

## Better Global Fuel Efficiency ... Smaller Carbon Footprint

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The transport sector accounts for more than half the world's oil consumption and close to 25% of energy-related CO<sub>2</sub> emissions. If present trends continue, oil use and emissions could both more than double by 2050. The eve of the 79th International Motor Show in Geneva (Switzerland) saw the launch of the Global Fuel Economy Initiative, a joint project of the International Energy Agency (IEA), the FIA Foundation, the International Transport Forum (ITF) and the United Nations Environment Programme (UNEP). Designed to accelerate improvements in vehicle efficiency and fuel savings, this Initiative is the latest addition to the IEA portfolio of programmes striving for cleaner, more sustainable road transport systems. The Initiative's 4<sup>th</sup> March launch follows up on IEA recommendations to the G8 2008 Hokkaido Summit on key energy efficiency improvement opportunities.



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### Huge potential

The IEA projects that fuel consumption and emissions of CO<sub>2</sub> from the world's cars may roughly double between 2000 and 2050. Other scenarios indicating even higher possible growth in fuel consumption and emissions have been presented by specialists such as the OECD's International Transport Forum. Such projections reflect steady increases in car ownership as countries become wealthier, but they also reflect only limited improvements in the fuel efficiency of the vehicles bought. The vast majority of the projected growth in car ownership is expected to come from the developing world.

In order to counter these trends, a number of approaches will be needed. A basic step is to slow growth in peoples' use of vehicles through careful land-use planning, development of high-quality transit systems and other measures to manage travel demand. Strong shifts to

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<sup>1</sup> The IEA [OPEN Energy Technology Bulletin](#) is a free, web-based periodical newsletter published by the International Energy Agency (IEA).

low-carbon alternative fuels will also be very important. But improving vehicle fuel economy is one of the most efficient, cost-effective ways to cut energy use and CO<sub>2</sub> emissions. It will need to play a central role if transport energy use is to be cut back dramatically to well below baseline growth trends by 2050 so that the CO<sub>2</sub> targets of the Intergovernmental Panel on Climate Change (IPCC) can be met.

The maths are simple enough. If we can improve vehicle efficiency (i.e. cut fuel use per kilometre) by 50% for new cars by 2030, and for the total stock of cars on the planet by 2050, this will roughly halve total vehicle fuel use and CO<sub>2</sub> emissions otherwise to be expected in a "business as usual" case. Some complementary measures will be needed, however, to ensure that efficiency gains and resulting lower fuel costs do not trigger greater vehicle use. Factoring in this "rebound effect" is important when making projections and designing policies.

Today's average fuel consumption of cars is about 8 litres per 100 km in OECD countries, and it may be close to this (or slightly lower) in the developing world, too. If we can halve this to 4 litres by 2050, we can save an estimated 6 billion barrels of oil and 2 gigatonnes of CO<sub>2</sub> in that year, with plenty of savings along the way. By 2025, we could be half way to our target, achieving roughly half that level of savings.

We know that advanced technologies such as electric and plug-in hybrid vehicles will play an important role over the coming years. But a 50% improvement in global fuel economy should be achievable for conventional (gasoline and diesel) vehicles simply by deploying and optimising existing cost-effective technologies such as better engines and drive trains, more efficient components like tyres, or better aerodynamics, and by using lighter materials to make cars. A key aspect will be to constrain future increases in vehicle size, weight and power, which may not be easy. As an interim goal, we are targeting a 30% reduction in fuel use per kilometre for new cars by 2020.

With much more efficient vehicles come even more advantages than the very important reductions in CO<sub>2</sub>. Consumers everywhere would benefit from spending less at the fuel pump, especially at the higher oil prices expected to return a few years hence. Governments of oil-importing countries would save precious foreign exchange costs. And reducing ancillary pollutant emissions would bring important health benefits.

### **A tailor-made plan**

But how to achieve these ambitious targets? The new Global Fuel Economy Initiative plans to be a major force in meeting those targets. Following a six-month design phase, the GFEI was launched on the eve of the Geneva Motor Show on 4 March by the four partnering agencies (IEA, FIA Foundation, ITF and UNEP). Traction for the Initiative's campaign for a 50% fuel-economy improvement worldwide by 2050 will be provided by the "50by50 Challenge". The brochure [50by50 - Global Fuel Economy Initiative](#) provides a succinct guide to this global programme, and the [Launch Report](#) offers more detailed information<sup>2</sup>.

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<sup>2</sup> See the website of the [FIA Foundation](#) for full GFEI launch information.

We at the IEA see this effort as essentially practical in focus because we want to make a real difference. Action will include working with governments on developing new policies to encourage fuel economy improvements and co-operating with vehicle manufacturers and other stakeholders on ways to meet the targets. We shall help develop fuel economy rating systems and we shall support regional awareness drives that provide consumers and decision takers with the necessary information to make informed choices. We shall undertake and promote new research, while generating discussion and action with the key players to boost momentum in bettering fuel economy worldwide.

### Powerful tools, global scope

The GFEI Initiative brings together teams with wide-ranging expertise and experience in the relevant fields. IEA will play a lead role in research and policy analysis. UNEP is particularly well-connected with stakeholders and governments in the developing world. ITF has strong economic and analytical capabilities. FIA Foundation has know-how in leading global initiatives and information campaigns on similar topics such as vehicle safety. The partnership's combined networks will ensure that our messages travel wide and influence the people who count. We shall be engaging a variety of stakeholders, NGOs and researchers to work with us on achieving specific objectives. Our scope will be global, though certain areas will be prioritised, at least during the first year of the effort.

The Initiative's work started before its official launch with several activities during autumn 2008. Most notably, a workshop on fuel economy was held in Bangkok on 10 November 2008 in the lead-up to the fifth *Better Air Quality Workshop*, which attracted several thousand transport and air-quality experts from around Asia. Our own workshop brought together key policy makers

#### The Global Fuel Economy Initiative's Four-Point Plan

- Development of **improved data and analysis** on fuel economy around the world, monitoring trends and progress over time and assessing the potential for improvement.
- **Work with governments** to develop policies to encourage fuel economy improvement for vehicles produced or sold in their countries and to improve the consistency and alignment in policies across regions in order to lower the cost and maximise the benefits of improving vehicle fuel economy.
- **Work with stakeholders** including auto makers to better understand the potential for fuel economy improvement and solicit their input and support in working toward improved fuel economy.
- **Support regional awareness** initiatives to provide consumers and decision makers with the information they need to make informed choices.

from a variety of countries, including four from ASEAN (the Association of Southeast Asian Nations). A joint commitment was developed with that group to pursue fuel economy improvement strategies and develop a plan of action for the coming year and beyond. Next steps are now under way for that region. During 2009, GFEI's partners are planning a workshop to launch outreach to Latin American countries. A third focus region is under consideration.

### An integrated programme

This new initiative meshes well with the IEA's wider suite of ongoing activities in the area of transport. The Agency's Mobility Modelling project (MoMo) and its model will provide

supporting analysis. Recent work on fuel economy and associated policies by IEA analysts will help to identify the most fruitful approaches. And projections published by the IEA in its *World Energy Outlook* and *Energy Technology Perspectives* studies will provide solid foundations for understanding and revising estimated impacts of GFEI activities over time.

IEA Implementing Agreement [collaborative R&D programmes](#) also have their role to play by contributing information on low-cost near-term options. We shall certainly be turning to these sources of state-of-the-art information, notably the programmes on [Advanced Fuel Cells](#), on [Advanced Materials for Transportation](#), on [Advanced Motor Fuels](#) and on [Hybrid and Electric Vehicles](#). Also a precious source of insight and guidance will be the IEA Transport Co-ordination Group (TCG), which brings together all the IEA programmes active in the area of transport. The TCG monitors advances with sustainable, economically viable transport technologies, processes and systems, identifying high-priorities for international collaboration in developing and deploying them. The TCG fosters better communication and synergy among all concerned IEA programmes and, very fittingly, it held one of its regular meetings on the margins of the 2009 Geneva Motor Show, after the launch of the Global Fuel Economy Initiative.

The Global Fuel Economy Initiative is an innovative, wide-ranging effort targeting a global shift to far more fuel-efficient vehicles. It cannot accomplish such a massive undertaking alone, but it can do much to help. By engaging governments and stakeholders, we are convinced that, over time, the GFEI will build a larger coalition of partners, all equally dedicated to the same sustainability and cost-effectiveness objectives for the world's transport systems. The targets set by the GFEI for 2020, 2030, and ultimately 2050, are ambitious but achievable. To get there, however, we cannot delay. We must begin today.