles and heavy duty vehicle fuel economy. It was also the North American launch of GFEI's new State of the World report.

# 4 GFEI's global delivery

GFEI provides support for countries looking to introduce fuel economy policies, through national, regional and global events, and tailored national support. 40 new countries made new commitments to improving fuel economy by 50% by 2050, taking the total to more than 65 developing and transitional countries that we support through our in-country network and regional partners. In addition, we provide support to OECD and emerging economies, including the G20.

The Global Fuel Economy Initiative held its largest ever global training and networking event in Paris on 9-10th June 2016. Over 70 participants attended from around fifty countries, including many new countries that made commitments to improving fuel economy as part of the COP21 climate agreement. The event was hugely successful and an unrivalled opportunity for participants to learn from GFEI world-leading experts, as well as exchange lessons learned and build momentum to implement new fuel economy policies. The event brought together participants from all around the world, including G20 countries such as Canada, France, South Africa, Argentina, Brazil, Mexico and Indonesia, as well as developing countries such as Kenya, Uganda, Zimbabwe, Costa Rica, Panama, Malaysia and Vietnam. The training included expert input and analysis on a range of topics, including an introduction to fuel economy concepts, in-depth training on fuel economy trends and developing country baselines to assess progress and inform cost-benefit analysis of different options.



In addition this year, GFEI has hosted workshops in Botswana, Kenya, Jamaica, Peru, Costa Rica, Macedonia, Montenegro, Sri Lanka and the Philippines (with ASEAN countries), working closely with key stakeholders and policy makers in each country.

GFEI is supporting real progress at the country level. Policy change is a process, but the case for fuel economy improvements is strong, and is being made in more and more countries. We are approaching a tipping point, with more and more developing countries taking a lead on this, and developing policies which can be replicated in their regions.



**BOX 1:**

# FUEL SUBSIDIES

Fuel Subsidies artificially lower the price of energy paid by consumers, raise the price received by producers, or lower the cost of production. The IEA estimate that total fossil fuel subsidies were worth $493 million in 2014 and that 13% of global energy-related $CO_2$ emissions are from fuels that are subsidised to a greater or lesser extent. Fuel subsidies aim to make energy more accessible for the poor, but they are inefficient and other more targeted forms of support would cost much less. The IEA estimates that only 8% of the money spent on fossil-fuel consumption subsidies reaches the poorest 20% of the population.

GFEI partners agree that removing fuel subsidies is vital for making substantial fuel economy improvements. In recent years, some countries have made progress on reducing subsidies for fuel. India has abolished subsidies for diesel, Indonesia has reduced gasoline subsidies, and Malaysia and Angola have also taken steps to reduce fuel subsidies.

# GLOBAL FUEL ECONOMY
# FOCUS ON AFRICA

Africa has some of the fastest growing cities in the world. A huge increase in vehicle numbers, predominately imports of older vehicles, together with poor fuel quality is causing major health and environmental challenges. The Global Fuel Economy Initiative is working to address this and to bring about a step change in vehicle emissions, working closely with the Partnership for Clean Fuels and Vehicles (PCFV) and other sustainable transport initiatives to fundamentally alter the emissions trajectory of the African vehicle fleet.

An important step is to address the quality of the vehicles imported onto the continent. Despite the projected growth, almost all the countries in the region lack regulations to promote importation of cleaner and fuel efficient vehicles, with just a few opting for vehicle import restrictions. A GFEI study in Kenya, showed that 99% of the cars imported were used vehicles in 2010-2012. In Uganda another study found the average age of imported used cars was over 16 years old. With many used vehicles pre-dating some key standards in the markets of origin, even before the deterioration which comes with age, this is a major policy challenge.

Addressing fuel quality and fuel economy simultaneously is vital. Vehicles from developed markets such as the EU are subject to tight vehicle standards which include specialised particulate filters designed for high quality, low-sulphur fuel. These emissions controls may become ineffective without accompanying improvements in fuel quality – which is a key reason that GFEI works in tandem with the Partnership for Clean Vehicles and Fuels to ensure that Africa can achieve reduced emissions of greenhouse gases and improve air quality simultaneously. Improved fuel economy can also help oil importing countries improve their balance of payments and public finances, as well as saving consumers money.

## COLLABORATION

At the GFEI training and networking event in Paris, representatives from African countries met to discuss ways of collaborating to improve vehicle fuel economy. They agreed to co-ordinate their efforts, share information, and to work to gain stakeholder acceptance of such policies.

## 1 KENYA

*As a result of GFEI's support, Kenya is now adapting its vehicle tax policies to incentivise imports of newer, more efficient, vehicles.*

GFEI hosted a stakeholder workshop in Nairobi on the 12th May 2016 to discuss new proposals for a vehicle taxation scheme to promote the importation of cleaner, more fuel efficient vehicles in Kenya. The event shared the findings of a report developed by the Kenyan Energy Regulatory Commission in collaboration with the University of Nairobi, and supported by GFEI through UNEP with DFID funding.

The report reviewed vehicle fuel economy trends and identified policy proposals to improve vehicle fuel economy in Kenya. The report proposed two policy instruments: a 'feebate' tax system and a vehicle labelling scheme. A feebate tax structure proposes a fee or levy on inefficient vehicles and a rebate or refund on efficient vehicles while a vehicle labelling scheme provides information on vehicle fuel efficiency to consumers. The report also illustrates what a Kenyan vehicle label could look like.

## 2 SOUTH AFRICA

*Fuel economy baseline and policy development*

GFEI has been supporting South Africa to develop a fuel economy baseline, including data analysis and stakeholder workshops. The baseline analysis is the first step towards new vehicle FE/$CO_2$ emissions standards development as it sets the initial input to model the potential benefits of adopting new vehicle FE /$CO_2$ standards.

As part of the baseline analysis project a workshop was held in Pretoria (Aug 25th) on fuel economy standards. The workshop was attended by a local and state government officials from the departments of Transport, Energy, and Environmental Affairs, City of Tshwane, Johannesburg Metrobus, as well as technical experts from the South African National Energy Development Institute, and NGOs, all involved in transport and climate issues.

The purpose of the workshop was to present preliminary results of the baseline study, to have a chance to describe how FE and $CO_2$ standards work, and to listen to stakeholders' questions and comments on the idea of potentially adopting standards. The baseline analysis report will be finalized by the end of November 2016.

## 3 BOTSWANA

*Botswana is developing a new fuel economy baseline to inform policy*

On 22-23rd March 2016, the Department of Energy hosted a national workshop to discuss opportunities for improving fuel economy. Around 35 participants attended the workshop, including a range of stakeholders from the energy, environment and transport sectors. Both the Botswanan Deputy Permanent Secretaries for Energy and Environment participated in the workshop. It was proposed that a Botswanan vehicle inventory be undertaken and Botswana has subsequently signed an agreement with GFEI to work on fuel economy baseline analysis and policy development.

## 4 COTE D'IVOIRE

*Focus on improving fuel efficiency of vehicle imports*

GFEI has been working with Cote D'Ivoire since 2012. In 2015, ICCT supported the development of a vehicle fleet baseline and analysis. This showed a relatively high average fuel economy. As a result, Ivory Coast allocated GEF STAR funds to support work, including vehicle import analysis to calculate the average fuel economy for subsequent years, 2013- 2015 is currently ongoing, and a data entry tool that will help capture fuel economy data at the point of vehicle import registration is being developed. The next steps will be to develop fuel economy policies that will support imports of cleaner, more efficient vehicles.

## 5 BENIN

*Finalising vehicle baseline*

GFEI has been supporting work in Benin since 2013, and an inter-agency task force was established to coordinate the project and review vehicle importation in Benin with the objective of promoting cleaner, more fuel efficient vehicles. The government is looking at collaborating with various partners and regional players to support finalisation of the fuel economy inventory.

## 6 UGANDA

*Developing new policies as part of Nationally Determined Contribution (NDC)*

GFEI has been working with Uganda since 2013, and finalised a baseline analysis of the vehicle fleet in 2015 which shows that the average age of vehicles is very high and they are not very efficient. GFEI is supporting the government to take forward a range of improvements, which are included in the INDC. These include a fuel economy policy and new vehicle standards, age limits, inspection and maintenance systems and a vehicle labelling scheme.

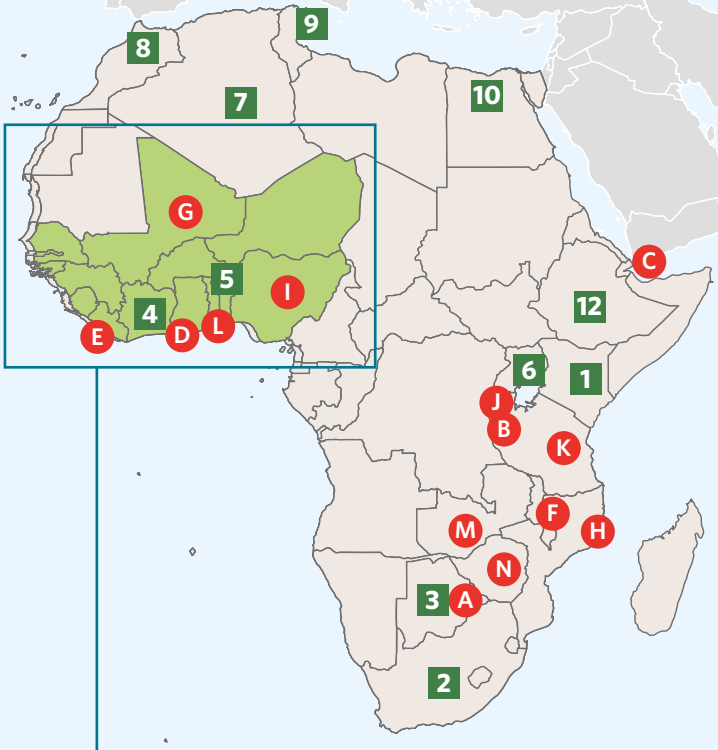
## 7 ALGERIA

GFEI has been working with the Algerian government since 2014, and held a workshop in June 2015, which proposed introducing vehicle labelling and a review of vehicle taxation system.

## NEW COUNTRIES

As part of GFEI's '100 for 50 by 50' campaign, GFEI is finalising agreements to work with the following:

- A Botswana
- B Burundi
- C Djibouti
- D Ghana
- E Liberia
- F Malawi
- G Mali
- H Mozambique
- I Nigeria
- J Rwanda
- K Tanzania
- L Togo
- M Zambia
- N Zimbabwe




## NORTH AFRICA

## 8 MOROCCO 9 TUNISIA 10 EGYPT

GFEI has supported the development of fuel economy baselines in Morocco, Tunisia and Egypt, which were published in 2015, alongside proposals for fuel economy improvements.

## 11 MAURITIUS

*Successful feebate scheme*

GFEI has been working with Mauritius since 2010. Since then, Mauritius have introduced a series of measures to improve fuel economy, including a fee-bate scheme which incentivised vehicles with lower emissions. These incentives resulted in an immediate shift to cleaner and more efficient cars. Fuel economy improved from an average of 7 L/100km in 2005 to 6.6 L/100km in 2013 and 5.8 L/100km in 2014. GFEI is currently working with Mauritius to monitor the ongoing impact, propose additional policy measures for light and heavy duty vehicles and replicate the scheme in the region. This year the government replaced the feebate tax system with a new tax structure to further encourage importation of electric and more efficient vehicles. Lessons learned from Mauritius are used in almost all other GFEI country projects.

## 12 ETHIOPIA

GFEI developed fuel economy policy proposals with the Ethiopian Transport Authority and the Addis Ababa Institute of Technology in 2010. The vehicle fleet has doubled since then, and the country is considering policy options.

## ECOWAS

GFEI, through UNEP, is working with the Economic Community of West African States (ECOWAS) to support the development of a West African regional clean and efficient vehicles roadmap that will contribute to reduced vehicle $CO_2$ emissions worldwide in line with the GFEI target of doubling vehicle fuel efficiency by 2050. The ECOWAS Commission brings together 15 West African countries - Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo. Already several West African countries are developing GFEI baseline data, and policy proposals.The ECOWAS Commission has been active in promoting cleaner, lower sulphur fuels in the region, as well as promoting a regional outlook to vehicle importation. The ECOWAS Commission recommended implementation of vehicle fuel economy work as the next step for the sub-region at regional workshops held in May 2015 in Abidjan and in June 2016 in Abuja.The support to the ECOWAS to develop a regional fuel economy roadmap will build on past and on-going support to some of the ECOWAS countries on the GFEI. Some of the countries that the GFEI has been initiated or is planned are Cote d'Ivoire, Benin, Liberia, Togo, Mali, Ghana and Nigeria.

**SHARING SUCCESS**
The GFEI also provides a global platform where countries can learn from each other's successes. GFEI provides a forum for sharing information and experiences. For example, the feebate scheme proposal developed for Kenya is based on the experience of a successful scheme in Mauritius, and the vehicle labelling proposals, and GFEI is increasingly working regionally to support countries facing similar challenges to develop solutions.

## Important air quality benefits of work to improve fuel economy

In Nairobi traffic emissions are responsible for about 40% of small particulates. Joseph Ng'ang'a, Director General of the Kenyan Energy Regulatory Commission (ERC) estimates this costs the country Kshs or 115 billion (USD 1.12 billion), and says that "Improved fuel economy is essential if we are to address the negative implications of the growth in motor vehicles such as pollution, congestion, energy and resource depletion, and environmental damage."

*"My research for the Global Fuel Economy Initiative showed that over 90% of respiratory diseases in Nairobi are likely to be due to air pollutants. There is an urgent need to develop policies and plans that enforce laws and regulations to protect health and ensure safety of vulnerable groups and mitigate the adverse effects of vehicle emissions."*

**Dr. Lucy Muhia**
Public Health Specialist &
Deputy Chief Medical Officer
University of Nairobi health services

# COUNTRY PROGRESS

## Asia and Pacific

### ASEAN

***Supporting a regional shift in fuel economy***

The Global Fuel Economy Initiative provided support for the ASEAN Experts Meeting on Fuel Economy on 3 March 2016 in Manila. The meeting was organized to support South-East Asian countries to implement fuel economy policies in line with the Kuala Lumpur Strategic Transport Master Plan of the ASEAN Ministers of Transport adopted in December 2015, and the ASEAN Centre of Energy's Energy Efficiency Action Plan which commit countries to making fuel economy improvements.

### PHILIPPINES

***New proposals for fuel economy labelling***

At the APEC meeting in March 2016, the Philippines announced that it is developing a fuel economy labeling scheme, and other related policies. UNEP and Clean Air Asia have supported the Philippine Department of Energy for many years to facilitate the development of fuel economy policies.

### VIETNAM

***Ongoing support for Vietnam to deliver further improvements***

UNEP together with regional implementation partner, Clean Air Asia, has support the Vietnam Register under the Ministry of Transport to develop fuel economy standards for Vietnam. From 2015, Vietnam has introduced a new vehicle labelling scheme based on vehicle fuel economy. Follow-up activities on fuel economy are being conducted by Vietnam Register in 2016 to further develop their vehicle fuel economy policies, with some support from GIZ.

### SRI LANKA

***Review of fiscal policies for fuel economy***

GFEI has supported the baseline analysis of the Sri Lanka including the assessment of the impact of its current vehicle taxation policies. GFEI through UNEP, in partnership with the Sustainable Energy Authority, Clean Air Sri Lanka, and Clean Air Asia will support the development of the fuel economy labelling scheme for the country, and the review of fiscal policies and development of more progressive fiscal policies for energy efficient vehicles in Sri Lanka.

### CHINA

***Consultations on fuel economy regulations***

China is currently consulting on its regulations for Corporate Average Fuel Consumption (CAFC) and New Energy Vehicle (NEV) credits. By linking CAFC management with NEV credits management, the regulation aims to improve the fuel efficiency of traditional fuel vehicles and to promote the application of new energy vehicles in China at the same time – although some organizations have been arguing that the two systems should be kept separate to prevent manufacturers from simply attempting to achieve fuel economy targets by introducing electric models. China is currently in phase IV of its fuel economy standards, and there is some evidence that the flexibility mechanism for electric vehicles is delaying the adoption of energy efficiency technologies in ICE vehicles.

### AUSTRALIA

***Vehicle emissions working group looks at new fuel economy standards***

The Australian government has started looking into $CO_2$ emissions standards for light vehicles, as part of new measures to meet the nation's 2030 climate targets. In February 2016, the Vehicle Emissions Ministerial Forum released a Discussion Paper on proposed new measures for road vehicles. This includes tougher standards for new vehicles, fuel efficiency measures for new light vehicles, and testing and reporting arrangements. The working group will report by 31 March 2017 to the Ministerial Forum on a draft implementation plan for new measures.

## North America

**US**

***Technical review of fuel economy regulations and 2025 targets***

The light duty vehicle emission standards for the US are currently under technical review. A major Technical Assessment Report (TAR) was published in July to assess the status of technologies needed to comply with the standards. GFEI, through ICCT have been engaged in this process. The analysis, which is the first step in the formal midterm evaluation of the current regulations, appears to provide the basis of a compelling technical case in favor of keeping the 2025 fuel economy targets where they are.


## Latin America and Caribbean

**PERU**

***Workshop proposes fuel economy improvements***

The Ministry of Environment of Peru (MINAM), with support from the United Nations Environment Programme (UNEP) and the Centro Mario Molina Chile (CMMCh) held a two day workshop in February 2016 to promote the use of cleaner fuels and more efficient vehicles. The CMMCh and the Ministry of Environment have also developed a draft proposal for a vehicle labelling program as well as a $CO_2$ tax.

**COSTA RICA**

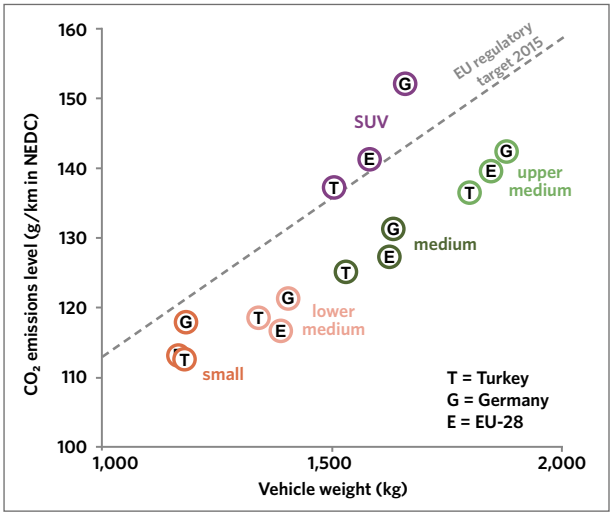
***Improved vehicle standards***

Costa Rica approved in 2016 a regulation that demands that every light duty vehicle imported or manufactured in the country has to comply with Euro 3 standards in 2016, Euro 4 standard in 2017 and Euro 6 standard by 2021. The next phase of the GFEI project will continue in 2016 with policy development and continued data collection for subsequent years.

**JAMAICA**

***New fuel economy baseline and projections***

Jamaica has completed a national fuel economy baseline estimate, with subsequent year trends and fuel economy projections calculated for auto sector based on GFEI Fuel Economy Policy Implementation Tool (FEPIt). The analysis and recommendations for next steps was presented to the National working groups in June 2016. This baseline data shows a small improvement in average fuel economy over a nine year period.




## Eastern Europe & Middle East Central Asia

### MONTENEGRO

***Working group meets to discuss baseline progress***

GFEI held its second national working group meeting in December 2015 In Montenegro to discuss progress of a vehicle database.

### MACEDONIA

***Fuel economy baseline shows efficiency improvements***

Global Fuel Economy Initiative held a three day national training event in the Former Yugoslav Republic of Macedonia in May 2016. A summary of the relevant automotive fuel economy-related EU Directives has been drafted and REC Macedonia, the local GFEI implementing partner, is collaborating with the Ministry of Economy. The auto fuel economy baseline data includes data from 2005, 2008 and 2013. FYR Macedonia's vehicle stock of total registered vehicles has seen modest growth to just over 350,000 vehicles total stock in 2013. The energy efficiency of the average vehicle improved over the years surveyed, from over 200 g $CO_2$/km in 2005 to below 150 g $CO_2$/km by 2013.

### UKRAINE

***Baseline work underway***

UNEP entered into an agreement with the International Standardization Academy, an NGO in Ukraine to develop fuel economy policies in November 2015. Research is ongoing in developing their fuel economy baseline including securing auto registration data.

### TURKEY

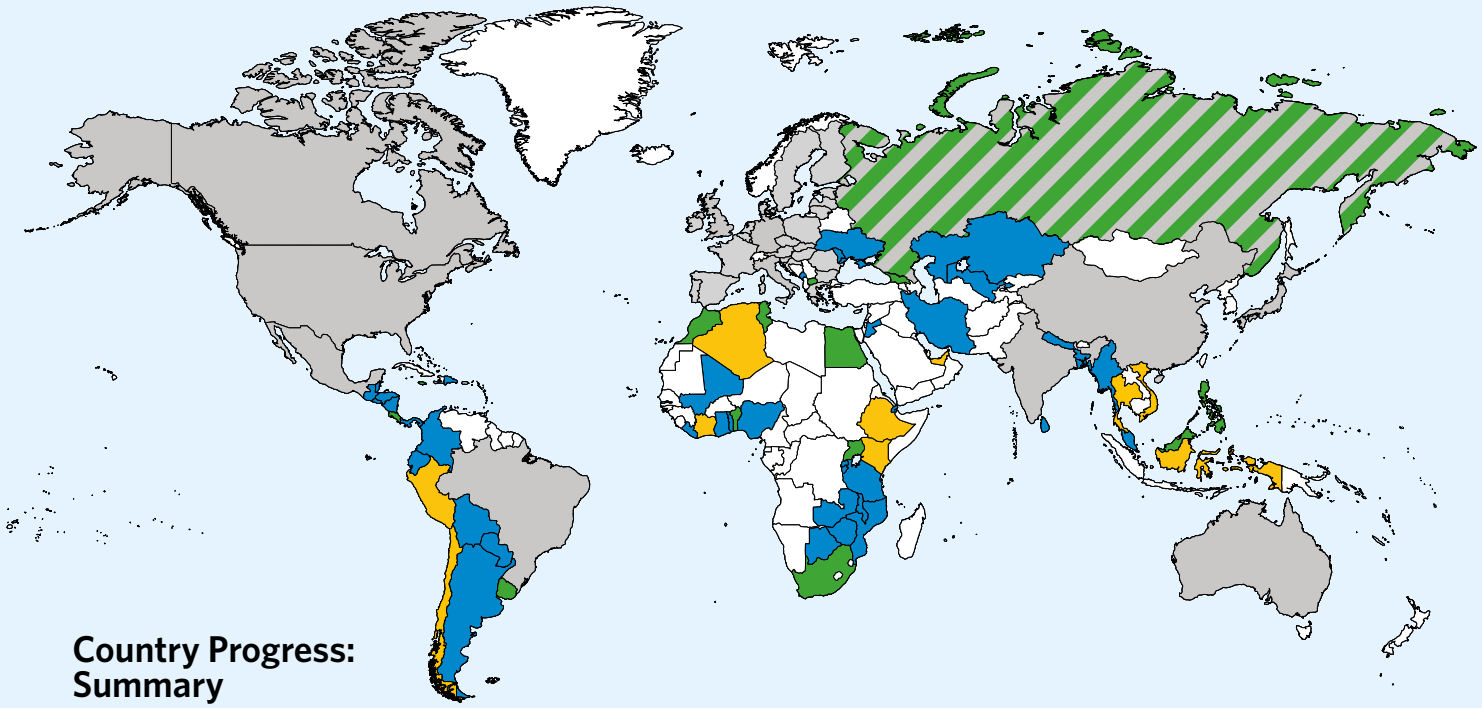
***Fuel economy baseline developed and policy proposals developed***

ICCT staff have been supporting the development of a fuel economy baseline for Turkey and are developing proposals for tax reforms to incentivise improved fuel economy.

### UAE

***New fuel economy standard proposed***

The United Arab Emirates have formally announced plans for a new fuel economy standard. The proposals are based on the US CAFE standards. When adopted by the UAE Cabinet, the proposed standard has the potential to deliver annual fuel savings to UAE households worth Dh9.5 billion ($2.6 billion), representing carbon savings equivalent to removing 4.5 million cars from the UAE's roads by 2035. GFEI partners provided technical support to the development of the vehicle fleet baseline and analysis for the country in 2015.



## Country Progress: Summary

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**KEY**

- ■ New country
- ■ Baseline completed
- ■ Policy proposals developed
- * Policy Implemented
- ■ G20 Transport group Participants: Australia, Brazil, Canada, China, the European Union, Germany, India, Italy, Japan, Mexico, Russia, United Kingdom and the United States.

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| | Uruguay | | ■ | |

BOX 2:

# HEAVY DUTY FUEL ECONOMY STANDARDS

**CHINA**
China finalized heavy-duty vehicle (HDV) fuel economy standards in April 2016. In China, HDVs currently represent about 10% of the new vehicle market. However, because of their high fuel consumption and relatively heavy use in terms of vehicle kilometers traveled, HDVs account for nearly 50% of China's total on-road fuel use. The goal of this new stage of standard is to reduce fuel consumption by about 15% in 2020 from the 2015 levels, in order to further reduce the gap between China and other more developed markets globally.

**US**
On June 19, 2015, the U.S. Environmental Protection Agency and the National Highway Traffic Safety Administration jointly proposed new standards to reduce the fuel consumption and greenhouse gas emissions of new heavy-duty vehicles, tractors, trailers, and engines. The new Phase 2 regulations would be implemented from model years 2018 to 2027, building upon initial standards that cover model years 2014 to 2018. Efficiency improvements from Phases 1 and 2 together would deliver $CO_2$ and fuel consumption reductions of about 20%–30% for heavy-duty pickups and vans, 20% for vocational vehicles, and 30%–45% for tractor-trailers (compared with model year 2010 technology).

**EU**
The European Commission's 'Strategy for low-emission mobility', published in July announced the intention to speed up analytical work on design options for carbon dioxide emission standards for heavy duty vehicles and to launch a public consultation to prepare the ground for a proposal. It stated "In order to be able to make swift progress different options for standards will be considered, including for engines only or for the whole vehicles, with the objective of curbing emissions well before 2030."


# 5 New GFEI reports

GFEI's data and research work includes development of the most comprehensive global data on fuel economy trends, as well as insightful studies informing policy debates. This material not only adds to the level of global understanding of the issue, but also underpins our advocacy and in-country capacity-building.

**This year, GFEI has published three new Working Papers on vital themes:**

**WORKING PAPER 12** provides a revised **update of global fuel economy trends and an in-depth country-by-country assessment of fuel economy trends**. It investigates the development of fuel consumption and other vehicle characteristics (vehicle dimensions, weight, and technical parameters such as fuel type, engine power and displacement) for new vehicle registrations from 2005 to 2013 for more than 20 countries.

The report shows that ambitious policies to improve fuel economy are effective in cutting average new vehicle consumption. The data shows that the combined adoption of regulatory instruments, such as fuel economy standards, and fiscal incentives, such as vehicle taxes differentiated on the basis of the emissions of CO2 per km, led to the highest energy savings from light-duty vehicles. Stringent targets led to the prioritisation of fuel economy improvements over other vehicle characteristics (such as weight and size) by OEMs and consumers. Differentiated vehicle taxation was effective even when not coupled with fuel economy standards, especially in markets with lower purchasing power due to low average income levels.

**WORKING PAPER 13** explores recent trends in the **market penetration of plug-in electric vehicles, and the implications for achieving 100 million sales by 2030**, the ambition set by the Paris Declaration on Electro-Mobility at COP21 in Paris.

The key findings of current trends include:

- EV sales across the top 8 world markets (US, Japan, China, and 5 European countries) have increased steadily with growth rates over 50% in all years across these markets. The number of PEV models available across most of these countries also increased steadily and across different light-duty vehicle market classes (i.e. small, medium and large/luxury cars as well as SUV models).
- Trends have been quite uneven across the 8 countries and in 2015 there was still a lack of wide PEV model selection in key market segments in most countries. Although the paper tracks close to 100 models worldwide, very few were sold in more than a few countries.
- An examination of prices across compact and mid-size car market segments in the U.S. shows that the electric vehicles sold tend to be quite expensive for these market classes, even with national price incentives. Given the tendency for high price sensitivity of consumers in these market classes, it is not surprising to see that some of the more successful models are in premium market classes.
- The benefit of price incentives rises rapidly for electric vehicles that are competing in lower price categories, especially once it puts their sales price into a zone where large numbers of conventional vehicles are sold. Current US national incentives do not appear to help current compact and mid-size models reach these price points.

**WORKING PAPER 14** estimates the **fuel efficiency technology potential of heavy-duty trucks in major markets around the world**, using known efficiency technologies. It does this by developing a baseline tractor-trailer and a representative rigid delivery truck for the 2015 EU, US, Brazil, India, and China fleets. These two truck categories account for the vast majority of road freight oil use and climate emissions. The baseline fuel consumption is determined over region-specific duty cycles and payloads.

The study models potential improvements in efficiency over the 2020 through 2040 timeframe in order to determine the potential for improvement in each market. It does this using 'technology packages' that represent the most advanced applicable technologies that have been either commercialized or demonstrated to be commercially available by 2030. Three possible emission and fuel consumption reduction scenarios are developed to quantify the range of possible benefits over time – 'incremental', 'moderate' and 'accelerated'. Full deployment of heavy-duty vehicle efficiency technology would result in energy savings of close to 9 million barrels of oil per day in the year 2035 in the accelerated scenario. This would be equivalent to almost 2 billion tonnes of carbon dioxide emissions avoided per year in 2035. China and India each represent about one quarter of these potential long-term oil savings and climate benefits due to their growing freight activity. These two markets are followed by the US, Europe, and Brazil in terms of having the most potential energy and carbon savings from realizing their technology potential.


# 6 GFEI delivering for COP22

The Global Fuel Economy Initiative is bringing a track record of success to COP22 in Marrakech, with accelerated action on improving vehicle efficiency in every part of the planet. If we are to have any hope of achieving a 1.5 degrees scenario, the next decade is crucial – which means we must go further faster in reducing $CO_2$ emissions from vehicles. GFEI has shown that policy change is possible, and that this can be replicated in any region.

Given that vehicle emissions are a significant contributor to climate change, it is vital that countries to take the opportunity to commit to reducing $CO_2$ by improving vehicle efficiency as part of their Nationally Determined Contributions (NDCs) at COP22 and beyond. GFEI is ready to support countries with information, support and training to develop and implement policies to improve the average fuel economy of their vehicle fleet.

**NEXT STEPS**

In 2016 GFEI has been delivering on the pledges made at COP21. In 2017, GFEI will continue to deliver vital country-level support.

Putting in place a comprehensive policy on vehicle emissions will have significant climate and health benefits, as well as saving money. It is an investment that makes sense, and will support the transition towards fully electric mobility and zero tailpipe emissions. Indeed, the financial savings due to lower oil consumption from improved fuel economy can be reinvested to support this change. However it is not an easy or quick process, but requires support, expertise and resources. Whilst GFEI can and will offer that support, we will continue to work with others to secure more resources and attention for this issue.

The Global Fuel Economy Initiative will continue to grow and provide research, awareness raising and support to empower countries to shift their vehicle fleets becoming cleaner and more efficient. We are expanding our focus to cover the entire vehicle fleet, including heavy duty vehicles to ensure that world-class standards are put in place for all vehicles. We will continue to support G20 countries, and work on implementing energy efficiency in support of the sustainable development goals. We will also focus on Africa, hosting a major meeting at which countries can exchange experiences and receive training.

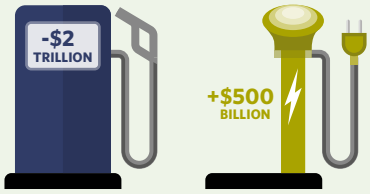
The good news is that we have the technology and the expertise to make this happen. We also have many more countries who are interested in working with us – and which would take the total number we work with beyond 100. We need more resources to make the 100 for 50 by 50 vision a reality. The upfront cost and technical assistance we provide is relatively small compared to the stream of benefits that it brings, meaning this really is a catalytic investment. As countries review their INDCs, fuel economy and improved vehicle efficiency is one component that should feature in all of them – that is ultimately our vision as part of a goal of significantly reducing emissions from vehicles.

COP22 in Marrakech, building on the success of COP21 Paris, can help make this happen.

**BOX 3:**

# WHAT CAN FUEL ECONOMY DELIVER?

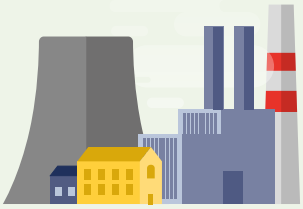
## FINANCIAL SAVINGS




### $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.

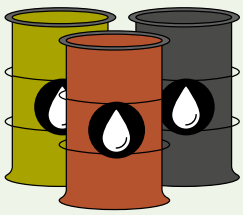
## LOWER CARBON EMISSIONS



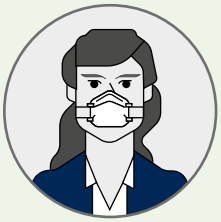
### 300 fewer power stations

The **33Gt** of $CO_2$ that could be saved between 2015 and 2050 is roughly the equivalent of closing **300** coal power stations over the same time period.

## REDUCED DEPENDENCE ON OIL



## AIR QUALITY BENEFITS

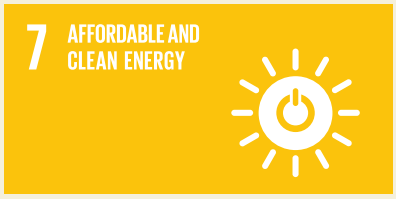


**From associated improved vehicle emissions standards**

MARRAKECH
COP22|2016|CMP12
UN CLIMATE CHANGE CONFERENCE

**100**
**FOR 50BY50**
**SAFE CLIMATE AND CLEAN AIR AT COP22**

## SUSTAINABLE DEVELOPMENT GOAL 7




Goal 7 of the Sustainable Development Goals aims to ensure access to affordable, reliable, sustainable and modern energy for all. As part of this, target 7.3 aims to double the global rate of improvement in energy efficiency. This includes vehicle fuel economy.

## SUSTAINABLE DEVELOPMENT GOAL 13


Goal 13 aims to take urgent action to combat climate change and its impacts. The transport sector is responsible for nearly a quarter of $CO_2$ emissions, and improved fuel economy can help reduce this.

## GFEI'S WORK:

### Capacity Building
GFEI helps capacity building for fuel economy policy in countries around the world.

### Strong evidence base
GFEI brings together leading global experts in the field of fuel economy, and includes the only global data on fuel economy trends.

### Awareness raising
GFEI helps shape a series of global processes on energy efficiency and fuel economy.

## THE GFEI FUEL ECONOMY TARGETS:

30%

**30% reduction**
in L/100km by 2020 in
**all new cars in OECD countries**

50%

**50% reduction**
in L/100km by 2030 in
**all new cars globally**

50%

**50% reduction**
in L/100km by 2050 in
**all cars globally**

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