



# Accessing International Financial Support Mechanisms for Vehicle Fuel Economy: A Guide for Developing Country Governments

Working Paper 6

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# 1 Introduction

## 1.1 Purpose and Scope

The purpose of this guidance document is to inform national governments in developing and emerging economies about some of the current sources of international funding that are available and that could be used to support national efforts to improve vehicle fuel efficiency. It provides an introduction to how national governments in developing countries can access the international financial mechanisms listed.

The intention in publishing this guidance is to provide a practical and concise 'reference of first resort' for all those engaged professionally or otherwise in securing funding to promote vehicle fuel economy. In doing so it aims to increase awareness and understanding of the breadth of support that is available.

This report has been developed under the Global Fuel Economy Initiative (GFEI).<sup>1</sup> The GFEI is a partnership of the FIA Foundation, IEA, ITF and UNEP. It is working to promote debate and discussion about the improvement of vehicle fuel economy. A key component of this outreach involves providing support and guidance to a number of developing countries. This capacity building work aims to encourage vehicle fuel economy improvements, support associated policy-making activities, and analyse the potential impact of such activities.

This guidance document aims to provide further insight into building the case for vehicle fuel economy, and has been produced to support these efforts.

Information in this document was accurate at the time of writing, but it is important to note that the funding sources featured are dynamic and subject to change. It is therefore recommended that when seeking funding through any funding mechanism a representative from each respective institution is contacted at an early stage to obtain the latest information on the available mechanisms and the processes to follow.

## 1.2 Rationale for improving vehicle fuel economy

In developing, and to a slightly lesser extent emerging, economies, there can be the perception that vehicle fuel economy should not be a priority owing to their relatively low fuel consumption. The consumption of per capita of fossil fuels in the transport sectors of non-OECD countries is, however, rapidly increasing. There are also many environmental, social and economic benefits to improving vehicle fuel economy.

The IEA (2009) have estimated that energy use in the transport sector will increase by nearly 50% by 2030 and 80% by 2050, and caution that energy use could, in fact, increase by up to 130% by 2050. The IEA state that energy use in the transport sector doubled between 1971 and 2006, and that nearly all recent growth in oil use has been consumed by the transport sector. Indeed 95% of energy in the transport sector is derived from oil (IEA, 2009) and demand for carbon-based fuels in the transport sector is projected to grow more rapidly than in any other end-use sector over the next 25 years, accounting for 97% of the world's primary oil use between 2007 and 2030 (IEA, 2008). This high growth rate is of particular concern given that the transport sector consumes more than half of global liquid fossil fuels (IEA, 2008).

The demand for energy in the transport sectors of non-OECD countries has increased year-on-year since 2000, and the growth rate of energy consumption in the transport sector has been higher in non-OECD than in OECD countries since 1990. The IEA estimates that this rate of growth will continue to increase, and with it the associated

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<sup>1</sup> For more information see <http://www.globalfuelconomy.org/about/Pages/AboutHome.aspx>.

negative impacts that have been experienced by industrialised, and increasingly by emerging and developing, countries (IEA, 2009).

It is expected that the total fuel consumption of the international vehicle fleet will increase by more than 5% per year until 2030 as a result of rapid urbanisation and economic growth, which have resulted in increasing demands for mobility. The EIA predicts that more than half of the increasing vehicle fuel consumption will occur within developing countries. The global vehicle fleet is predicted to triple by 2050 with over 80% of the anticipated growth occurring in the developing world. It is therefore necessary that any strategies to reduce dependence on fossil fuel target vehicle fuel economy in developing countries. The high and increasing useage of vehicles in developing countries means that it will not be possible to meet the GFEI's international vehicle fuel economy target of 4 litres per 100 kilometres without concerted action in these countries.

There are many ways in which improving national vehicle fuel economy can have domestic benefits. These include the following:

- **Reducing dependency on expensive (generally imported) oil.** This can increase political independence, energy security and protect economies from the high and volatile price of fossil fuel. It is uncertain how global demand for fuel from strong emerging economies will impact fuel prices and fuel availability in the near future. A potential impact is that it could limit the ability of countries who rely on these fuels, but who are not in as strong an economic position to influence and drive markets, to import this fuel. Reducing global automotive fuel consumption by 50% (i.e. by doubling vehicle fuel efficiency in terms of miles or kilometres per gallon) would result in savings in annual oil import bills alone worth over US\$300 billion between 2009 and 2025, and by US\$600 billion by 2050 (based on an oil price of US\$ 100/bbl).
- **Improving economic performance.** The high price of importing oil can reduce the ability of countries to import other commodities, or invest in areas of economic development. It can also have a direct negative impact upon foreign exchange balances. In addition, fossil-fuel subsidies of many countries can be very costly and even harm a country's economy and balance of payments, particularly if imported oil prices rise. The development, implementation and enforcement of energy efficient practices can therefore form a robust foundation for stable economic development and sustainable growth – not only by avoiding the costs associated with dependence on fossil fuel but also by supporting the creation of employment opportunities and development of associated industries. Climate Works (2010) estimate that improving vehicle fuel economy can lead to net savings of €65 per tonne of carbon abated.
- **Safeguarding quality of life.** High concentrations of air pollutants create health risks, and road transport is the main contributor to emissions of toxic gases in many urban areas. The transport sector is responsible for 23% of global CO<sub>2</sub> emissions from fossil fuel consumption and 15% of all GHG emissions (OECD/ITF, 2010). Interventions to enhance vehicle fuel efficiency can therefore reduce the health risks associated with the combustion of fossil fuels. This in turn can lead to cost savings in health care and fewer productive days lost. It has been estimated that the negative health impacts associated with poor urban air quality in Colombia in 2007, for example, cost the economy approximately US\$698 million a year, which equated to approximately 0.8% of their GDP (Sanchez-Triana et al, 2007).
- **Safeguarding the natural environment.** Improving vehicle fuel economy can bring significant environmental benefits, for example in terms of improved air quality and contribution to climate change mitigation. This can have both direct and indirect

impacts upon natural ecosystems. Sources of climate finance are proliferating in number and scale in response to the fact that CO<sub>2</sub> emissions are unsustainable and increasing. The transport sector is responsible for approximately 23% of international energy related CO<sub>2</sub> emissions and the IEA estimate that CO<sub>2</sub> emissions from the sector will increase by nearly 50% by 2030 and more than 80% by 2050 under a business as usual scenario (IEA, 2009). More than 80% of the predicted growth in CO<sub>2</sub> emissions from the transport sector is expected to come from road transport in developing countries (IEA, 2009). The IEA recommends that policy measures should 'first and foremost' consider measures to enhance vehicle fuel efficiency to limit emissions from the sector (2010). This highlights the need to increase the vehicle fuel economy of the vehicle fleet in these countries (IEA, 2009),

The more comprehensive and stringent the vehicle fuel economy measures adopted the greater the scale of 'co-benefits' realised. For a more detailed overview of vehicle fuel economy strategies and policy measures see, for example:

- Ajero and Punte (2009) Co-benefits of Transport and Climate Change Mitigation *in* Rethinking Transport and Climate Change. Available from <http://www.adb.org/Documents/Papers/ADB-Working-Paper-Series/ADB-WP10-Rethinking-Transport-Climate-Change.pdf>.
- Zusman, Srinivasan and Dhakal eds (2012) Low Carbon Transport in Asia. Srraetgies for Optimizing Co-benefits. Available from <http://www.earthscan.co.uk/?TabId=101710&v=511368>.
- GFEI (2010) Improving Vehicle Fuel Economy in the ASEAN Region. Available from [http://www.globalfueleconomy.org/Documents/Publications/wp1\\_asean\\_fuel\\_economy.pdf](http://www.globalfueleconomy.org/Documents/Publications/wp1_asean_fuel_economy.pdf).
- CATCH (2011) Co-benefits of low carbon transport. Factsheets. Available from <http://www.polisnetwork.eu/publicnews/29/52/Co-benefits-of-low-carbon-transport/>.

#### **Drivers of fuel economy standards in China.**

China became a pioneer in the developing world by adopting vehicle fuel economy standards (FES). This was driven by: its concern regarding increasing oil imports linked to their rapidly growing transportation sector; its desire to push international auto companies to bring advanced and efficient technologies to China; and its wish to spur its own auto companies to improve its product offerings and compete with international companies. After a rather swift policy-making process, China issued its FES for light-duty passenger vehicles (LDPV) in September 2004. The first phase took effect on July 1, 2005, and the second phase entered force on January 1, 2008. The stringency of the Chinese FES ranks third globally, following the Japanese and European standards. The Chinese standard was successful in reducing the average fuel consumption (measured as liter/100km) of the new national LDPV fleet (by 11.5%) and stimulating broader deployment of more advanced vehicle technologies (Belfer Center, 2009).

### **1.3 Vehicle fuel economy measures**

Moving vehicle fleets towards higher fuel economy will be a prerequisite for low carbon, energy efficient economies. The target for improving the average fuel economy (in litre/100km terms) for the global light duty vehicle fleet by at least 50% by 2050 (50by50) set by the GFEI, is considered to be achievable through "existing, cost-effective incremental fuel economy technologies" (a selection of which are presented in

Table 1 below) and behavioural change (Eads, 2011). The main ways in which vehicle fuel economy improvements can be realised are:

- Maintenance and inspection policies
- Driver behaviour
- Fuel quality
- Emissions control technologies
- Advanced vehicles and fuel
- Future vehicles and fuel.<sup>2</sup>

**Table 1: A select number of examples of the technological improvements that can enhance vehicle fuel efficiency.**

| Technology                                   | Description   | Improvements  | Comments   |
|--|---|---|--|
| <b>Petrol Vehicles</b>                       | Spark-ignition (SI) internal combustion engine              | <ul style="list-style-type: none"> <li>• On-going improvements in engine and transmission systems</li> <li>• Gasoline direct-injection</li> <li>• Turbo SI engines</li> </ul>                     | Significant improvements in SI engines are possible. Up to 30% improvement in fuel economy compared to existing vehicles   |
| <b>Diesel Vehicles</b>                       | Compression-ignition (CI) internal combustion engine        | <ul style="list-style-type: none"> <li>• Higher pressure fuel injection</li> <li>• Improved management of thermal and exhaust gases</li> <li>• Homogeneous charge compression ignition</li> </ul> | Improvements in CI engines may be limited by challenge of meeting air quality emission standards (particularly for particulates and NOx)   |
| <b>Petrol–Hybrid Electric Vehicles (HEV)</b> | Capturing the energy dissipated in deceleration and braking | <ul style="list-style-type: none"> <li>• Use of more efficient electric motor</li> <li>• Regenerative braking</li> <li>• Start/stop systems to eliminate engine idling</li> </ul>                 | <ul style="list-style-type: none"> <li>• 50% improvement in fuel economy compared to existing petrol vehicles.</li> <li>• Vehicles now commercially available.</li> <li>• No changes to fuelling infrastructure required.</li> </ul> |
| <b>Other/Non-Powertrain measures</b>         | Measures to improve fuel efficiency                         | <ul style="list-style-type: none"> <li>• Improvements in vehicle aerodynamics</li> <li>• Improvements in vehicle tyre rolling friction</li> <li>• Vehicle weight reduction</li> </ul>             | These are all well established technologies that can improve fuel efficiency by 10-20%   |

Source: Shell (2009).

Table 2 contains a brief overview of some of the vehicle fuel economy policy measures that can be implemented. It also gives an indication of the way in which each can enhance vehicle fuel economy. Decisions on their introduction across different

<sup>2</sup> Information about each of these different types of vehicle fuel economy improvements can be accessed from the GFEI Toolkit for Cleaner More Efficient Vehicles. See <http://www.unep.org/tnt-unep/toolkit/actions/actions.html>.

categories of vehicle (e.g. light/heavy duty vehicles) should be part of the decision-making and funding process. The level of implementation has been highlighted in the table to give an indication of the respective roles of different actors in improving vehicle fuel economy.

Appendix A of this report gives an introduction to some of the different ways in which vehicle fuel economy can be improved. For a more detailed overview of vehicle fuel economy strategies and policy measures see, for example:

- GFEI (2011) Cleaner, more efficient vehicles. Instruments. Available from <http://www.unep.org/transport/gfei/autotool/instruments.asp>.
- TNT and UNEP (2009) The TNT-UNEP Toolkit for Clean Fleet Strategy Development. Available from <http://www.unep.org/tnt-unep/toolkit/index.html>.
- International Council on Clean Transportation (2010) See <http://www.theicct.org/>.
- IEA (2010) Transport Energy Efficiency. Available from [http://www.iea.org/papers/2010/transport\\_energy\\_efficiency.pdf](http://www.iea.org/papers/2010/transport_energy_efficiency.pdf).
- OECD (2002) Policy Instruments for Achieving Environmentally Sustainable Transport. Available from <http://www.oecdbookshop.org/oecd/display.asp?K=5LMQCR2K6J0N&DS=Policy-Instruments-for-Achieving-Environmentally-Sustainable-Transport>.
- ECMT (2010) Cutting transport CO<sub>2</sub> emissions. Available from <http://www.theicct.org/>.

**Table 2: List of policy measures to support vehicle fuel economy improvement**

| Type of policy measure | Policy measure  | Level of implementation  | Impact on fuel economy |               |                          |                         |
|------------------------|---|--------------------------|------------------------|---------------|--------------------------|-------------------------|
|                        |   |                          | Improve vehicles       | Improve fuels | Improve driver behaviour | Optimise infrastructure |
| <b>Economic</b>        | Fuel taxes  | National                 | <b>X</b>               | <b>X</b>      | <b>X</b>                 |                         |
|                        | Vehicle taxes   | National                 | <b>X</b>               |               |                          |                         |
|                        | Financial incentives to speed up fleet turnover                     | National                 | <b>X</b>               | <b>X</b>      |                          |                         |
| <b>Technological</b>   | Improvements in new vehicle fuel economy                            | National                 | <b>X</b>               |               |                          |                         |
|                        | Develop new fuels   | National                 |                        | <b>X</b>      |                          |                         |
|                        | Develop smart infrastructure  | National/ Local          |                        |               |                          | <b>X</b>                |
| <b>Information</b>     | Driver training to in promote more fuel efficient driving practices | National/ Local/ Private |                        |               | <b>X</b>                 |                         |
|                        | Marketing campaigns to promote the use of green vehicles            | National/ Local/ Private | <b>X</b>               |               |                          |                         |
|                        | Improved purchaser information                                      | National/ Private        | <b>X</b>               |               |                          |                         |



|            |   |                 |   |   |   |   |
|------------|---|-----------------|---|---|---|---|
|            | The establishment of regional fuel economy frameworks                 | National/ Local | X | X | X | X |
| Regulatory | Fuel economy standards (regulatory standards and voluntary targets)   | National/ Local | X |   |   |   |
|            | Improve vehicle inspection and maintenance                            | National/ Local | X |   |   |   |
|            | Better regulation of the import of used vehicles                      | National        | X |   |   |   |
|            | Regulatory incentives to speed fleet turnover                         | National        | X |   |   |   |
|            | Testing new drivers in fuel efficient driving and awareness campaigns | National        |   |   |   | X |

It is important to recognise that to have the optimal impact then a combination of the policy measures listed in Table 2 above should be introduced, and that individual interventions in isolation may not have the desired impact upon vehicle fuel economy. Economic incentives to increase vehicle fuel economy may, for example, need to be combined with regulatory measures to have a considerable impact upon demand for relatively fuel efficient vehicles. A mix of more and less expensive measures can bring significant results and this should be considered when looking into potential funding sources. There should also be efforts made to integrate vehicle fuel economy measures with interventions designed to reduce the demand for travel and to shift demand for travel to more efficient modes of transport.

Vehicle fuel economy measures form an important part of any comprehensive transport strategy. Indeed UNEP (forthcoming) has outlined a number of 'enabling conditions' for the transport sector to play a role in a transition to a 'green economy,' and vehicle fuel economy measures can be seen to be a core part of each. These 'key enabling conditions for green transport' are listed below, along with the associated links to vehicle fuel economy:

### 1. Design appropriate regulations, planning and information provision.

Vehicle fuel economy regulations can be adopted to influence the usage, type, specifications and number of vehicles permitted. Regulations can relate to fuel economy, vehicle emission levels, fuel quality, vehicle inspection regimes, and measures to encourage high vehicle occupancy. Information provision can also be used to increase vehicle fuel economy through influencing driving behaviours. UNEP note that communicating the cost savings associated with vehicle fuel economy through eco-driving can be particularly incentivising to operators of commercial vehicle fleets. In all of these areas best practices should be considered and, where appropriate, built upon. The GFEI can provide support for national and regional policy-making, and evidence of where different measures been implemented can be accessed via the GFEI toolkit.<sup>3</sup>

*Example: In July 2011 the European Commission introduced legislation setting CO<sub>2</sub> emission limits for vehicle manufacturers that apply to all cars sold in Europe. These are 'the cornerstone' of the EU's strategy to improve the fuel efficiency of cars, and are based on the average emissions of the entire vehicle fleet. These regulatory limits were introduced after the automobile industry failed to meet self imposed limits on vehicle emissions, and were intended to encourage the industry to invest in new technologies.*

**2. Set the right financial conditions and economic incentives.** On a domestic level, economic incentives can be used to influence the types of both vehicles and fuels used. The level of subsidy provided to vehicle fuel in many countries can also have a

<sup>3</sup> The GFEI Toolkit can be accessed from <http://www.unep.org/transport/gfei/autotool/index.asp>.

negative impact upon vehicle fuel economy, reducing the financial incentive to use fuel efficiently. A key element of setting the right financial conditions for vehicle fuel economy in many developing countries will, however, necessarily involve leveraging external financial support. This report has been developed by the GFEI in recognition of this need, and its primary aim is to raise awareness of the range of financial institutions that can provide financial support for vehicle fuel economy. It is important to note that while there are many opportunities for accessing support for vehicle fuel economy activities the level of available support is still not sufficient to meet demand. The operations of international and national financial institutions do not, for example, tend to fully recognise the need for sustainable low carbon transport, with the majority of resources being channelled into infrastructure, particularly in the road sector.

*Example: In mid 2010, India removed subsidies for gasoline, and reduced the level of subsidies for diesel, kerosene and natural gas. The reduction in subsidies was driven by the Government's budget deficit, with India having spent approximately US\$5.6 billion in the year 2009/10 subsidising fuel, which state owned energy companies sold fuel below cost level therefore effectively cost the government another US\$4.4 billion. It was anticipated that the removal and reduction of fossil-fuel subsidies would reduce wasteful fuel consumption and catalyse investments in energy efficiency, infrastructure and renewable energy technologies.*

**3. Ensure technology transfer and access.** Technology can be used to enhance vehicle fuel efficiency and so there is benefit to promoting the use of existing technologies that can enhance efficiency, removing conventional more inefficient vehicle technologies, and investing in new technologies. The fuel economy of the international vehicle fleet could be doubled by learning from best practices and diffusing existing energy efficient vehicle technologies.

*Example: The most dominant mode of transport in Dakar (Senegal) is minibuses, which are operated on an informal basis. The operators can only afford to cover their operating costs and not the renewal of their vehicles, and as such the city of Dakar implemented a programme to support fleet renewal. The informal minibus operators were invited to join a formal transport group, known as a GIE. Membership to the group affords operators numerous benefits, such access to concessions if they stick to specified routes and fares. Operators that join the group are, however, required to use specified types of vehicles, which can be purchased using loans. This has the effect of supporting fleet renewal by increasing access to more fuel efficient vehicles and technologies.*

**4. Strengthen institutions and capacity.** Political institutions, financial frameworks, and technical capacity can be built through the pursuit of vehicle fuel economy measures.

*Example: The institutional framework of public transport in Johannesburg, South Africa, has evolved considerably since deregulation in the late 1980s. The following reforms were introduced to increase the quality and efficiency of public transport operations:*

- *Integration of transport and land-use functions through Integrated Transport Plans*
- *Change in governance to formalise and democratise public transport operations*
- *Legislation of the relationships and interactions between operators and the government*
- *Access to financial support to renew old minibus fleets.*

The policy measures that have been outlined in this section can be adopted in all countries to improve vehicle fuel economy, but as with other types of measure if they are to be effective then the specific context (such as economic conditions and vehicle purchasing habits) in which they are to be implemented needs to be considered and the intervention tailored accordingly.

IEA analysis indicates that in many countries, and for all countries on average, fuel economy improvements occurred between 2005 and 2008, but that most of this improvement was in OECD countries<sup>4</sup> and <sup>5</sup> (IEA/ETP, 2011). A relatively small number of non-OECD countries have developed vehicle fuel economy policies. China is the only non-OECD country, for example, that has fuel economy standards in place (GFEI, 2009). Vehicle fuel economy in China has, however, declined despite these standards. This highlights the need for developing countries to also adopt policies that address drivers of fuel consumption, such as inefficient technologies, and large vehicles.

Vehicle size has an impact on fuel economy and average vehicle size is an example of a characteristic that varies considerably between countries. The choice of vehicle size has been linked to numerous factors including income levels, market maturity, and culture (IEA/ETP, 2011). In 2008 between 30% and 70% of new vehicle registrations in Asian countries were for small vehicles, whilst these vehicles accounted for less than 5% of market share in the USA (IEA/ETP, 2011). The market share in many developing countries, however, is dominated by mid-size vehicles, which it has been suggested could be linked to the culture of owning one car per household (rather than an average of two in many OECD countries).

The variation in vehicle size between countries can mean that the country that statistically has the most fuel efficient vehicle fleet (in 2005 the IEA estimated this to be India) does not necessarily have the most technically efficient vehicles. The estimated fuel efficiency is instead linked to the fact that India has the second smallest average vehicle size of any country reviewed – the same size vehicles in OECD countries may be more efficient as vehicles in these countries, in general, can be ‘more optimised, and possess more fuel efficiency technologies’ (IEA/ETP, 2011). Two- and three-wheeler vehicles also have a relatively large modal share in Asian countries, and emission standards and technologies that have been applied to passenger cars do not tend to be applied to these vehicles. In developing countries in general there is therefore more scope to increase vehicle efficiency than in OECD countries.

ICF International refers to this as a ‘technology lag’ between developed and developing countries. The relatively low price of vehicles in developing countries is likely to make it difficult to overcome this lag without targeted intervention (Duleep, 2010). The largest barrier to widespread adoption of electric vehicles in developing country markets, for example, is the price. There are also broader concerns that relate to infrastructure in developing countries. Energy supply, for example, is less reliable, widespread and consistent in developing countries than in developed countries (GFEI, 2010ab).

Structural challenges to implementing vehicle fuel economy measures also restrict opportunities for enhancing efficiency. UN DESA (2011) suggests that the most effective vehicle efficiency standards are those that are linked to factors such as classification of vehicles by use, characteristics and fleet averages, but this type of data is not available to many developing countries enabling them only to implement ‘minimum requirement’ standards based on vehicle categories. The legal framework required to implement fuel economy standards is also not present in some developing countries, such as those in

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<sup>4</sup> This section focuses on the distinction between developed (OECD) and developing countries, but it is important to note that there is considerable diversity within these two groupings.

<sup>5</sup> It is important to note that the energy intensity of the vehicles being used in OECD countries was considerably higher than those in non-OECD countries at the start of the period.

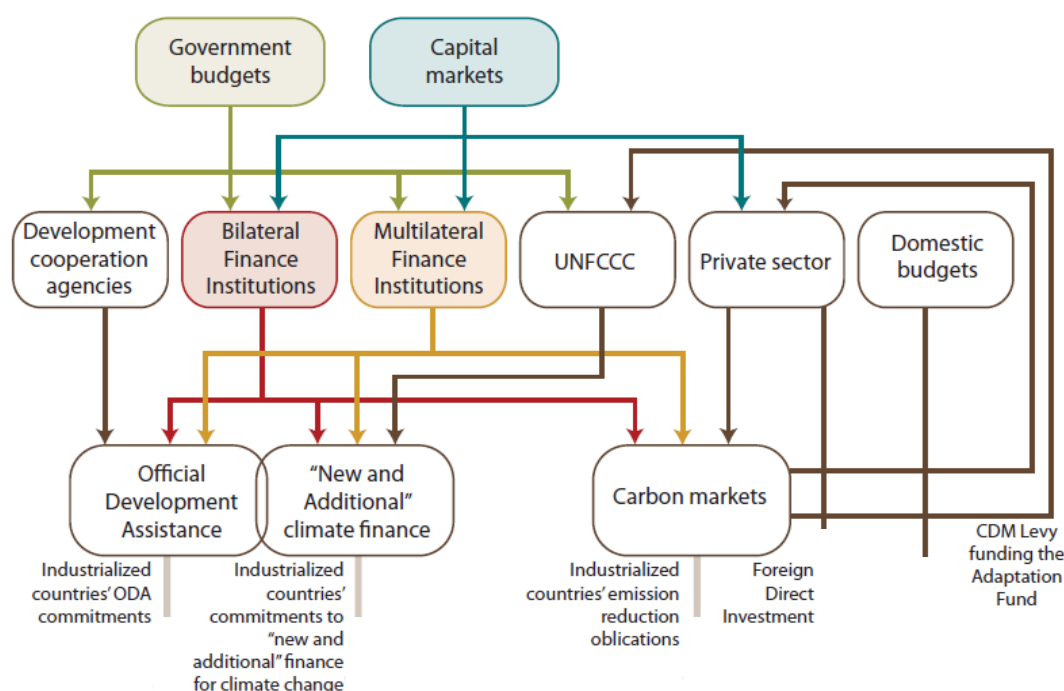
Latin America. They instead need to use voluntary measures and seek to educate vehicle purchasers (UN DESA, 2011).

Another factor that has an impact on the vehicle fuel economy policies that can be implemented in developed and developing countries is the fact that many developing countries do not have the capacity to develop targets for manufacturers, or to monitor compliance to, for example, a sales-weighted average fleet standard (UN DESA, 2011). Many developing countries, however, are importers rather than exporters of vehicles. This can give them greater flexibility in terms of the vehicle fuel economy measures that can be adopted (particularly in relation to import controls), and can mean that political willingness is perhaps less of a barrier to adopting related measures than in countries that manufacture vehicles for export.

The rest of this report focuses on a number of the different financial institutions that provide access to finance for these types of vehicle fuel economy activities on a national level. It will also provide practical guidance, highlighting the ways in which each can be accessed.

## 2 International support

The development and implementation of vehicle fuel economy measures can be supported by international finance from a wide range of sources. Multilateral, bilateral, public, private, tied and untied<sup>6</sup> financial and technical support can be obtained to support vehicle fuel economy measures in developing countries across the world. Figure 1 gives an overview of the main sources of finance (domestic and international) that can be used by the national governments of developing countries to support these measures.



**Figure 1: An overview of available sources of international finance that could be used to support vehicle fuel economy measures. Source: Adapted from Atteridge et al, 2009.**

It is beyond the scope of this report to introduce all of the relevant sources of funding for national governments, which vary greatly in scale, scope and their eligibility criteria. This section, which is the body of this guidance document, instead provides a concise overview of a selection of the international institutions and funding streams that national governments of developing countries could apply to for support for domestic vehicle fuel economy measures.

Table 3 summarises the sources of funding that are detailed in the subsequent sections of this document. They are structured by geographic region, and relevant funds are listed alphabetically under each of the regions: Asia, Europe, Africa, and Central and South America and the Caribbean.

<sup>6</sup> Support that is 'tied' is financial or technical support that is provided with specific conditions attached to its use or with other associated obligations that the recipient must comply with. In contrast 'untied' aid is provided with no associated commitments or obligations.

**Table 3: Summary of available funding instruments**

|   | Financial support provided |      |       | Additional eligibility considerations  | Support for project preparation <sup>7</sup> |           |               |
|---|----------------------------|------|-------|--|--|-----------|---------------|
|   | Grant                      | Loan | Other |  | Financial                                    | Technical | Not available |
| Asia and the Pacific                                    |                            |      |       |  |  |           |               |
| Asia Pacific Carbon Fund (APCF)                         |                            |      | X     | Applicants must be national governments of ADB member countries and also designated as a non-annex one country under the Kyoto Protocol  | X  | X         |               |
| Carbon Partnership Facility (CPF)                       | X                          |      | X     | Host countries must be developing countries or countries with economies in transition  | X  | X         |               |
| Clean Development Mechanism (CDM)                       |                            |      | X     | n/a  |  |           | X             |
| Clean Energy Financing Partnership Facility (CEFPF)     | X                          | X    | X     | Applicants must be national governments of ADB Developing Member Countries   | X  |           |               |
| Climate Change Fund (CCF)                               | X                          | X    | X     | Applicants must be national governments of ADB Developing Member Countries   |  |           | X             |
| Climate Investment Funds (CIF)                          |                            | X    |       | Host countries must be ODA eligible <sup>8</sup> and have an active MDB country programme  |  |           | X             |
| Energy Sector Management Assistance Programme (ESMAP)   |                            | X    | X     | Host countries must be low-income or be emerging or transition economies   |  |           | X             |
| EuropeAid   | X                          |      |       | n/a  |  |           | X             |
| European Bank for Reconstruction and Development (EBRD) |                            | X    | X     | The host country must be an EBRD country of operation <sup>9</sup>   |  | X         |               |
| Future Carbon Fund (FCF)                                |                            | X    | X     | n/a  |  |           | X             |
| German International Climate Initiative (ICI)           | X                          |      |       | Applicants should contact ICI directly to enquire about their country's eligibility for funding  |  |           | X             |
| Global Environment Facility (GEF)                       | X                          |      |       | National governments of host countries must either be eligible to borrow from the World Bank or be an eligible recipient of UNDP technical assistance through its country Indicative Planning Figure (IPF) |  |           | X             |
| International Finance Corporation (IFC)                 |                            | X    | X     | Host countries must be developing countries or members of the World Bank's IFC.  |  |           | X             |
| Europe  |                            |      |       |  |  |           |               |
| Carbon Partnership Facility (CPF)                       | X                          |      | X     | Host countries must be developing countries or countries with economies in transition  | X  | X         |               |
| Clean Development Mechanism (CDM)                       |                            |      | X     | n/a  |  |           | X             |
| Climate Investment Funds (CIF)                          |                            | X    |       | Host countries must be ODA eligible <sup>10</sup> and have an active MDB country programme   |  |           | X             |
| Energy Sector Management Assistance Programme (ESMAP)   |                            | X    | X     | Host countries must be low-income or be emerging or transition economies   |  |           | X             |
| EuropeAid   | X                          |      |       | Industrialised countries are not eligible  |  |           | X             |
| European Bank for Reconstruction and Development (EBRD) |                            | X    | X     | The host country must be an EBRD country of operation <sup>11</sup>  |  | X         |               |
| German International Climate Initiative (ICI)           | X                          |      |       | Applicants should contact ICI directly to enquire about their country's eligibility for funding  |  |           | X             |
| Global Environment Facility (GEF)                       | X                          |      |       | National governments of host countries must either be eligible to borrow from the World Bank or be an eligible recipient of UNDP technical assistance through its country Indicative Planning Figure (IPF) |  |           | X             |
| International Finance Corporation (IFC)                 |                            | X    | X     | Host countries must be developing countries or members of the World Bank's IFC.  |  |           | X             |
| Africa  |                            |      |       |  |  |           |               |
| African Development Bank (AfDB)                         |                            | X    | X     | Host countries must be Regional Members <sup>12</sup> of the AfDB  | X  |           |               |
| Carbon Partnership Facility (CPF)                       | X                          |      | X     | Host countries must be developing countries or countries with economies in transition  | X  | X         |               |
| Clean Development Mechanism (CDM)                       |                            |      | X     | n/a  |  |           | X             |
| Climate Investment Funds (CIF)                          |                            | X    |       | Host countries must be ODA eligible <sup>13</sup> and have an active MDB country programme   |  |           | X             |

<sup>7</sup> This is only indicated if the information was publicly available at the time of writing. It is recommended that applicants should contact the relevant authority to check what project preparation support is available

<sup>8</sup> This list of countries is regularly updated so it is recommended that applicant country's status should be checked prior to applying. A list of ODA eligible countries up to 2010 can be found here: [http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/oda\\_recipients.pdf](http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/oda_recipients.pdf)

<sup>9</sup> List of eligible countries is available here: <http://www.ebrd.com/pages/about/where.shtml>

<sup>10</sup> This list of countries is regularly updated so it is recommended that applicant country's status should be checked prior to applying. A list of ODA eligible countries up to 2010 can be found here: [http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/oda\\_recipients.pdf](http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/oda_recipients.pdf)

<sup>11</sup> List of eligible countries is available here: <http://www.ebrd.com/pages/about/where.shtml>

<sup>12</sup> A list of eligible country for each type of mechanism is detailed here: <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Financial-Information/Financial%20Products%20-%20Offered%20by%20the%20African%20Development%20Bank.pdf>

<sup>13</sup> This list of countries is regularly updated so it is recommended that applicant country's status should be checked prior to applying. A list of ODA eligible countries up to 2010 can be found here: [http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/oda\\_recipients.pdf](http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/oda_recipients.pdf)

|  |   |   |  |   |   |   |
|--|---|---|--|---|---|---|
| Energy Sector Management Assistance Programme (ESMAP)      | X | X | Host countries must be low-income or be emerging or transition economies   |   |   | X |
| EuropeAid  | X |   | n/a  |   |   | X |
| German International Climate Initiative (ICI)              | X |   | Applicants should contact ICI directly to enquire about their country's eligibility for funding  |   |   | X |
| Global Environment Facility (GEF)                          | X |   | National governments of host countries must either be eligible to borrow from the World Bank or be an eligible recipient of UNDP technical assistance through its country Indicative Planning Figure (IPF) |   |   | X |
| International Finance Corporation (IFC)                    | X | X | Host countries must be developing countries or members of the World Bank's IFC   |   |   | X |
| Partnership for Capacity Building Program in Africa (PACT) | X | X | Host countries must be from sub-Saharan Africa.  |   |   | X |
| <b>Central and South America and the Caribbean</b>         |   |   |  |   |   |   |
| Carbon Partnership Facility (CPF)                          | X | X | Host countries must be developing countries or countries with economies in transition  | X | X |   |
| Clean Development Mechanism (CDM)                          |   | X | n/a  |   |   | X |
| Climate Investment Funds (CIF)                             | X |   | Host countries must be ODA eligible <sup>14</sup> and have an active MDB country programme   |   |   | X |
| Energy Sector Management Assistance Programme (ESMAP)      | X | X | Host countries must be low-income or be emerging or transition economies   |   |   | X |
| EuropeAid  | X |   | n/a  |   |   | X |
| German International Climate Initiative (ICI)              | X |   | Applicants should contact ICI directly to enquire about their country's eligibility for funding  |   |   | X |
| Global Environment Facility (GEF)                          | X |   | National governments of host countries must either be eligible to borrow from the World Bank or be an eligible recipient of UNDP technical assistance through its country Indicative Planning Figure (IPF) |   |   | X |
| Inter-American Development Bank (IDB)                      | X | X | Host countries must be IDB member countries from Latin America and the Caribbean <sup>15</sup>   |   |   | X |
| International Finance Corporation (IFC)                    | X | X | Host countries must be developing countries or members of the World Bank's IFC.  |   |   | X |

The strategies and project portfolios of the institutions featured in this report indicate that financial support is potentially available for vehicle fuel economy measures, and that the availability of finance from these sources is likely to increase. This is linked in part to the increasing international emphasis on the need for climate change mitigation, as well as an expanding recognition of the imperative to improve energy efficiency for transport and the contribution of the transport sector to GHG emissions. It is important to note, however, that while there are many sources of funding available it can still be challenging to obtain finance for vehicle fuel economy measures. This relates both to the total volume of funds available and the many different sectors and types of interventions competing for these resources. The following pages contain examples of how some of these challenges could be overcome.

The many social, economic and environmental co-benefits of vehicle fuel economy measures indicate that international financial institutions could see their investments have a larger impact if they enhance support for this type of measure, and actively seek to reduce barriers to access.<sup>16</sup> It is therefore important to recognise the potential role of other actors, notably the private sector and domestic governments, in providing financial support for vehicle fuel economy.

The next section of this guidance provides an insight into some of the factors that can increase the likelihood of funding applications for vehicle fuel economy measures being successful.

#### The need for co-financing

There are many different sources of funding that can be applied to for support for vehicle fuel economy measures, and one thing that many of them have in common is that they require a certain proportion of 'co-funding' to be obtained from another source. Sometimes referred to as 'match funding,' co-finance is defined by the Asian Development Bank as '*financing mobilised from sources other than the borrower or project sponsors to augment its own assistance.*' The potential sources of co-finance are as broad as the institutions featured in Figure 1 above. There are not normally restrictions on the sector or organisations that co-finance can be sourced from. The main purpose for the co-finance requirement is to increase the impact of finance invested by any one institution but it can have many other benefits, such as establishing better co-ordination between financial institutions.

The institution requiring that co-finance be obtained may provide suggestions on where co-finance can be leveraged from, or alternatively this is something that consultants can advise on.

<sup>14</sup> This list of countries is regularly updated so it is recommended that applicant country's status should be checked prior to applying. A list of ODA eligible countries up to 2010 can be found here: [http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/oda\\_recipients.pdf](http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/oda_recipients.pdf)

<sup>15</sup> A List of member countries can be found here: <http://www.iadb.org/en/about-us/borrowing-member-countries,6005.html>

<sup>16</sup> These include the fact that numerous financial institutions have historically favoured transport infrastructure projects over more 'soft' transport interventions, such as vehicle fuel economy measures, that co-finance often needs to be obtained, and that financial institutions often prefer project based approaches, whilst many vehicle fuel economy measures require comprehensive national level interventions that tend not to be well suited to this model. The relative difficulty of demonstrating additionality and Measuring, Reporting and Verifying the emission reductions associated with vehicle fuel economy measures can also pose a further barrier to accessing related finance.



### 3 Ways to increase the likelihood of obtaining financial support for vehicle fuel economy measures

There is large and growing volume of international finance that is available to potentially support vehicle fuel economy activities. National governments that are seeking to access this finance must, however, be aware that vehicle fuel economy measures are just one of many groups of measures that can be adopted to reduce emissions from the land transport sector. They should also be aware that the land transport sector is itself one of many sectors where climate change mitigation activities must take place. There are therefore a wide range of climate change mitigation interventions that are competing for financial and technical support. Financial institutions should be approached and applied to in recognition of the high level of competition for climate finance.

This project has involved consultations with a number of the financial institutions introduced in the 'Funding Mechanism Fact-Sheets.' These interviews raised a number of points that national Governments should bear in mind to optimise their likelihood of obtaining international financial support for vehicle fuel economy measures. The key success factors identified are outlined below.

- **Increase domestic recognition of the need for vehicle fuel economy.** A number of developing country governments perceive that because their fuel consumption is relatively low enhancing vehicle fuel economy should not be a priority. Energy generation and distribution does, however, tend to be very inefficient in developing countries and so there is much scope for enhancement. Doing so can put them on a lower carbon trajectory and provide a foundation for sustainable growth. There are also a number of wider environmental, social and economic benefits of improving vehicle fuel economy (see Section 1.2). A number of the wider benefits of vehicle fuel economy measures are directly linked to the Millennium Development Goals (MDGs). Co-operation between finance institutions and developing countries is sometimes guided by the MDGs and so developing countries need to be aware of, and communicate, these linkages.
- **Have a supportive framework in place.** A number of financial institutions regard a lack of domestic regulatory systems that support vehicle fuel economy, and their enforcement, as barriers to the effective adoption and maintenance of associated projects. Recipient governments therefore need to have structures that are conducive to energy efficiency in place, and this requires broad and widespread support for vehicle fuel economy measures. Developing country governments could demonstrate initiative in this area by developing a foundation for vehicle fuel economy investments. This could include actions such as phasing out leaded fuel, lowering sulphur levels in fuels, and developing systems to control conventional vehicle emissions.
- **Develop a robust business case.** Vehicle fuel economy measures are just one of many types of climate change mitigation instruments that are competing for finance. Applicants should therefore be able to demonstrate from an early stage why proposed vehicle fuel economy activities are considered to be the most effective type of intervention in the particular instance. A key factor that needs to be conveyed when pursuing climate finance is potential emission reductions, and so a business case should include, for example, details of current emission levels and the potential impact that the proposed intervention could have on these. There are a number of challenges to estimating emission reductions from climate change mitigation activities in the land transport sector but there is also a growing body of guidance on how to do so. There are also a number of institutions that can provide related support. The GFEI, for example, provide direct national level support in this regard, advising on issues including data collection and the calculation of baselines for



vehicle fuel economy.<sup>17</sup> The same challenge exists when seeking to quantify the co-benefits of different vehicle fuel economy measures. Section 1.3 provided links to a number of different publications introducing the range of vehicle fuel economy measures available, and these can be a good starting point for identifying measures that could be appropriate. The nature of such measures should be considered in the context of regional and national data and trends on vehicle fuel economy and associated measures, as what works in one context will not necessarily be effective in another. This is an area where national contact points for financial institutions can also provide guidance.

- **Initiate dialogue with financial institutions from an early stage.** Many financial institutions take a 'bottom up' approach to supporting projects. A proactive approach from governments, in which developing countries specifically state the need for support to enhance vehicle fuel economy, can therefore be welcomed by financial institutions and be beneficial to governments. Financial institutions can, for example, guide them through the process, and also provide support to develop projects and to prepare applications. This type of communication should be capitalised upon to communicate the need for such projects, how they fit into wider strategies, and to develop them in alignment with both the domestic context and the strategies of financial institutions.
- **Be an informed client.** The application procedure for sources of climate finance can be very bureaucratic and eligibility criteria stringent. Applicants should therefore be fully aware of the criteria and requirements of each institution. A number of climate funds, for example, require that applicants have a process in place for monitoring the impacts of interventions on CO<sub>2</sub>.
- **Collaborate with the private sector.** A number of financial institutions provide finance to the private sector, indeed a number are private sector driven, but many vehicle fuel economy interventions need to be led by the public sector. It could therefore be worthwhile for the public sector to collaborate with the private sector, such as vehicle manufacturers. This could have the effect of increasing access to finance, and engagement with these actors could also have the potential to lead to broader vehicle fuel economy gains (for example through encouraging more stringent product standards). It could also help countries to avoid barriers that have been experienced in the past to enhancing vehicle fuel economy, for example where industry has sought to delay the introduction of vehicle fuel efficiency standards.
- **'Package' vehicle fuel economy measures into a wider 'bundle' of measures.** A number of financial institutions may be likely to reject vehicle fuel economy interventions if proposed as individual projects. This is true of single projects in general and is linked in part to the relatively high resource intensity of managing stand-alone interventions. Vehicle fuel economy measures should therefore be packaged within a wider strategy or programme of measures, which could perhaps be collectively targeted at fulfilling objectives such as economic development or poverty alleviation rather than at mitigating against climate change. In instances where packaging vehicle fuel economy measures may not be appropriate singular measures might be more likely to obtain funding if they're conducted as a 'pilot study.' There are also funding streams for capacity building, which is an important component of fuel efficiency policy development and implementation.
- **Follow the UNFCCC process.** The UNFCCC is currently negotiating a range of potential sources of funding that could be used to support vehicle fuel economy measures. These include a Green Climate Fund (GCF), Nationally Appropriate

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<sup>17</sup> For more information about the support provided by the GFEI see: <http://www.globalfueleconomy.org/Pages/Homepage.aspx>.

Mitigation Actions (NAMAs),<sup>18</sup> and a Programme of Activities (PoA) approach for the CDM. These could provide more support for vehicle fuel economy interventions than the current CDM, and financial institutions are already looking to these emerging sources of finance as a way of strengthening their activities in the field of low carbon transport. It is also important to note that while vehicle fuel economy measures can be presented to the UNFCCC to try to secure support for their development and implementation, they can also be reported to the UNFCCC if they have, or are being, implemented unilaterally (without international support). This enables developing countries to demonstrate that they are engaged with the UNFCCC process and proactively taking domestic actions to reduce their GHG emissions. This presents countries in a positive light to both international institutions and other countries.

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<sup>18</sup> NAMAs are voluntary emission reduction measures and they are likely to be the main vehicle for climate change mitigation activities under the UNFCCC after 2012. Forty-four developing country Governments have communicated intentions to conduct NAMAs to the UNFCCC and both the content of these submissions and the UNFCCC's working definition of the NAMA concept highlight the applicability of the concept for climate change mitigation activities in the land transport sector. This includes opportunities for supporting vehicle fuel economy policies, projects and programmes. For an introduction to the NAMA concept see GIZ (2011), and for an overview of the content of NAMA submissions made from a land transport perspective see Binsted (2011).

## 4 Funding Mechanism Fact-Sheets

### 4.1 World Bank

The World Bank is a non-profit organisation that provides low or no interest loans, grants, analytic and advisory services, and capacity building to developing countries. It is a market based institution that is comprised of two institutions (the International Bank for Reconstruction and Development and the International Development Association) with capital reserves provided by its 185 member country shareholders (World Bank, no date). The World Bank focuses on contributing to the achievement of the Millennium Development Goals (MDGs) (UN, 2010) and invests in projects economy-wide in order to do so. The World Bank is currently supporting over 18,000 active projects internationally 21% of which are in the transport sector (The World Bank, 2011) and since its inception in 1944 has invested a total of US\$523.6 billion internationally (The World Bank, 2010).

The World Bank supports low-carbon investments through the leveraging of financing instruments, technical assistance, policy advice and blending with other resources, such as from the Global Environment Facility (GEF), to support climate change mitigation. Relevant funds operated by the World Bank include the Carbon Partnership Facility and the Climate Investment Funds, which support clean technology investments economy wide.

The World Bank's Transport Strategy advocates measures that support greater fuel efficiency and that set more controls on vehicle emissions. It also states that energy efficiency gains can be realised through considering new models of pricing, such as taxes on fuel consumption (The World Bank, 2008). Publicly available information is not always sufficient to determine which of the World Bank's funds are the most suitable for supporting improvements in fuel economy. As such, it is recommended that the World Bank is contacted directly for information regarding available funding mechanisms for specific projects.



#### Key points:

1. All contact names and numbers were correct at the time of publication – February 2012, but may change over time. Where possible a general information number is also supplied to allow access even in a light of changed personnel.
2. Access to application forms, information and definitions of eligibility is often web-based. Again, web addresses are correct at the time of printing, but to allow for subsequent changes, a general organisation wide web addressed is also supplied.
3. The list of possible funding sources is not exhaustive and will change and develop over time. Those listed here were amongst the most appropriate sources of funding for vehicle fuel economy measures at the time of going to print. The research team are considering how and when this overview might best be revisited and updated where relevant.

**Table 4: Summary of World Bank instruments**

| Policy type   | Available instruments (through the World Bank)                      |                                   |                                |   |  |
|---------------|---|-----------------------------------|--------------------------------|---|--|
|               | Policy measure  | Carbon Partnership Facility (CPF) | Climate Investment Funds (CIF) | Energy Sector Management Assistance Programme (ESMAP) | Partnership for Capacity Building Program in Africa (PACT) |
| Economic      | Fuel taxes  |                                   | X                              |   | X  |
|               | Vehicle taxes   |                                   | X                              |   | X  |
|               | Financial incentives to speed fleet turnover                        |                                   | X                              |   |  |
| Technological | Improvements in new vehicle fuel economy                            | X                                 | X                              |   |  |
|               | Develop new fuels   | X                                 | X                              |   |  |
|               | Develop smart infrastructure  | X                                 | X                              | X   |  |
| Informational | Driver training to in promote more fuel efficient driving practices |                                   | X                              | X   |  |
|               | Marketing campaigns to promote the use of green vehicles            |                                   |                                | X   | X  |
|               | Improved purchaser information                                      |                                   |                                | X   |  |
|               | The establishment of regional fuel economy frameworks               | X                                 |                                | X   | X  |
| Regulatory    | Fuel economy standards (regulatory standards and voluntary targets) | X                                 | X                              |   |  |
|               | Improve vehicle maintenance   | X                                 | X                              |   |  |
|               | Better regulation of the import of used vehicles                    | X                                 | X                              |   |  |
|               | Regulatory incentives to speed fleet turnover                       | X                                 | X                              |   | X  |
|               | Testing new drivers in fuel efficient driving                       | X                                 |                                |   |  |

### **4.1.1 Carbon Partnership Facility (CPF)**

#### **4.1.1.1 Summary**

The Carbon Partnership Facility was designed to facilitate emission reductions and support their purchase after 2012. Its objective and business model are based on the need to prepare large-scale, potentially risky investments with long lead times, which require durable partnerships between buyers and sellers. It is also based on the need to support long-term investments in an uncertain market environment, possibly spanning several market cycles. "Learning by doing" approaches will be an essential aspect of the Carbon Partnership Facility as it moves from individual projects to programmatic approaches, including methodologies needed for such approaches.

Further information can be found here: <http://www.acbf-pact.org/grant-guidelines.aspx>

#### **Recipients**

Local and national developing country governments, and the private sector.

#### **Role of mechanism**

The CPF's objective is to develop emission reductions and support their purchase, on a larger scale through the provision of carbon finance to long-term investments. The CPF essentially provides funding mechanisms for recipient countries to develop measures for reducing carbon and facilitates the selling of these emission reductions to parties willing to buy them on the carbon market.

#### **How fuel economy can be delivered**

Energy efficiency and urban development are key parts of the CPF. As such, they are linked well to the areas of fuel economy improvements. Policy measures ranging from technological to regulative are in scope and the emission reductions that result from these improvements to fuel economy can be sold via the CPF on the carbon market. Thus, the CPF will be able to provide funding for setting up the project. The following policy measures from Table 4 are potentially within the scope of CPF:

- Technological
- Informational
- Regulatory.

#### **4.1.1.2 Application process**

##### **Stages of application process**

The process is complex, it requires many stages of review and approval with various stakeholders and partners. The full process can be found in the document:

<http://cpf.wbcarbonfinance.org/cpf/system/files/CPF%20Instrument%20June%208%202011.pdf>

#### **Contacts**

CPF coordinator:

The World Bank

MC 3 - 721

1818 H Street, NW

Washington, DC 20433

[Rzechter@worldbank.org](mailto:Rzechter@worldbank.org)



## Internet / direct application

Applications should be made by submitting programme idea note to the facility coordinator via the details above.

## Forms for application

The following forms and templates are relevant for an application:

**CPF Buyer Private Entity EoI**, which can be accessed from:

[http://cpf.wbcarbonfinance.org/cpf/system/files/CPF\\_Buyer\\_Private\\_entity\\_EoI\\_072808\\_Updated.pdf](http://cpf.wbcarbonfinance.org/cpf/system/files/CPF_Buyer_Private_entity_EoI_072808_Updated.pdf).

**CPF Buyer Public Sector EoI** (see

[http://cpf.wbcarbonfinance.org/cpf/system/files/CPF\\_Buyer\\_Public\\_sector\\_EoI\\_10.20.2009.pdf](http://cpf.wbcarbonfinance.org/cpf/system/files/CPF_Buyer_Public_sector_EoI_10.20.2009.pdf))

**CPF Buyer Public Sector Non-Annex 1 EoI** (see

[http://cpf.wbcarbonfinance.org/cpf/system/files/CPF\\_Buyer\\_Public\\_sector\\_nonA1\\_EoI\\_10.20.2009.pdf](http://cpf.wbcarbonfinance.org/cpf/system/files/CPF_Buyer_Public_sector_nonA1_EoI_10.20.2009.pdf))

**CPF Donor Confidentiality Letter** (see

[http://cpf.wbcarbonfinance.org/cpf/system/files/CPF\\_Donor\\_Confidentiality\\_Letter\\_072808.pdf](http://cpf.wbcarbonfinance.org/cpf/system/files/CPF_Donor_Confidentiality_Letter_072808.pdf)

**CPF Partner Confidentiality Letter** (see

[http://cpf.wbcarbonfinance.org/cpf/system/files/CPF\\_Partner\\_Confidentiality\\_Letter\\_072808\\_0.pdf](http://cpf.wbcarbonfinance.org/cpf/system/files/CPF_Partner_Confidentiality_Letter_072808_0.pdf))

**CPF Seller Letter** (see

[http://cpf.wbcarbonfinance.org/cpf/system/files/CPF\\_Seller\\_Letter\\_9.19.08\\_final\\_0.pdf](http://cpf.wbcarbonfinance.org/cpf/system/files/CPF_Seller_Letter_9.19.08_final_0.pdf)).

## Timing

Funding is allocated in tranches. The first tranche of funding was allocated in April 2011. The second tranche has not yet been announced but applications can be made at any time.



## **4.1.2 Climate Investment Funds (CIF)**

### **4.1.2.1 Summary**

The Climate Investment Funds (CIF), approved by the World Bank's Board of Directors on July 1, 2008, are a collaborative effort among the Multilateral Development Banks (MDBs) and countries to bridge the financing and learning gap between now and a post-2012 global climate change agreement. Designed through extensive consultations, the CIF are governed by balanced representation of donors and recipient countries, with active observers from the UN, GEF, civil society, indigenous peoples and the private sector.

The CIF are comprised of two Trust Funds, each with a specific scope and objective and its own governance structure; the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). The most relevant of these for improving fuel economy is the CTF.

### **Recipients**

If readers click on the term 'ODA eligible' then they'll access a list of countries that fall within this category, but there doesn't appear to be a clear set definition of the criteria these countries need to fulfil – they vary greatly and some are even eligible to both receive and provide ODA. This highlights a key issue that needs to be changed though – the definition of ODA in the glossary needs to be changed – it must be 'Official Development Assistance.'

National governments that are [ODA eligible](#)<sup>19</sup> and that have an active MDB country programme.

### **Role of mechanism**

The CTF promotes investments to initiate a shift towards clean technologies. The CTF seeks to fill a gap in the international architecture for development finance available at more concessional rates than standard terms used by the Multilateral Development Banks (MDBs) and at a scale necessary to help provide incentives to developing countries to integrate nationally appropriate mitigation actions into sustainable development plans and investment decisions. Through the CTF, countries, the MDBs, and other partners agree upon country investment plans for programs that contribute to the demonstration, deployment and transfer of low carbon technologies with significant potential for greenhouse gas emissions savings.

### **How fuel economy can be delivered**

The CTF has three main technical area focuses:

- Power Sector: Renewable energy and highly efficient technologies to reduce carbon intensity;
- Transport Sector: Efficiency and modal shifts; and
- Energy Efficiency: Buildings, industry, and agriculture.

Their description indicates that the CIF is well suited for the following policy measures listed in Table 4:

- Economical
- Technological
- Regulatory.

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<sup>19</sup> For a list of countries that were eligible for ODA in the years 2009 and 2010 see: <http://oecd.org/dataoecd/32/40/43540882.pdf>

#### 4.1.2.2 *Application process*

##### **Stages of application process**

When a country expresses interest in accessing CTF financing, the MDBs concerned will conduct a joint mission involving other relevant development partners. MDBs will engage with government officials, private industry and other stakeholders on how the fund may help finance scaled-up, low carbon activities in the given country. An investment plan will be designed under the leadership of the recipient country.

A list of joint mission contacts in different countries is available here:

[http://www.climateinvestmentfunds.org/cif/CTF\\_Joint\\_Missions](http://www.climateinvestmentfunds.org/cif/CTF_Joint_Missions)

Steps to access CTF:

1. An interested country requests a joint mission of the World Bank Group and relevant Regional Development Bank to prepare an investment plan
2. An investment plan is developed under the leadership of the country requesting the joint mission. The plan will describe how CTF financing will be used in major sectors of its economy and complement activities under other available programs.
3. The CTF Trust Fund Committee reviews the investment plan, and endorses further development of activities for CTF financing.

##### **Contacts**

Climate Investment Funds

Admin Unit

The World Bank Group

1818 H Street NW

Washington, D.C. 20433

Email: [CIFAdminUnit@worldbank.org](mailto:CIFAdminUnit@worldbank.org)

Phone: (202) 458-1801

##### **Internet / direct application**

It is recommended to contact CIF via details above with regard to what the preferred application method is.

##### **Forms for application**

All relevant forms are available from here:

<http://www.climateinvestmentfunds.org/cif/keydocuments/CTF>

##### **Timing**

The available information does not suggest of any timing restrictions.



### **4.1.3 Energy Sector Management Assistance Programme (ESMAP)**

#### **4.1.3.1 Summary**

ESMAP is a global technical assistance program that promotes the role of energy in poverty reduction and economic growth in an environmentally responsible manner. Its work applies to low-income, emerging, and transition economies and contributes to the achievement of internationally agreed development goals. Through studies, pilot projects and training, ESMAP strives to expand the global knowledge base about its priority areas: market-oriented sector reform and restructuring, energy access to the un- or under-served especially in rural areas, and environmentally sustainable energy practices. Activities should also contribute to the institutional and human capacity in the recipient country; address poverty, social and gender issues; and be innovative in developing, testing, and mainstreaming ideas and approaches. Approximately US\$ 2 million is available for funding between the financial years 2010 and 2013.

Further information is available form: <http://www.esmap.org/esmap/>

#### **Recipients**

All stakeholders in the energy sector are eligible for support, including: governments, private sector, research institutions and NGOs.

#### **Role of mechanism**

Part of ESMAP most relevant to gaining support for the improvement of fuel economy in developing countries is "Lending project support for cities", part of the Energy Efficient Cities Initiative (EECI). EECI assists cities in developing energy efficiency plans and pilot innovative initiatives; transport is within the scope of this initiative. Further information is available from: <http://www.esmap.org/esmap/EECI>

#### **How fuel economy can be delivered**

Improvements in fuel economy can be delivered through the following policy measures listed in Table 4:

- Technological
- Informational.

Given the focus of ESMAP on energy efficiency in cities, improvements in public transport fuel economy (e.g. buses) may be particularly relevant.

#### **4.1.3.2 Application process**

##### **Stages of application process**

The following process can be followed when requesting funding:

1. Is the applicant part of the World Bank group?
  - a. If yes, go to Step 3.
  - b. If no, go to Step 2.
2. Secure a commitment from a World Bank energy specialist. Use contact details above to contact ESMAP who will provide relevant World Bank contacts.
3. Submit a proposal for funding to the Manager of ESMAP. It is recommended that ESMAP are contacted via the details above in order to obtain contact details for the relevant manager.

## **Contacts**

HQ details:

The World Bank

1818 H Street, NW

Washington, DC 20433 USA

email: [esmap@worldbank.org](mailto:esmap@worldbank.org)

Tel: +1 (202) 4582321

Fax: +1 (202) 5223018

## **Internet / direct application**

ESMAP activities are managed by World Bank energy specialists. Proposals for activities are submitted to the Manager of ESMAP and reviewed by independent experts. Non-World Bank Group proponents need to secure the commitment of a World Bank energy specialist before their proposals can be considered by ESMAP. ESMAP staff are available to put proponents in touch with World Bank energy staff and can be contacted at address above.

## **Forms for application**

No forms or application are available.

## **Timing**

Timing information is not provided.



#### **4.1.4 Partnership for Capacity Building Program in Africa (PACT)**

##### **4.1.4.1 Summary**

PACT is implemented by the African Capacity Building Foundation (ACBF), Harare, Zimbabwe. The mechanism's funding activities are focused on strengthening indigenous human capital and institutions to address the problem of inadequate capacity for development in sub-Saharan Africa.

ACBF provides financing in the form of grants and co-financing where recipient organisation seeks additional funds from other sources to match the Foundation grant.

Further information can be found here: <http://www.acbf-pact.org/grant-guidelines.aspx>

##### **Recipients**

Recipients can be local and national governments in Sub-Saharan Africa.

##### **Role of mechanism**

The role of PACT is to improve the public sector and its interface with the private sector and civil society to enhance good governance and sustainable development. Grants are mainly provided to support core projects and programs. However, the Foundation also provides seed support for the emergence of suitable institutional frameworks for country-level coordination of capacity-building activities.

##### **How fuel economy can be delivered**

The guidance that is available shows that grants are intended to support capacity-building activities and therefore, could potentially deliver improvements in fuel economy through:

- The establishment of regional fuel economy frameworks; and
- Engagement with civil society and the general public to increase awareness and implement demonstration projects;
- Regulatory activities (as described in Table 4).

##### **4.1.4.2 Application process**

##### **Stages of application process**

The following process can be followed when requesting funding:

1. Submit a letter requesting financial support from the Foundation to the address below.
2. Foundation program staff may ask the grant seeker to submit a formal proposal at this stage. The proposal should include:
  - a. Project/Program Origination and Identification
  - b. Project/Program Preparation
  - c. Project/Program Appraisal
  - d. Project presentation to the Board
  - e. Grant Negotiation and Signing
  - f. Project Implementation and Supervision (SM, MTR).
3. Formal proposal should be sent to the address below.

## **Contacts**

World Bank Unit: Public Sector Reform and Capacity Building

Contact Address: ACBF, 7th Floor Southampton Life Centre, Corner Second Street and Jason Moyo Avenue, P.O. Box 1562, Harare, Zimbabwe.

## **Internet / direct application**

Following a call for proposals initiated by the Foundation or letter requesting financial support from the Foundation, the Foundation's program staff may ask the grant seeker to submit a formal proposal.

Proposals requesting for ACBF Grants should be sent to:  
The Executive Secretary

The African Capacity Building Foundation

7th Floor, Intermarket Life Towers,  
Cnr Jason Moyo/Sam Nujoma Street,  
P. O. Box 1562, Harare, Zimbabwe.

Phone: +(263-4)790398/9, 700208/210

Fax: (263-4) 702915, 738520

Email: [root@acbf-pact.org](mailto:root@acbf-pact.org)

## **Forms for application**

No forms or application details are available.

## **Timing**

Information concerning the timing of applications is not available.



#### **4.1.5 African Development Bank (AfDB)**

##### **4.1.5.1 Summary**

AfDB is the lead multilateral development finance institution in Africa. Its goal is to support and enhance the social and economic well-being and growth of its Regional Member Countries (RMC). The Bank's financial products comprise of loans (including synthetic local currency, and syndicated loans), guarantees, equity and quasi-equity, and risk management products. In addition to these products, the Bank provides technical assistance (TA) through various grant funds, the aim of which is to support project preparation and other activities that contribute to the long-term success of Bank financed projects.

Typical financial mechanisms are described below.

##### *Standard Loans*

The Bank's standard loans are categorised either as Sovereign Guaranteed Loans (SGL) or Non-Sovereign Guaranteed Loans (NSGL). The Bank defines an SGL as a loan made to a regional member country (RMC) or a public sector enterprise from an RMC supported by the full faith and credit of the RMC in whose territory the borrower is domiciled. Multinational institutions are eligible to SGLs if they are guaranteed by an RMC or by RMCs in whose territory or territories they will execute the project. NSGLs are loans made either to public sector enterprises, without the requirement of a sovereign guarantee, or to private sector enterprises.

##### *Technical Assistance*

Alongside its financial products, the Bank is able to supplement these financial products with grants to fund technical assistance to the borrowers. This initiative is particularly focused on raising the effectiveness of project preparation, which is vital to ensure the best developmental and poverty-reducing outcome for projects that receive Bank financing. The most important areas of technical assistance requiring grants include the training of central and regional/local government officials in project design, preparation and analysis. In addition, the technical assistance aims to foster and sustain RMC efforts in creating an enabling business environment in order to promote private sector investment and growth. In all cases, activities financed must be related to projects/programmes that are of priority to the country concerned. Moreover, they should offer the prospect of leading to new business opportunities for the Bank. The Bank's main sources of funds for technical assistance are its Technical Assistance Fund for Middle Income Countries (MIC Fund) and the Fund for African Private Sector Assistance (FAPA).

##### **Recipients**

The potential recipients of support from the AfDB vary according to type of assistance, but eligibility criteria can be accessed from: <http://www.afdb.org/en/about-us/african-development-fund-adf/adf-recipient-countries/>.

Sovereign loans (SGLs) are available to Regional Member countries (RMC) from the Bank's Category C countries (non-concessional window only) and Category B countries. Some public sector enterprises are also eligible for SGLs. A list of Category B and C countries can be accessed from:

<http://www.afdb.org/fileadmin/uploads/afdb/Documents/Financial-Information/Financial%20Products%20-%20Offered%20by%20the%20African%20Development%20Bank.pdf>.

Public enterprises are eligible for Non-Sovereign Guaranteed Loans (NSGLs) without the requirement of a sovereign guarantee by the host government although they must be in a RMC in Category C or Category B. Additional eligibility criteria for enterprises to receive



funding under NSGL can be found on the previous web-link provided. Private entities are also eligible for funding.

Other funding streams are also available and described from the AfDB, and the document that can be accessed on the above web-link provides a good introduction to these.

RMC governments, regional economic communities and other inter-governmental bodies, business associations, market regulators, business development service providers, business training and research organisations and public/private enterprises are all potentially eligible for FAPA grants.

### **Role of mechanism**

**Loans:** To stimulate and mobilize internal and external resources to promote investments as well as provide its regional member countries with technical and financial assistance.

**Technical Assistance:** The MIC Fund will finance project/programme preparation in both the public and private sectors. This also includes preparation/upgrading of project engineering designs, environmental impact assessments and the preparation of environmental management plans. The MIC Fund may also be used to finance studies. The Fund for African Private Sector Assistance (FAPA) provides the Bank's public and private sector clients with grant funding for studies, technical assistance and capacity building.

### **How fuel economy can be delivered**

The bank covers funding mechanisms which are relevant to improving fuel economy, specifically:

- Transport – including national and regional road infrastructure, toll roads and road pricing measures.
- Climate change – Fuel economy measures which have a clear impact on mitigating climate change are in scope.
- Energy and Power – Sustainable transport topic covers the development of low carbon intensive transport and public mass transit. This seems to cover technological improvements, informational and regulatory measures.
- Infrastructure – transport is covered within this topic. Therefore, improvements to infrastructure and telecommunications could be financed that reduce congestion and improve fuel economy.

The following policy measures, listed in Table 3 could be funded by the AfDB:

- Technological
- Informational
- Regulatory.

#### *4.1.5.2 Application Process*

### **Contacts**

HQ

African Development Bank Group

15 Avenue du Ghana

P.O. Box 323-1002

Tunis-Belvédère, Tunisia

Tel: (+216) 71 10 39 00/(+216) 71 35 19 33



Email: [afdb@afdb.org](mailto:afdb@afdb.org)

Skype: afdb\_ac

Regional office contacts can be accessed from: <http://www.afdb.org/en/about-us/structure/complexes/country-regional-programs-policy/field-offices/field-office-contacts/>.

### **Internet / direct application**

All of the APCF investments are ultimately decided upon by the APCF Board of Directors, which is charged with the responsibility for approving the terms and conditions of each Certified Emission Reduction Purchase Agreement (CERPA).

As the Trustee, the ADB selects suitable projects, investigates their relative merits, negotiates transaction documentation, and makes recommendations to the APCF Board regarding co-financing arrangements. It undertakes these actions through a Fund Management Team. The Technical Support Facility (TSF),<sup>20</sup> along with relevant ADB professional staff, can also help identify suitable projects, analyze transaction risks and manage each CERPA transaction.

### **Forms for application**

Forms are not available. It is recommended that the bank is contacted directly via contact details above to obtain guidance on how to apply.

### **Stages of application process**

No guidance is provided. It is recommended that the bank is contacted directly via contact details above.

### **Timing**

Guidance on timing is not provided. It is recommended that the bank is contacted directly via contact details above.

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<sup>20</sup> For an overview of its function see <http://www.adb.org/Documents/brochures/cmp/brochure-cmp.pdf>.

## 4.2 Asian Development Bank (ADB)

The ADB provides international development finance in the form of loans, grants, technical assistance, advice and knowledge to support poverty reduction in developing countries across the Asia region. The finance, the majority of which is lent to the public sector, is donated by its 67 donor countries, both within and external to the Asia region.

The ADB's Strategy 2020 sets out the long-term strategic framework of the ADB for the period 2008 to 2020. The Strategy details the three strategic agendas of the bank; inclusive growth, environmentally sustainable growth, and regional integration. It also details that by 2012 80% of the ADB's lending will be in five operational areas, one of which is 'environment' and another of which is 'infrastructure' (including transport) (in the period 2004 to 2008 81% of ADB's lending was allocated to roads and highways). A key element of the 'infrastructure' focal area is the promotion of energy efficiency, the support of clean energy, and the facilitation of the removal of policy, institutional, regulatory, technical and legal constraints to promoting efficient energy use. This links closely with the emphasis of the promotion of environmentally sustainable growth under the ADB, where climate change mitigation needs are highlighted. In the context of climate change the ADB highlights the need to improve energy efficiency and to modernise public transport systems. They also detail that this is necessary in the context of providing 'liveable cities,' another emphasis of the ADB's environment policy. The ADB estimates annual investment needs for energy efficiency as US\$14 billion (economy wide).

Transport fuel economy measures fall largely under the ADB's Sustainable Transport Initiative (STI), which is aligned with Strategy 2020 to ensure that the ADB's transport operations make the optimal contribution to all three of the bank's priority agendas. The STI was developed in 2008 and 2009 to reflect the ADB's desire to increase emphasis on, and support for, sustainable transport. It therefore marks a new approach within the ADB to transport investment and recognises that 'climate change and energy efficiency' is an 'emerging need and challenge' that needs to be addressed by the ADB. It states that supporting 'technologies that are more energy efficient, including through improving vehicle standards, inspection, and enforcement; developing improved vehicle technologies and fuels; and improving transport efficiency using information technology' should be a core part of their approach to guide their investments at a country and regional level. The ADB suggest that as a MDB their role in vehicle technology research and commercialisation is likely to be limited, but that they are able to support the introduction and use of low-carbon technologies by assisting governments to establish and implement policies, standards and enforcement mechanisms. This is reinforced in the ADB's Energy Policy. The Energy Policy, which was updated in 2009 in recognition of the increasing international emphasis on climate change and the associated need for clean energy in Asia, is again aligned to the Strategy 2020. It emphasises the need to 'prioritise' energy efficiency improvements to 'reach as many sectors in as many ways as possible.'

Strategy 2020 sets the long-term strategic framework of the Asian Development Bank (ADB) for 2008-2020. During this period, ADB lending and technical assistance operations in Asia and the Pacific will emphasize inclusive economic growth, environmentally sustainable growth, and regional integration. The Sustainable Transport Initiative Operational Plan provides details of how ADB will update its operations in the transport sector in line with Strategy 2020. ADB will focus on creating transport systems that are accessible, safe, affordable, and environment- friendly.

The ADB's 2020 Strategy can be found here:

<http://www.adb.org/documents/policies/strategy2020/strategy2020.pdf>

Information about the ADB's Sustainable Transport Initiative can be found here:

<http://www.adb.org/documents/policies/sustainable-transport-initiative/default.asp?p=transprt>



The ADB's Energy Policy can be found here:  
<http://www.adb.org/Documents/Policies/Energy-Policy/Energy-Policy-2009.asp>.

**Table 5: Summary of ADB instruments**

| Policy type   | Policy measure  | Available instruments (through the Asian Development Bank) |   |                           |                          |
|---------------|---|--|---|---------------------------|--------------------------|
|               |   | Asia Pacific Carbon Fund (APCF)                            | Clean Energy Financing Partnership Facility (CEFPF) | Climate Change Fund (CCF) | Future Carbon Fund (FCF) |
| Economic      | Fuel taxes  | X  |   | X                         | X                        |
|               | Vehicle taxes   | X  |   | X                         | X                        |
|               | Financial incentives to speed fleet turnover                        |  |   | X                         |                          |
| Technological | Improvements in new vehicle fuel economy                            | X  | X   | X                         | X                        |
|               | Develop new fuels   | X  | X   | X                         | X                        |
|               | Develop smart infrastructure  | X  | X   | X                         | X                        |
| Informational | Driver training to in promote more fuel efficient driving practices | X  | X   | X                         | X                        |
|               | Marketing campaigns to promote the use of green vehicles            |  |   | X                         |                          |
|               | Improved purchaser information                                      |  |   | X                         |                          |
|               | The establishment of regional fuel economy frameworks               | X  |   | X                         | X                        |
| Regulatory    | Fuel economy standards (regulatory standards and voluntary targets) | X  | X   | X                         | X                        |
|               | Improve vehicle maintenance   | X  | X   | X                         | X                        |
|               | Better regulation of the import of used vehicles                    | X  |   | X                         | X                        |
|               | Regulatory incentives to speed fleet turnover                       |  |   | X                         |                          |
|               | Testing new drivers in fuel efficient driving                       | X  | X   | X                         | X                        |

## **4.2.1 Asia Pacific Carbon Fund (APCF)**

### **4.2.1.1 Summary**

APCF provides upfront co-financing to CDM projects for the future delivery of certified emission reductions. The fund now has more than \$150 million in commitments from Belgium, Finland, Luxembourg, Portugal, Spain, Sweden, and Switzerland. There are a number of barriers to the support of many vehicle fuel economy interventions under the CDM, but the CDM is suited to fuel switch programmes, which can support the transition to more efficient fuel types.

The Asia Pacific Carbon Fund (APCF) is a trust fund established and managed by ADB on behalf of fund participants. It is a component of ADB's ongoing Carbon Market Program (CMP), which provides financial and technical support for Clean Development Mechanism (CDM) projects.

The APCF became operational on 01 May 2007 after receiving commitments totalling \$151.8 million. These funds are being used to stimulate investments in greenhouse gas (GHG)-mitigating projects in ADB's developing member countries (DMCs) by enabling project developers to receive carbon offsets for GHG reductions during the first commitment period of the Kyoto Protocol (up to 2012). Only those projects that are supported by ADB with debt, equity, guarantees or technical assistance are eligible.

The APCF, along with the Future Carbon Fund, is unique because it increases the viability of GHG mitigation projects by providing finance at the most critical stage — project preparation and implementation. It provides upfront payment against the purchase of between 25% and 50% of certified emissions reductions (CERs) expected to be generated by each project up to 2012. The remaining 50%–75% of CERs may be purchased by the APCF on a pay-on-delivery basis or sold freely by the project sponsors in the market (including through the Credit Marketing Facility).

Further information can be found here: <http://www.adb.org/Climate-Change/asia-pacific-carbon.asp>

### **Recipients**

National governments of ADB member countries that are also non-annex one countries under the Kyoto Protocol and are eligible to host CDM Projects.

### **Role of mechanism**

The APCF seeks to:

- Increase the number of clean energy and energy efficiency projects in developing member countries of ADB;
- Assist APCF participants in satisfying their legally binding emission reduction commitments under the Kyoto Protocol; and
- Capitalize increased investments from developed countries to improve energy access in the Asia and Pacific region.

### **How fuel economy can be delivered**

It is specified that one of the areas that APCF is targeting is energy efficiency in public transport and vehicles.

This fund focuses on developing and implementing carbon reducing technology. Therefore, application for project seeking to improve fuel economy in developing countries should make a clear connection between how improved fuel economy will lead to more efficient transport and overall reduction of GHGs.

Energy efficiency is a focus of this fund, under which it appears that all of the policy measures listed in Table 5 could be eligible for funding.

#### 4.2.1.2 Application process

##### Stages of application process

Description of process is not available. It is suggested that individuals indicated in the contacts section should be contacted to acquire information on process stages of application.

##### Contacts

Mr. Luis Cañete

Fund Manager

[apcf@adb.org](mailto:apcf@adb.org)

Ms. Jennifer A. Vicedo

Fund Management Assistant

[apcf@adb.org](mailto:apcf@adb.org)

##### Internet / direct application

All of the APCF investments are ultimately decided upon by the APCF Board of Directors, which is charged with the responsibility for approving the terms and conditions of each Certified Emission Reduction Purchase Agreement (CERPA).

As the Trustee, the ADB selects suitable projects, investigates their relative merits, negotiates transaction documentation, and makes recommendations to the APCF Board regarding co-financing arrangements. It undertakes these actions through a Fund Management Team. The [Technical Support Facility](#) (TSF)<sup>21</sup>, along with relevant ADB professional staff, can also help identify suitable projects, analyze transaction risks and manage each CERPA transaction.

Once the APCF Board makes investment decisions, the ADB signs the necessary transaction documentation, makes co-financing payments in accordance with each transaction's agreed payment regime, and maintains an active role in the project. This includes overseeing the issuing of CERs from the projects and ensuring their distribution to Fund Participants.

##### Forms for application

No forms are available. It is suggested that individuals indicated in the contacts section should be contacted to acquire forms.

##### Timing

Information on the timing of applications is not available. It is recommended to contact the relevant contacts indicated above for further information.



<sup>21</sup> For an overview of its function see <http://www.adb.org/Documents/brochures/cmp/brochure-cmp.pdf>

## **4.2.2 Clean Energy Financing Partnership Facility (CEFPF)**

### **4.2.2.1 Summary**

The CEFPF comprises a multi-donor Clean Energy Fund (CEF) supported by the governments of Australia, Norway, Spain and Sweden; an individual donor, the Asian Clean Energy Fund (ACEF), supported by the government of Japan; and the newly established Carbon Capture and Storage Fund (CCSF) supported by the Global Carbon Capture and Storage Institute of the government of Australia. Overall target: \$250 million.

CEFPF promotes energy security and a transition to low-carbon economies through cost-effective investments, especially in technologies that result in greenhouse gas mitigation.

The facility's resources also finance policy and institutional reforms, as well as regulatory frameworks that encourage clean energy development.

Further information is available from here: <http://www.adb.org/Clean-Energy/cefpf.asp>

### **Recipients**

National governments of ADB Developing Member Countries (DMC).

### **Role of mechanism**

The Clean Energy Financing Partnership Facility (CEFPF) was established in 2007 to help improve energy security in developing member countries and decrease the rate of climate change. It will do this by financing the deployment of new, more efficient and less polluting supply and end-use technologies. CEFPF resources are also intended to finance policy, regulatory, and institutional reforms that encourage clean energy development. Potential investments include:

- Deployment of new clean energy technology;
- Projects that lower the barriers to adopting clean energy technologies;
- Projects that increase access to modern forms of clean and energy efficient energy for the poor; and
- Technical capacity programs for clean energy.

### **How fuel economy can be delivered**

List of eligible activities includes:

- Demand-side management projects;
- Energy-efficient transport; and
- Manufacturing facilities of clean energy system components, high efficiency appliances and industrial equipments.

All of the above can be used to deliver fuel economy improvements, predominantly in the development of fuel efficient vehicles and fuels but also any activities that can lead to a lower demand for fuel, in this case through improved fuel economy, e.g. driver training or driver feedback technologies, infrastructure improvements.

Policy measures, listed in Table 5, which could be funded through CEFPF include:

- Technological
- Regulatory.

#### 4.2.2.2 *Application process*

##### **Stages of application process**

1. The available information suggests that ADB's should be contacted in the first instance. All proposals have to be coordinated and submitted through these channels, and contact details can be accessed from <http://beta.adb.org/about/departments-offices#ied><sup>22</sup>
2. Once this contact has been established, relevant application forms can be completed with the support of the relevant ADB operations department's representative.

##### **Contacts (HQ and local)**

ADB HQ:

Address:

6 ADB Avenue,

Mandaluyong City 1550, Philippines

Telephone No.: + 632 632 4444 (connecting all Depts./Offices)

Main Fax No.: + 632 636 2444

##### **Internet / direct application**

CEFPF and CCF resources are used to service ADB's Developing Member Countries (DMCs) and can be tapped only through ADB's operations departments. For more information, interested external parties may coordinate with the operations departments' representatives to the . The relevant details can be accessed from: <http://www.adb.org/documents/clean-energy/CEFPF-CCFCE-CEWG-Reps.pdf>.

Following are the comprehensive instructions for applying to the Clean Energy Financing Partnership Facility (CEFPF) and/or Climate Change Fund (CCF) for Grant Component of Investment (GCI) or Technical Assistance (TA) financing. The Clean Energy Working Group (CEWG) will first match applications with CEFPF, followed by CCF. Thus, complying with the requirements of CEFPF-ACEF offers the most flexibility in terms of fund source options.

Projects that intend to use CEFPF/CCF resources to bring down the cost of alternative low carbon technologies must qualify the incremental cost of deploying the clean energy technologies. Incremental costs are the additional costs associated with transforming a project from "business as usual" into "lower carbon" options. The incremental costs will be considered against the amounts requested for CCF/CEFPF support. Kindly describe your incremental costs as the final paragraph to section A on the application form.

In addition to applying to the Clean Energy Financing Partnership Facility (CEFPF) and/or Climate Change Fund (CCF) for Grant Component of Investment (GCI) or Technical Assistance (TA) financing, applicant s can also seek Direct Charges (DC) support. Further information on applying for DC support can be found here: <http://www.adb.org/Clean-Energy/cefpf-ccf-application.asp>

##### **Forms for application**

The CEFPF/CCF application form can be accessed from:

<http://www.adb.org/Documents/Clean-Energy/CEFPF-CCF-Application-Form.doc>.

Details of the CEFPF/CCF Design and Monitoring Framework (DMF) can be accessed from: <http://www.adb.org/Documents/Clean-Energy/cefpf-ccf-dmf.pdf>, and guidelines for preparing a DMF can be accessed from:

<http://www.adb.org/Documents/guidelines/guidelines-preparing-dmf/default.asp>.

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<sup>22</sup> Please note that this link has two 'tabs' at the top of the web page – one for departments based in the ADB Headquarters, and the other for regional offices.

The DMF is helpful in completing the application form and justifying any requests for CEFPF/CCF financing, providing information to strategically align the proposed project with CEFPF's/CCF's objectives.

CEFPF/CCF requires one of the following standard concept paper templates of ADB as an attachment to the application form. Kindly use the template most appropriate to your project application

- Public Sector (available to ADB personnel on ADB's e-Board)
  - Capacity Development / Policy Advisory / Research and Development Technical Assistance Concept Paper
  - Project Preparatory Technical Assistance Concept Paper
  - Project Concept Paper
- Private Sector (available from PSOD for private sector projects)
  - Concept Clearance Paper.

The standard CEFPF-CCF DC application form can be accessed from: <http://www.adb.org/Documents/Clean-Energy/CEFPF-CCF-ApplicationForm-DirectCharges.doc>.

### Timing

CEFPF/CCF reviews applications in six (6) batches throughout the year. Completed application packets (i.e., application form and concept paper attachment) must be submitted to the Secretariat on or before the following deadlines:

- January 31, May 31, September 30.
- March 31, July 31, November 30.

Applications submitted by the nearest deadline listed above will be processed in a single batch. Successful applications will receive confirmation from the Secretariat within approximately 5 weeks of the relevant deadline.



### **4.2.3 Climate Change Fund (CCF)**

#### **4.2.3.1 Summary**

CCF was established to facilitate greater investments in DMCs to effectively address the causes and consequences of climate change alongside ADB's own assistance in various related sectors. The CCF will invest in projects that lead to GHG emission reductions and carbon sequestration, biological diversity conservation, and climate proofing of development plans, investments and livelihoods. On 6 May 2008, ADB established the Climate Change Fund (CCF) to facilitate greater investments in developing member countries (DMCs) to effectively address the causes and consequences of climate change alongside ADB's own assistance in various related sectors.

In this instance the Clean Energy Component of the fund is relevant.

#### **Recipients**

National governments of ADB Developing Member Countries (DMC).

#### **Role of mechanism**

The CCF will invest in projects that lead to greenhouse gas (GHG) emission reductions and carbon sequestration, and will prioritize interventions in clean energy that:

- Help DMCs achieve energy security and transition to low-carbon economies through cost effective investments; and
- Provide financial, policy, and institutional reforms, as well as regulatory frameworks that encourage clean energy development and energy access for the poor.

CCF's clean energy component will:

- Be a key mechanism to pool resources within ADB to address climate change through investments in clean energy development.
- Respond to the issues of energy security and climate change confronting ADB's DMCs today.
- Prioritize interventions that help DMCs achieve energy security and transition to low carbon economies through cost effective investments, especially in pre-commercial clean energy technologies, that result in GHG mitigation.

#### **How fuel economy can be delivered**

- This fund can be used to deliver fuel economy in the same way as APCF described above. The Fund mainly focuses on carbon credits from ADB-financed projects and will complement ADB's ongoing Carbon Market Initiative (CMI),<sup>23</sup> which already provides financial and technical support for Clean Development Mechanism projects. CMI supports the development of energy efficiency, including efficiency in transport. As such, most regulative, technological and informational policy measures which aim to improve fuel economy could be used. The relevant policy measures listed in Table 5 include:
- biomass, biofuel, biogas
- rural electrification and energy access
- waste-to-energy projects
- demand-side management projects
- energy-efficient transport.

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<sup>23</sup> For more information about the Carbon Market Initiative see <http://www.adb.org/Documents/Others/Asia-Pacific-Carbon-Fund.pdf>.

#### *4.2.3.2 Application process*

Application process is the same as that described for CEFPP in Section 4.2.2.2.



#### 4.2.4 Future Carbon Fund (FCF)

##### 4.2.4.1 Summary

The ADB-administered Future Carbon Fund aims to provide up to \$200 million to help finance renewable energy, energy efficiency and other greenhouse gas (GHG) mitigation projects undertaken in its developing member countries (DMCs).

By making upfront payments to developers at the outset of a project for carbon credits generated after 2012, the Fund will help reduce the initial heavy capital constraints involved in projects and stimulate new investment. At the same time, it will provide countries or organizations

that have, or are developing, GHG emission reduction goals - even in the absence of a global framework - the chance to invest in low-carbon projects in the Asia-Pacific region and receive carbon offsets in return.

The Fund - which mainly focuses on carbon credits from ADB-financed projects - will complement ADB's ongoing Carbon Market Initiative which already provides financial and technical support for Clean Development Mechanism projects. It differs from other post-2012 carbon schemes, as it makes finance available upfront to project developers, instead of the standard "payment on delivery" method. The first project financing could come as early as the second half of 2009.

Further information can be found here: <http://beta.adb.org/news/adb-commences-future-carbon-fund>

##### Recipients

National governments that are ADB member countries.

##### Role of mechanism

The fund will stimulate new investments in clean energy projects even before a new international agreement is reached. It will provide financing up front for ADB-supported projects that will continue to generate carbon credits after 2012.

##### How fuel economy can be delivered

This fund can be used to deliver fuel economy in the same way as APCF described above. The Fund mainly focuses on carbon credits from ADB-financed projects and will complement ADB's ongoing [Carbon Market Initiative \(CMI\)](#) which already provides financial and technical support for Clean Development Mechanism projects. CMI supports the development of energy efficiency, including efficiency in transport. As such, most regulative, technological and informational policy measures which aim to improve fuel economy could be used. The relevant policy measures listed in Table 5 include:

- Economic
- Technological
- Informational
- Regulatory.



#### *4.2.4.2 Application process*

No application information was available at the time of writing. It is recommended that ADB is contacted for further information:

ADB HQ:

Address: 6 ADB Avenue,

Mandaluyong City 1550, Philippines

Telephone No.: + 632 632 4444 (connecting all Depts./Offices)

Main Fax No.: + 632 636 2444

## **4.3 Clean Development Mechanism (CDM)**

### **4.3.1 Summary**

Under the Clean Development Mechanism, emission-reduction (or emission removal) projects in developing countries can earn certified emission reduction credits. These saleable credits can be used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.

The CDM allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO<sub>2</sub>. These CERs can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol.

The mechanism stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction limitation targets.

#### **Recipients**

To receive funding national governments must have ratified the Kyoto Protocol.

#### **Role of mechanism**

The central feature of the Kyoto Protocol is its requirement that countries limit or reduce their greenhouse gas emissions. By setting such targets, emission reductions took on economic value. CDM was set up to help countries meet their emission targets, and to encourage the private sector and developing countries to contribute to emission reduction efforts.

#### **How fuel economy can be delivered**

All projects which result in a reduction of GHG emissions are eligible for CER. Therefore, projects designed to improve fuel economy will also reduce GHG emissions. If this reduction can be quantified and shown to be a direct result of improved fuel economy then the project should be eligible for CDM funding.

The following policy measures, listed in Table 3, could be funded by the CDM:

- Economic
- Technological
- Informational
- Regulatory.

### **4.3.2 Application Process**

#### **Contacts**

The general point of contact for the CDM can be accessed from:

[http://cdm.unfccc.int/contact/contact\\_form.html](http://cdm.unfccc.int/contact/contact_form.html)

It is recommended that the relevant National Focal Point is contacted in the first instance. Their details can be accessed from: <http://maindb.unfccc.int/public/nfp.pl>.

#### **Internet / direct application**

Applicants must submit the CDM-PDD form.

Procedures for application and methodology development can be found on the UNFCCC's website. See, for example: <http://cdm.unfccc.int/Projects/diagram.html> and <http://cdm.unfccc.int/Reference/Procedures/index.html>

## **Forms for application**

The Project Design Document (CDM-PDD) can be accessed from:  
[http://cdm.unfccc.int/Reference/PDDs\\_Forms/PDDs/index.html](http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html).

Guidelines for completing the CDM-PDD can be accessed from:  
<http://cdm.unfccc.int/Reference/Guidclarif/>.

## **Stages of application process**

Project cycle overview:

1. Project Design
2. National Approval
3. Validation
4. Registration
5. Monitoring
6. Verification
7. CER issuance.

Further details on the CDM project cycle is available on the UNFCCC's website:  
<http://cdm.unfccc.int/Projects/diagram.html>.

## **Timing**

Last round for submitting of new methodologies closed on 18<sup>th</sup> April 2011. No information regarding new submissions is available.

## **4.4 EuropeAid**

### **4.4.1 Summary**

EuropeAid comprises a number of mechanisms which aim support and finance various technical areas. For the purpose of improving fuel economy in developing countries, the most relevant is the thematic programme for Environment and Sustainable Management of Natural Resources including Energy (ENRTP). This mechanism helps developing countries and partner organisations to address environmental and natural resource management issues. Moreover, it helps to meet their obligations under multilateral environmental agreements and to take international policy leadership in such areas as fighting climate change, tackling land degradation and desertification, biodiversity protection and proper management of chemicals and wastes. Its legal base is Article 13 of the EU Regulation establishing the Development Co-operation Instrument (DCI).

Further information can be found here:

[http://ec.europa.eu/europeaid/how/finance/dci/environment\\_en.htm](http://ec.europa.eu/europeaid/how/finance/dci/environment_en.htm)

### **Recipients**

The following entities are eligible for funding:

- Partner countries and regions, and their institutions
- Decentralised bodies in the partner countries (municipalities, provinces, departments and regions)
- Joint bodies set up by the partner countries and regions with the Community
- International organisations
- EU agencies.

### **Role of mechanism**

The ENRTP's objectives are:

- Integrating environmental protection requirements into the Community's development and other external policies
- Helping promote the Community's environmental and energy policies abroad in the common interest of the Community and partner countries and regions.

The ENRTP has 5 priority areas. Out of those, the following are the one most relevant to Fuel Economy improvements:

Priority 1: assisting developing countries to make better progress on integrating environmental sustainability in decision making by means of support to civil society stakeholders,

Priority 2: promoting the implementation of initiatives and commitments made at both European and international level,

Priority 5: broadening the options as regards sustainable energy, in particular by developing a legislative and administrative framework which favours investments and businesses, and also by stimulating international cooperation.

Grants are direct financial contributions from the EU budget or from the European Development Fund. They are awarded as donations to third parties that are engaged in external aid activities. The Contracting Authority awards grants that are used to implement projects or activities that relate to the EU's external aid programmes.

Grants fall into two categories:

- Grants for actions: aim to achieve an objective that forms part of an external aid programme.
- Operating grants: finance the operating expenditure of an EU body that is pursuing an aim of general European interest or an objective that forms part of an EU policy.

Grants are based on the reimbursement of the eligible costs, in other words, costs effectively incurred by the beneficiaries that are deemed necessary for carrying out the activities in question. The results of the action remain the property of the beneficiaries.

Grants are subject to a written agreement signed by the two parties and, as a general rule, require co-financing by the grant beneficiary. Since grants cover a very diverse range of fields, the specific conditions that need to be fulfilled may vary from one area of activity to another.

### **How fuel economy can be delivered**

European Commission funding is mainly channelled through country and regional programmes that are developed in partnership with recipient countries.

A significant proportion of Commission development funding is used to help partner countries improve their transport systems. Good quality roads, railways, ports and airports, for example, are considered essential for the smooth running of many key economic sectors in the developing world including agriculture, industry, mining and tourism. Efficient transport infrastructures can also improve the delivery of and access to vital social services, such as health and education.

The Commission aims to help partner countries improve transport as a means of achieving the broader goals of reducing poverty, sustaining economic growth and stimulating social development. The type of activities that it will support are therefore relatively broad, and the Commission has provided support to the GFEI to support its role in improving vehicle fuel economy.

To achieve its aims, the Commission works in partnership with country stakeholders and other aid donors. The goal is to make improvements that meet local needs in a safe, affordable and efficient way, and that has a minimal impact on the environment.

#### **4.4.2 Application Process**

##### **Contacts**

HQ

European Commission

Development and Cooperation - EuropeAid

B - 1049 Brussels

Belgium

(+32) 02 299 11 11

[EUROPEAID-info@ec.europa.eu](mailto:EUROPEAID-info@ec.europa.eu)

##### **Forms for application**

Forms and applications were not available at the time of writing. It is recommended that applicants contact Europeaid in order to request forms relevant to their specific type of project and funding desired.

##### **Stages of application process**

Stages of the process are not indicated in the available information. This is likely to be due to the stages being dependant on the type of funding and project considered. A high

level overview is available from here: [http://ec.europa.eu/europeaid/how/delivering-aid/project-approach/index\\_en.htm](http://ec.europa.eu/europeaid/how/delivering-aid/project-approach/index_en.htm).

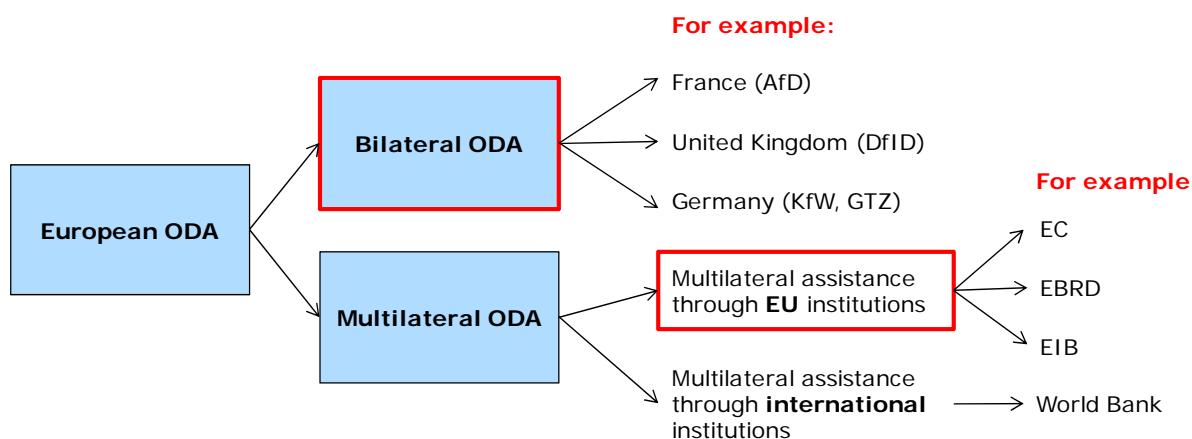
## Timing

Timing will vary depending on the project and funding. No detailed information is available from the Europeaid website. It is recommended applicants enquire about timing specific to their project.

### Box 1: An overview of the different types of EU funding that is available and that could be used to support vehicle fuel economy measures in developing countries.

EuropeAid is just one of the many financial instruments that collectively make up the EU's financial framework. There are three broad types of EU finance that can be accessed by developing countries:

- 1) *Bilateral Official Development Assistance (ODA)*: whereby one country provides direct assistance to another country. See Section 4.6 and Box 4 below for examples.
- 2) *Multilateral assistance through EU institutions*: where a donor country channels part of its aid through a European multilateral organisation, for example the European Commission (EC). See Section 4.5 for an example of such an institution. In addition, EuropeAid (Section 4.4) is an example of one funding source from one of these institutions, which gives an indication of the relatively large number of funding streams that are available from the different EU institutions.
- 3) *Multilateral assistance through international institutions*: where a donor country channels part of its aid through an international multilateral organisation, for example the World Bank.





## 4.5 European Bank for Reconstruction and Development (EBRD)

### 4.5.1 Summary

EBRD provides project financing for banks, industries, businesses and publically owned companies. Direct investments generally range from €5 million to €230 million. The bank provides loan and equity finance, guarantees, leasing facilities and trade finance. Typically, funding of up to 35 per cent of the total project cost is provided.

The Bank invests only in projects that could not otherwise attract financing on similar terms. Through donor funds EBRD mobilises investment capital and expertise by giving local business access to consultant experts. Donor programmes are funded by governments and international institutions, and are managed by the EBRD.

The bank provides funding in several sectors which are relevant to fuel economy improvements:

- Transport - The EBRD supports the development of efficient, reliable and secure transport systems in its countries of operations, road transport is one of the 6 modes of transport identified. Projects focusing on upgrading and new construction are becoming the focus of this sector financing. The focus of financing includes the promotion of environmentally sustainable development.
- Climate change – Funding is provided through the Sustainable Energy Initiative (SEI). Relevant areas within SEI include Corporate energy efficiency (can incorporate transport). Transport energy efficiency is identified as an area for development in SEI Phase 2 (post 2011).

### Recipients

Countries eligible for funding are from the Central and Eastern Europe region as well as Central Asia and must be an EBRD country of operation.<sup>24</sup> Funding is aimed at business, industry and publically owned companies.

### Role of mechanism

The funding mechanisms available from EBRD consist mainly of loans, equity investments, guarantees and assistance through financial intermediaries. The primary role of the mechanisms is to foster transition towards open and democratic market economies. The total lifecycle of an EBRD project, from initiation to repayment, can range from one year for working capital or trade financing projects to 15 years for long-term sovereign infrastructure projects.

### How fuel economy can be delivered

Funding obtained via the key sectors identified above in transport and climate change could be used to implement fuel efficient technologies for vehicles and public transport if they can be shown to improve business competitiveness and provide innovation. Renovation and rehabilitation of networks are also within scope. Areas of infrastructure and technology development seem to be particularly relevant in this case.

The following policy measure, listed in Table 3, could be funded by the EBRD:

- Technological
- Informational.

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<sup>24</sup> A list of the countries that are eligible for funding can be accessed from <http://www.ebrd.com/pages/about/where.shtml>.

### **4.5.2 Application Process**

#### **Contacts**

Project Proposals:

Tel: +44 20 7338 7168

Fax: +44 20 7338 7380

Email: [newbusiness@ebrd.com](mailto:newbusiness@ebrd.com)

Transport Sector

Tel: +44 20 7338 6202

Fax: +44 20 7338 7301

Energy efficiency and climate change Sector

Tel: +44 20 7338 7478

Fax: +44 20 7338 6942

Other contacts, including regional offices can be found [here](#).

#### **Internet / direct application**

Applications can be made using an online application form, which is available at: <http://www.ebrd.com/pages/workingwithus/projects/apply/form.shtml>

#### **Forms for application**

Before an application is made the Bank recommends that applicants satisfy all of the key criteria that are outlined in the EBRD's guide to financing document, which can be accessed from:

<http://www.ebrd.com/downloads/research/factsheets/guidetofinancing.pdf>.

#### **Stages of application process**

Process for obtaining funding consists of the following:

- Concept review: The EBRD's Operations Committee (OpsCom) approves the project concept and overall structure, including the proposed financing structure and supporting obligations. At this stage, the EBRD and the client sign a mandate letter, which outlines the project plan, development expenses and responsibilities.
- Final review: Once the basic business deal (including a signed term sheet) has been negotiated and all investigations have been substantially completed, the project receives a final review by OpsCom.
- Board review: The EBRD President and operations team present the project to the Board of Directors for approval.
- Signing: The EBRD and the client sign the deal and it becomes legally binding.
- Disbursements: Once repayment conditions are agreed and the Bank's conditions met, the funds are transferred from the Bank's account to the client's account.

More information on the funding process can be accessed from <http://www.ebrd.com/pages/workingwithus/projects/process.shtml>.

#### **Timing**

The total lifecycle of an EBRD project, from initiation to repayment, can range from one year for working capital or trade financing projects to 15 years for long-term sovereign infrastructure projects. Applications can be made at any time.

## **4.6 German International Climate Initiative (ICI)**

### **4.6.1 Summary**

The ICI was established in 2008 by the German Government with the aim of financing climate projects in developing and newly industrialised countries, as well as countries in transition. ICI's focuses on the following high level objectives:

- Promoting a climate-friendly economy
- Promoting measures for adaptation to the impacts of climate change
- Promoting measures for preservation and sustainable use of carbon reservoirs/ Reducing Emissions from Deforestation and Forest Degradation (REDD+).

The ICI mobilises resources from private companies (compliance buyers of emission credits) under the framework of the European Union Emission Trading Scheme (EU ETS).

ICI provides grants for all costs or expenditures which are necessary in the framework of efficient and economical budgeting to achieve the project goal. An appropriate proportion of the costs (% not stated) should be provided by the applicant and additional funding should be mobilised in order to receive grants from ICI.

### **Recipients**

ICI supports projects carried out in partner countries by federal implementing agencies, government organisations, NGOs, private enterprises, universities and research institutes, and by international and multilateral organisations and institutes, e.g. development banks, United Nations organisations and programmes. Applicants should contact ICI directly to enquire about their countries eligibility for funding.

### **Role of mechanism**

This mechanism could be used to improve transport fuel economy if it can be shown that this would contribute to the mitigation of climate change, e.g. through the reduction of greenhouse gas emissions.

### **How fuel economy can be delivered**

Funding can be obtained through this mechanism for establishing a cleaner fuel and vehicle supply structure and support the development and adoption of more fuel efficient vehicles.

The following policy measures, listed in Table 3, could be funded by the ICI:

- Technological
- Informational
- Regulatory.

### **4.6.2 Application Process**

#### **Contacts**

Programmbüro Internationale Klimaschutzinitiative

Potsdamer Platz 10

D-10785 Berlin

Email: [programmbuero@programmbuero-klima.de](mailto:programmbuero@programmbuero-klima.de)

Phone: +49 (0)30 408 190 - 218

Telefax: +49 (0)30 408 190 - 303

## Internet / direct application

Project outline can be submitted via email.

Project proposal must be submitted in writing to the address that will be provided by ICI.

## Forms for application

The project outline template can be accessed from: [http://www.bmu-klimaschutzinitiative.de/files/101111projektskizze\\_iki\\_en\\_373\\_490.xls](http://www.bmu-klimaschutzinitiative.de/files/101111projektskizze_iki_en_373_490.xls)

Further information can be obtained from the German ICI's website, which can be accessed from: [http://www.bmu-klimaschutzinitiative.de/en/selection\\_procedere](http://www.bmu-klimaschutzinitiative.de/en/selection_procedere).

For an introduction to the fund, see in particular [http://www.bmu-klimaschutzinitiative.de/files/foerderinformationen\\_iki\\_en\\_377.pdf](http://www.bmu-klimaschutzinitiative.de/files/foerderinformationen_iki_en_377.pdf).

## Stages of application process

Projects are selected in a two stage procedure:

1. Project outlines submitted by applicants are appraised.
2. Applicants who have submitted promising project outlines are requested to submit a formal application for funding. The funding decision is taken on the basis of the final assessment of that application by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

## Timing

Call for 2011 projects closed in December 2010. Deadline for project outlines for 2012 call has not yet been set.

### Box 2: Bilateral finance for vehicle fuel economy.

The German ICI is one of many different sources of bilateral funding that national governments of developing countries can apply to for support for vehicle fuel economy measures. The funding priorities of donor governments vary and so developing country governments seeking support should familiarise themselves with the relevant operational strategies of bilateral donors to ascertain eligibility.

Examples of bilateral funds that could be applied to include (but are by no means limited to) the following:

- The UK's International Climate Fund (see <http://www.decc.gov.uk/en/content/cms/tackling/international/icf/icf.aspx>)
- Japan's Fast Start Finance initiative (see, for example, [http://unfccc.int/files/cooperation\\_and\\_support/financial\\_mechanism/financial\\_mechanism\\_gef/application/pdf/submission--japan\\_fsf%28mar\\_2011%29.pdf](http://unfccc.int/files/cooperation_and_support/financial_mechanism/financial_mechanism_gef/application/pdf/submission--japan_fsf%28mar_2011%29.pdf))
- The Nordic Climate Facility (Nefco) (see [http://www.nefco.org/en/financing/nordic\\_climate\\_facility](http://www.nefco.org/en/financing/nordic_climate_facility))
- France's Agence Francais Developpement (AFD) climate strategy (see [http://www.afd.fr/home/projets\\_afd/AFD-et-environnement/changement\\_climatique](http://www.afd.fr/home/projets_afd/AFD-et-environnement/changement_climatique))
- Climate funding from the USA, disbursed through 'USAID' (see, for example, [http://www.usaid.gov/our\\_work/environment/climate/policies\\_prog/development\\_strategy.html](http://www.usaid.gov/our_work/environment/climate/policies_prog/development_strategy.html)).

## **4.7 Global Environment Facility (GEF)**

### **4.7.1 Summary**

The Global Environment Facility (GEF) unites 182 member governments — in partnership with international institutions, nongovernmental organizations, and the private sector — to address global environmental issues.

An independent financial organization, the GEF provides grants to developing countries and countries with economies in transition for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. These projects benefit the global environment, linking local, national, and global environmental challenges and promoting sustainable livelihoods.

The GEF partnership includes 10 agencies: the UN Development Programme; the UN Environment Programme; the World Bank; the UN Food and Agriculture Organization; the UN Industrial Development Organization; the African Development Bank; the Asian Development Bank; the European Bank for Reconstruction and Development; the Inter-American Development Bank; and the International Fund for Agricultural Development.

#### **Recipients**

Any eligible country: a country is an eligible recipient of GEF grants if it is eligible to borrow from the World Bank (IBRD and/or IDA) or if it is an eligible recipient of UNDP technical assistance through its country Indicative Planning Figure (IPF).

It is recommended that applicants contact GEF in order to determine whether they are eligible for funding.

#### **Role of mechanism**

As the financial mechanism of the United Nations Framework Convention on Climate Change (UNFCCC), the GEF allocates and disburses hundreds of millions of dollars per year in projects in energy efficiency, renewable energy, sustainable urban transport and sustainable management of land use, land-use change, and forestry. The GEF supports projects in:

- Climate Change Mitigation: Reducing or avoiding greenhouse gas emissions in the areas of renewable energy; energy efficiency; sustainable transport; and management of land use, land-use change, and forestry (LULUCF).
- Climate Change Adaptation: Aiming at helping developing countries to become climate-resilient by promoting both immediate and longer-term adaptation measures in development policies, plans, programs, projects, and actions.

Small Grants programme (SGP) can also be used to support activities of nongovernmental and community-based organizations in developing countries.

#### **How fuel economy can be delivered**

As part of climate change mitigation funding, projects focusing on developing and introducing more fuel efficient vehicle technologies could be supported. Climate Change Adaptation funding could be made available to projects looking to develop policies, programmes and regulatory frameworks to allow improved fuel efficiency, although climate change mitigation will be the best route for many vehicle fuel economy measures to take to obtain funding. The GEF has already provided support for the GFEI, which aims to enhance the vehicle fuel economy of light-duty vehicles, as part of its efforts to provide more comprehensive support for low carbon transport systems. In applications the clear link between vehicle fuel economy and reducing GHG emissions should be drawn.

The following policy measures, listed in Table 3, could be funded by the GEF:

- Economic
- Technological
- Informational
- Regulatory.

#### **4.7.2 Application Process**

##### **Contacts**

GEF Secretariat

1818 H Street, NW, MSN G6-602

Washington, DC 20433 USA

Tel: (202) 473-0508

Fax: (202) 522-3240/3245

Email: [secretariat@thegef.org](mailto:secretariat@thegef.org)



GEF Evaluation Office

1818 H Street, NW, MSN G6-602

Washington, DC 20433 USA

Tel: +1 (202) 473-4054

Fax: +1 (202) 522-1691

E-mail: [gefeo@thegef.org](mailto:gefeo@thegef.org)

SGP

For more information, visit <http://sgp.undp.org/index.cfm>

304 East 45th Street, FF-956

New York, NY, 10017

Phone: +1 212 906 5039

Fax: +1 212 906 6568

Email: [sgp.info@undp.org](mailto:sgp.info@undp.org)

##### **Internet / direct application**

Before drafting a project proposal, the applicant should contact the Country Operational Focal Point and verify that the proposal complies with the following criteria:

It is undertaken in an eligible country. It is consistent with national priorities and programs.

- It addresses one or more of the GEF Focal Areas, improving the global environment or advance the prospect of reducing risks to it.
- It is consistent with the GEF operational strategy.
- It seeks GEF financing only for the agreed-on incremental costs on measures to achieve global environmental benefits
- It involves the public in project design and implementation.

- It is endorsed by the government(s) of the country/ies in which it will be implemented.

If there are doubts about the eligibility of the project, it is advisable to have an informal consultation with the GEF Secretariat (Country Relation Officers in the External Affairs team).

### **Forms for application**

Templates and guidelines for accessing funding can be downloaded from: <http://www.thegef.org/gef/guidelines>.

### **Stages of application process**

Major features of the project cycle included the following:

1. Final project documents will be posted on the GEF website upon CEO endorsement of an FSP or approval of an MSP.
2. MSP approval can take one of the two paths:
  - a. single-step approval: Agencies submit a final MSP project document for CEO approval, after which Agencies follow their own internal approval procedure and start implementation;
  - b. two-step approval: if a Project Programme Grant (PPG) is required for the preparation of an MSP, a PIF should be submitted together with the PPG request and seek CEO approval of PIF and PPG; when the project is finally well prepared, Agencies submit the final MSP project document for CEO approval, after which Agencies follow their own internal approval procedure and start implementation.
3. Target Elapsed time for FSP project preparation is 18 months, counting from the date the Council approves the work program to the date CEO endorses the final project documents for FSPs.
4. Elapsed time for MSPs requiring a PPG continues to be 12 months from the date CEO approves the PIF with PPG to the date CEO approves the final project document for the MSP.
5. Elapsed time for MSPs without a PIF will no longer be applicable since final MSP project document can be submitted for CEO approval on a rolling basis.
6. To provide further transparency, all project review sheets for the PIFs in the work program are posted on the web alongside the PIF documents and the STAP screening reports.
7. The approval of Program Framework Document for programmatic approaches (PAs) would follow different procedures depending on the type of GEF Agencies submitting the PAs. Two types of programmatic approaches are:
  - a. Programs Accessible to all GEF Agencies, and
  - b. Programs Accessible to a GEF Agency with a Board that approves projects.

Further information on process stages and background documents are available from the GEF website.

### **Timing**

See Process Stages section.



## **4.8 Inter-American Development Bank (IDB)**

### **4.8.1 Summary**

The IDB is the main source of multilateral financing and expertise for sustainable economic, social and institutional development in Latin America and the Caribbean. The IDB Group is composed of the Inter-American Development Bank, the Inter-American Investment Corporation (IIC) and the Multilateral Investment Fund (MIF). The IIC focuses on support for small and medium-sized businesses, while the MIF promotes private sector growth through grants and investments, with an emphasis on microenterprise. IDB's priorities are to help the region achieve greater economic and social progress, the IDB has the following main areas of action:

- Reducing poverty and social inequalities.
- Addressing the needs of small and vulnerable countries.
- Fostering development through the private sector.
- Addressing climate change, renewable energy and environmental sustainability.
- Promoting regional cooperation and integration.

### **Recipients**

Public and private entities are both eligible to access the funding mechanisms. Only member countries have access to the funding mechanisms, all of which are in the Latin America and the Caribbean. A list of borrowing member countries is available from: <http://www.iadb.org/en/about-us/borrowing-member-countries,6005.html>.

### **Role of mechanism**

IDB aims to provide lending and grant to public and private entities to support the development of the main areas identified in summary above. Achieving sustainable growth is one of two overarching objectives for the bank.

### **How fuel economy can be delivered**

The following areas that the bank focuses on could be suitable to support vehicle fuel economy improvements under:

**Productive infrastructure:** Expansion of transport and energy infrastructure – Sustainable transport alternatives in urban areas and energy efficiency. This development area could be used to obtain funding for road infrastructure improvements, deployment of new, cleaner fuel infrastructure and improving energy efficiency of public transport and cars.

**Fiscal efficiency and sustainability:** Institutional strengthening at national and sub-national levels with continued support to decentralization agenda - Tax policies and administration; public expenditure management. This development area could be used to obtain funding for implementing new financial and regulative policy measures, such as, new vehicle and fuel tax schemes, regulatory frameworks for vehicle efficiency standards.

**Environment and climate change:** Development of institutional and regulatory frameworks to allow investments in sustainable transport, alternative fuels, renewable energy and energy efficiency - Climate change adaptation in priority sectors such as water, agriculture and energy; development and use of sustainable (including renewable) energy sources, energy efficiency technologies and practices, and carbon finance; risk management for natural disasters. This development area could be used to access funding for improvements to vehicle technology and public transport efficiency if they can be shown to have a positive impact on mitigating climate change.

The following policy measures listed in Table 3 could be eligible for funding from the IDB:

- Economic
- Technological
- Informational
- Regulatory.

#### **4.8.2      *Application Process***

It is recommended that the IDB head office is contacted for assistance in applying for each of the funding mechanisms that are available from the bank, the suitability of which will vary based on the exact characteristics of each proposal. The different funding mechanisms that are available from the bank include the following:

- Ordinary Capital (OC).
- Fund for Special Operations (FSO) – Only Bolivia, Guyana, Honduras, Nicaragua, Guatemala and Paraguay are eligible for this funding.
- IDB Grant Facility (GRF) - Grants are non-reimbursable funds provided for technical cooperation programs. Some grants may be repaid to the IDB if the program eventually obtains a loan, either from the Bank itself or another source.
- Intermediary Financing facility (IFF) - The Intermediate Financing Facility Account (IFF) was designed as a convertible currency account for interest subsidies. It is used to defray part of the interest payments for which certain borrowers are liable on loans from the OC.
- Trust Funds - These grants go primarily to the relatively less developed member countries, namely Group II countries, a list of which can be found on: <http://www.iadb.org/en/about-us/borrowing-member-countries,6005.html>.
- Multilateral Investment Fund (MIF) - support small-scale, targeted interventions that pilot new approaches and act as a catalyst for larger reforms. The MIF, an autonomous fund member of the IDB group, is a major source of technical assistance grants for private sector development in Latin America and the Caribbean.

Further details about the application should also be obtained from the bank as they are not included in publically available information.

#### **Stages of application process**

Information on the process stages of applications is not available. It is recommended to contact the relevant contacts indicated above for further information.

#### **Contacts**

HQ

IDB Headquarters

1300 New York Avenue, N.W.

Washington, D.C. 20577, USA

Tel: (202) 623-1000

Fax: (202) 623-3096

Multilateral Investment Fund

1300 New York Avenue, N.W. Washington, D.C. 20577, USA

Tel: (202) 942-8211

Fax: (202) 942-8100

E-mail: [mifcontact@iadb.org](mailto:mifcontact@iadb.org)

Country Office contacts and representatives can be accessed from:  
<http://www.iadb.org/en/about-us/country-offices-and-representatives,1346.html>.

### **Internet / direct application**

Information on applications is not available. It is recommended to contact the relevant contacts indicated above for further information.

### **Forms for application**

Applications forms are not available via publically available resources. It is recommended to contact the relevant contacts indicated above for further information.

### **Timing**

Information on the timing of applications is not available. It is recommended to contact the relevant contacts indicated above for further information.

## **4.9 International Finance Corporation (IFC)**

### **4.9.1 Summary**

The IFC is part of the World Bank Group; it fosters sustainable economic growth in developing countries by financing private sector investment, mobilizing capital in the international financial markets, and providing advisory services to businesses and governments.

The IFC helps companies and financial institutions in emerging markets create jobs, generate tax revenues, improve corporate governance and environmental performance, and contribute to their local communities. The goal is to improve lives, especially for the people who most need the benefits of growth.

#### **Recipients**

Recipients are the private sector in developing countries that are members of the IFC. The IFC does not lend directly to micro, small, and medium enterprises or individual entrepreneurs, but many their investment clients are financial intermediaries that on-lend to smaller businesses. The IFC may provide finance for a company with some government ownership, provided there is private sector participation and the venture is run on a commercial basis.

Although the IFC does not accept government guarantees for its financing, its work often requires close cooperation with government agencies in developing countries.

#### **Role of mechanism**

The main role of this mechanism is to stimulate the commercial development of the private sector in developing countries.

#### **How fuel economy can be delivered**

Any private sector projects can incorporate aspects of improving fuel economy. For example, setting up a distribution company using fuel efficient vehicles and drivers trained in fuel efficient driving. From Table 3, the following policy measures could be funded by the IFC:

- Informational
- Regulatory
- Technological (infrastructure).

### **4.9.2 Application Process**

#### **Stages of application process**

1. Submit an investment proposal as above
2. IFC will review and may request a detailed feasibility study or business plan
3. Project Appraisal based on above information. This will include the appraisal team visiting the proposed site
4. Departmental approval
5. Public notification
6. Board review and approval
7. Additional Resource mobilisation
8. Legal commitment
9. Allocation of funds.

## **Contacts**

HQ

International Finance Corporation

2121 Pennsylvania Avenue, NW

Washington, DC 20433 USA

Switchboard

(202) 473-1000

General Enquiries

IFC Corporate Relations

Tel: (202) 473-3800

Fax: (202) 974-4384

E-mail via

<http://www.ifc.org/ifcext/corresmanage.nsf/frmlInformationRequest?OpenForm&RequestType=General+Inquiry&>

A list of regional contacts can be found here: <http://www.ifc.org/contacts>

### **Internet / direct application**

There is no standard application form for IFC financing. A company or entrepreneur, foreign or domestic, seeking to establish a new venture or expand an existing enterprise can approach IFC directly.

Proposals can be submitted to IFC's sector/industry departments; regional departments at IFC headquarters in Washington; or the regional field office closest to the location of the proposed project. The contact details of these departments can be accessed from: [http://www1.ifc.org/wps/wcm/connect/CORP\\_EXT\\_Content/IFC\\_External\\_Corporate\\_Site/About+IFC/Contacts/](http://www1.ifc.org/wps/wcm/connect/CORP_EXT_Content/IFC_External_Corporate_Site/About+IFC/Contacts/).

It is recommended that General Enquiries are contacted in order to confirm what would be the most appropriate department to submit the proposal to.

### **Forms for application**

There is no standard application form for IFC financing. A company or entrepreneur, foreign or domestic, seeking to establish a new venture or expand an existing enterprise can approach the IFC directly.

A checklist of what the proposal should cover can be found here: [http://www.ifc.org/ifcext/about.nsf/Content/Investment\\_Proposals](http://www.ifc.org/ifcext/about.nsf/Content/Investment_Proposals)

### **Timing**

Timing of proposals may vary depending on scope, type and other parameters. It is recommended to contact IFC regarding timing of specific proposals.

## 5 Glossary

|                 |  |
|-----------------|--|
| ACBF            | African Capacity Building Foundation                               |
| ACEF            | Asian Clean Energy Fund  |
| ADB             | Asian Development Bank   |
| AfDB            | African Development Bank   |
| ANPR            | Automatic Number Plate Recognition cameras                         |
| APCF            | Asia Pacific Carbon Fund   |
| ASEAN           | Association of South East Asian Nations                            |
| BEE             | Bureau of Energy Efficiency  |
| BP              | British Petroleum  |
| CCC             | Committee on Climate Change  |
| CCF             | Climate Change Fund  |
| CCSF            | Carbon Capture and Storage Fund                                    |
| CDM             | Clean Development Mechanism  |
| CEDR            | Conference of European Directors of Roads                          |
| CEF             | Clean Energy Fund  |
| CEFPF           | Clean Energy Financing Partnership Facility                        |
| CEO             | Chief Executive Officer  |
| CERPA           | Certified Emission Reduction Purchase Agreement                    |
| CERs            | Certified Emissions Reductions                                     |
| CEWG            | Clean Energy Working Group   |
| CI              | Compression-ignition   |
| CIF             | Climate Investment Funds   |
| CMI             | Carbon Market Initiative   |
| CMP             | Carbon Market Program  |
| CO <sub>2</sub> | Carbon dioxide   |
| CPF             | Carbon Partnership Facility  |
| CTF             | Clean Technology Fund  |
| DAC             | Development Assistance Committee                                   |
| DACON           | Data on Consulting Firms   |
| DfT             | Department for Transport   |
| DMC             | Developing Member Countries  |
| DMF             | Design and Monitoring Framework                                    |
| DNA             | Designated National Authority                                      |
| DSRC            | Dedicated Short Range Communication                                |
| EBRD            | European Bank for Reconstruction and Development                   |
| EC              | European Commission  |
| EECI            | Energy Efficient Cities Initiative                                 |
| EIA             | Energy Information Administration of the U.S. Department of Energy |
| EoI             | Expression of Interest   |
| ESMAP           | Energy Sector Management Assistance Programme                      |
| EST             | Energy Saving Trust  |
| EU ETS          | European Union Emission Trading Scheme                             |
| EU              | European Union   |
| EV              | Electric Vehicle   |
| FAPA            | Fund for African Private Sector Assistance                         |
| FCF             | Future Carbon Fund   |
| FSO             | Fund for Special Operations  |
| FSP             | Full Sized Project   |
| GCF             | Green Climate Fund   |
| GCI             | Grant Component of Investment                                      |
| GEF             | Global Environment Facility  |
| GFEI            | Global Fuel Economy Initiative                                     |
| GHG             | Greenhouse Gas   |
| GNSS            | Global Navigation Satellite systems                                |
| GRF             | IDB Grant Facility   |

|        |  |
|--------|--|
| GSI    | Global Subsidies Initiative                                  |
| Gt     | Gigatonne  |
| HA     | Highways Agency  |
| HEV    | Petrol–Hybrid Electric Vehicles                              |
| HQ     | Headquarters   |
| IBRD   | International Bank for Reconstruction and Development        |
| ICE    | Internal combustion engine                                   |
| ICI    | German International Climate Initiative                      |
| ICT    | Information and Communication Technologies                   |
| IDA    | International Development Association                        |
| IDB    | Inter-American Development Bank                              |
| IEA    | International Energy Agency                                  |
| IFC    | International Finance Corporation                            |
| IFF    | Intermediary Financing Facility                              |
| IIC    | Inter-American Investment Corporation                        |
| IPF    | Indicative Planning Figure                                   |
| ITF    | International Transport Forum                                |
| ITS    | Intelligent Transport Systems                                |
| Km     | Kilometres   |
| L      | Litres   |
| LULUCF | Land use, land-use change, and forestry                      |
| Mb/d   | Million barrels per day                                      |
| MDB    | Multilateral Development Bank                                |
| MDG    | Millennium Development Goal                                  |
| MENA   | Middle East and North Africa                                 |
| MIC    | Technical Assistance Fund for Middle Income Countries        |
| MIF    | Multilateral Investment Fund                                 |
| MPG    | Miles Per Gallon   |
| MSP    | Medium Sized Projects  |
| NAIGT  | New Automotive Innovation and Growth Team's                  |
| NAMAs  | Nationally Appropriate Mitigation Actions                    |
| NGO    | Non-Governmental Organisation                                |
| NO2    | Nitrogen dioxide   |
| NSGL   | Non-Sovereign Guaranteed Loans                               |
| OC     | Ordinary Capital   |
| ODA    | Overseas Development Authority                               |
| OECD   | Organization for Economic Co-operation and Development       |
| OpsCom | EBRD's Operations Committee                                  |
| PA     | Programmatic Approach  |
| PACT   | Partnership for Capacity Building Program in Africa          |
| PDD    | Project Design Document                                      |
| PIF    | Project Identification Form                                  |
| PM     | Particulate matter   |
| PMU    | Project Management Unit                                      |
| PoA    | Programme of Activities                                      |
| PPG    | Project Programme Gant                                       |
| PPIAF  | Public-Private Infrastructure Advisory Facility              |
| PSOD   | Private Sector Operations Department                         |
| RCO    | Regional Co-ordination Office                                |
| REDD+  | Reducing Emissions from Deforestation and Forest Degradation |
| RITA   | Research and Innovative Technology Administration            |
| RMC    | Regional Member Country                                      |
| SCF    | Strategic Climate Fund                                       |
| SCOOT  | Split, Cycle and Offset Optimisation Technique               |
| SEI    | Sustainable Energy Initiative                                |
| SGL    | Sovereign Guaranteed Loans                                   |
| SGP    | Small Grants programme                                       |



|        |   |
|--------|---|
| SI     | Spark-ignition  |
| TA     | Technical Assistance                                  |
| TSF    | Technical Support Facility                            |
| UK     | United Kingdom  |
| UKERC  | UK Energy Research Centre                             |
| UN     | United Nations  |
| UNDP   | United Nations Development Program                    |
| UNFCCC | United Nations Framework Convention on Climate Change |
| US     | United States   |
| UTC    | Urban Traffic Control                                 |
| WHO    | World Health Organisation                             |

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## Appendix A

This Appendix contains a summary introduction to some of the different ways in which vehicle fuel economy can be improved. It is intended as a brief overview only and to set the context for the type of measures that can be supported by the financial institutions featured in this report. For a more detailed insight into the different strategies and their constituent parts that can be developed to enhance vehicle fuel economy, please refer to the resources listed in Section 1.3.

### A.1 Ways to improve vehicle fuel economy

The target of improving the average fuel economy (in litre/100km terms) for the global light duty vehicle fleet by at least 50% by 2050 (50by50) set by the Global Fuel Economy Initiative, is considered to be achievable through “existing, cost-effective incremental fuel economy technologies” (Eads, 2011) and behavioural change. The main ways in which fuel economy improvements can be realised are:

- Improve vehicles;
- Improve fuels;
- Improve driving habits; and
- Optimise infrastructure/systems to reduce congestion and delays.

These methods are described in more detail below, and the policies that could be used to realise vehicle fuel economy improvements in each of these ways are introduced in Section A.2.

#### 1. *Improve vehicles*

Internal combustion engine (ICE) technology has improved dramatically over the last 30 years in terms of fuel efficiency. In the US, the average new car fuel economy improved from 13.9 litre/100km in 1980<sup>25</sup> to 10.8 litre/100km in 2008<sup>26</sup> (RITA, 2010). There are therefore large benefits in developing countries adopting newer technologies. Vehicle fuel economy is also continuing to improve. This is reflected in the European Commission’s (EC) vehicle fuel economy targets of 130 and 95 gCO<sub>2</sub>/km by 2015 (equivalent to 5.255 litre/100km) and 2020 (equivalent to 3.84 litre/100km) respectively. These are largely to be achieved by means of improvement in vehicle motor technology. The current average new car emissions across Europe are 153.5 gCO<sub>2</sub>/km (CCC, 2009), which for comparison with vehicles in the US can be converted to 6.204 litre/100km<sup>27</sup> (assuming a 50/50 split between diesel and gasoline engines).

These improvements in vehicle fuel economy are mandatory and are subject to commercial penalties in Europe if not met, which acts as a driver. The EC also specifies that these

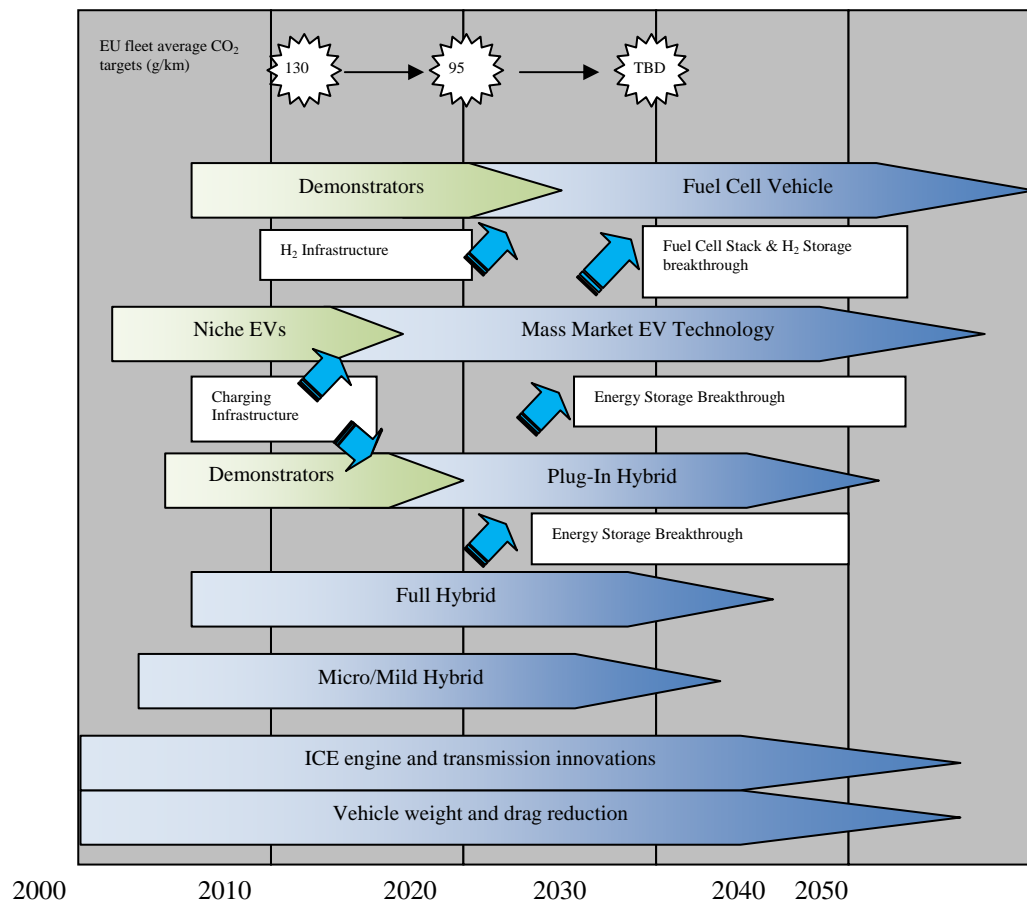


<sup>25</sup> Conversion made from 24.3 US mpg: assuming, 1 UK gallon = 1.2 US gallon, 1 UK gallon = 4.54609188 litres and 1 mile = 1.609344 km.

<sup>26</sup> Conversion made from 31.5 US mpg: assuming, 1 UK gallon = 1.2 US gallon, 1 UK gallon = 4.54609188 litres and 1 mile = 1.609344 km.

<sup>27</sup> Assuming a conversion rate of 1 litre/100km = 23.2 g/km CO<sub>2</sub>

improvements must come from improved engine technology, which may include the use of alternative fuels such as electricity or hydrogen for fuel cells. The scope of the Committee's report only covers ICE technology and not alternative fuels. However, as can be seen in Figure 2 below, New Automotive Innovation and Growth Team's (NAIGT) technology road map suggests that vehicle improvements alone (ICE and vehicle design) could potentially achieve fuel economy of around 4.095 litre/100km which is in-line with the EC's 2020 EU target. Further improvements would require the use of alternative fuels either through the ability to recharge vehicle batteries (e.g. plug-in hybrid or fully electric vehicles) or through other technology (e.g. fuel cells).



**Figure 2: NAIGT Technology Road Map outlining technology introduction (Source: (NAIGT, 2009))**

The main improvements in vehicle technology that could result in improved fuel economy include:

- Improvements in spark-ignition (petrol) engines;
- Improvements in compression-ignition (diesel) engines;
- Petrol-hybrid electric vehicle; and
- Other, non-powertrain, improvements (e.g. improvements in vehicle tyre rolling friction).

Table 1 in Section 1.3 provided an overview of the range of vehicle fuel economy improvements that can result from adoption of the above technologies.

Most improvements to the systems of internal combustion engines, vehicles outside of the drivetrain (e.g. the use of electric water pumps, heat pumps for air conditioning, or efficient alternators), can result in improving fuel economy by 1 to 5%. However, these are not necessarily additive and therefore a mixture of all such measures can result in a fuel economy improvement of around only 10% (IEA, 2005).

## **2. *Improve fuels***

Alternative fuels are out of this guidance and so the focus of this section is on how petrol and diesel fuels can be improved in order to increase their efficiency.

Improved fuel economy from improved fuels can be achieved by:

- Using the appropriate fuel for each type of engine; and
- Fuel additives.

All fuel used in transport typically has an octane rating. This rating defines the likelihood of the fuel to self ignite during the compression cycle of the engine, prior to the piston being in the desired position. The effects of this are increased engine wear and potential for damage, as well as reduced power and efficiency. Each engine is designed to be used with a particular type of fuel; most modern vehicles with sophisticated engine management will alter the combustion cycle in order to eliminate “knocking”<sup>28</sup> which can be caused by using a fuel of an octane level which differs from the one the engine was designed for and hence reduce the efficiency. As vehicle engine technology improves and changes with time, policy makers will need to ensure that appropriate fuel is available for use with the countries’ changing vehicle fleets.

Fuel additives are often added to fuel to improve vehicle fuel economy. This improvement is typically achieved by adding detergents that clean away the residue left over from combustion, which leads to cleaner engines; and lubricants to reduce the friction between moving engine parts and thus ensure that more power can be used for vehicle propulsion. Recent improvements in fuels from BP (BP, 2011) and Shell (Shell) are examples of how fuels can be improved to produce fuel economy.

Policy makers could influence drivers’ choices of fuel to ensure that it is most economic type of fuel for their vehicle. This could be done through driver education or through economic measures to incentivise the purchase of certain fuels that match the vehicle stock.

## **3. *Improve driving habits***



Driver behaviour has a large impact on the fuel economy of a vehicle. Strong acceleration and deceleration, and taking the engine up to high number of revolutions, will reduce the fuel economy of the vehicle. Smooth acceleration and deceleration, and gear changing at optimum engine revolutions, are examples of improved driver behaviour. Improvements in driver behaviour can account for up to a 15% improvement in fuel economy (EST, 2009).

In addition to driver behaviour, other

---

<sup>28</sup> The term knocking is often used to describe premature ignition due to the knocking sound that engine tends to produce. Severe knock causes severe engine damage, such as broken connecting rods, melted pistons, melted or broken valves and other components.



driving habits can also impact on the fuel economy of a vehicle; in particular, having underinflated tyres and unnecessary excess weight in the vehicle can lead to reduced fuel economy. Tyres can be responsible for (directly and indirectly) up to a 30% improvement in fuel economy (IEA, 2005).

Improving driver behaviour and the driving habits of drivers with a high annual mileage, such as professional drivers for trucks, buses and taxis, could have a particularly strong impact on improving a country's fuel economy. It was shown that using simulator-based driver training programmes for truck drivers could result in improving fuel economy by 7.3% (Reed, Cynk, & Parkes, unpublished) while on-road driver training programmes could result in fuel economy improvements of between 2 to 12% (DfT, 2005).

The use of driver assistance technologies in vehicles to speed up, and reinforce, change in driving behaviour can also contribute to significant reductions in fuel use and improved fuel economy. Technologies such as adaptive cruise control and gear shift indicator lights can result in a combined improvement in fuel economy of around 10-15% (IEA, 2005).

#### **4. *Optimisation of infrastructure/systems to reduce congestion and delays***

Systems that optimise the use of existing infrastructure can reduce congestion and improve traffic flow. These improvements can result in shorter journey times and less idling of engines in traffic, which both contribute to reduced fuel use per trip and therefore, improved fuel economy. Infrastructure can be optimised in a number of ways, for example with the use of Intelligent Transport Systems (ITS) such as Urban Traffic Control (UTC), e.g. Split, Cycle and Offset Optimisation Technique (SCOOT), or the use of automated motorway management systems.

These systems can improve traffic flow on urban roads (UTC) or motorways (managed motorway), by controlling traffic light sequences (SCOOT, no date) and automatically adjusting speed limits based on traffic conditions, and accident detection, respectively. Managed motorway schemes implemented in the UK have shown that a reduction in fuel use of 4% can be achieved through the implementation of these systems, which rely on the use of sensors deployed at roadside or in the roads (HA, 2011).

Another type of system that can be implemented to optimise the use of infrastructure and improve overall fuel economy, is road pricing. In particular, per distance driven-based road pricing and congestion charging could be effective in reducing congestion and improving traffic flow. Road pricing can be implemented by using various technologies each of which have their own benefits, and drawbacks, and some are better suited for certain schemes than others. Examples of possible technologies include, Automatic Number Plate Recognition (ANPR) cameras, Dedicated Short Range Communication (DSRC) and Global Navigation Satellite systems (GNSS). The greatest benefits of road pricing arise from pricing during congested conditions because as the flow of traffic improves, fuel consumption and emissions are reduced (CEDR, 2009).

The benefits that can be achieved from road pricing vary substantially. Congestion charging in London resulted in a reduction of CO<sub>2</sub> emissions of 19.5%. Most of this reduction can also be translated to improved fuel economy as



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congestion in the charging zone was reduced and the average speed increased (Beevers & Carslaw, 2005). The Electronic Road Pricing system implemented in Singapore in 1998 produced similar results, with traffic flows reduced by 20% (Beevers & Carslaw, 2005).

Road pricing can also bring other co-benefits, for example encouraging the use of public transport and non-motorised modes (walking and cycling), which can also benefit health. Greater use of public transport that results from road pricing can make it more financially sustainable as well.

## **A.2 Policy measures to improve vehicle fuel economy**

This section introduces a number of the policy measures that could be used to support the above improvements in fuel economy. The policy measures that could be considered are briefly listed below and summarised in Section 1.3. They are presented under four headings that have been used to classify the type of policy measure listed: economic, technological, information and regulatory.

### **1. Economic**

#### **1.1 Fuel and vehicle Taxes (national level)**

Higher fuel taxation will increase the cost of vehicle use and so will encourage the purchase of more fuel efficient vehicles. It can also encourage fuel-efficient driving behaviour. In addition, higher fuel taxes will encourage the use of other modes of transport that are less dependent on carbon-based fuels e.g. walking, cycling and public transport (assuming that the cost of using public transport is lower than private car use). It may also lead to people undertaking shorter journeys or even of choosing not to undertake certain trips.

Higher vehicle taxation will raise the cost of vehicle purchase which will encourage people to buy cheaper and, usually smaller/ more fuel efficient vehicles.

These taxes can ensure that the environmental impacts of fuel use are adequately reflected in fuel and vehicle prices. Less efficient fuels and vehicles could be disincentivised to encourage the shift to more efficient fuels and vehicles. It should be noted that this shift should be coordinated; using efficient fuels in older, less-efficient vehicles will not necessarily improve their fuel economy.

#### Examples

- A CO<sub>2</sub> tax on new passenger cars was introduced in South Africa in 2010, where existing excise duties on motor vehicles now take vehicle CO<sub>2</sub> emissions into account.
- In China, excise tax of vehicles was introduced with the aim of stimulating small engine vehicles.

#### **1.2 Financial and other incentives (national level)**

Incentives can be used to stimulate sales of lower carbon vehicles and to encourage the replacement of older, less fuel efficient vehicles, for example by reducing the price of new vehicle purchase. Such incentives can speed up fleet turnover and introduce more efficient vehicles more quickly. They also make newer, more fuel efficient vehicles more accessible to a wider proportion of the population.

#### Examples

- In Japan cars have to undergo a compulsory safety inspection ('Shaken') every two years, with the first inspection of new cars due after three years. The inspection costs 100,000 – 200,000 yen (US \$1,200 – US \$2,460) encouraging purchasers to buy new cars.

- In the UK, the government ran a vehicle scrappage scheme from 2009 to 2010 where consumers were offered £2,000 towards a new car or a van if they traded in a vehicle that was at least 10 years old. This scheme was funded 50% by the government and 50% by the motor industry.

## **2 Technological**

### **2.1 Improvements in new car fuel economy (national level)**

Incremental change to conventional internal combustion engines and drive systems, weight reduction and better aerodynamics will help to reduce fuel consumption per kilometre travelled. Incentives to stimulate sales of lower carbon vehicles and encourage the replacement of older, less fuel efficient vehicles, for example by reducing the price of new vehicle purchase, can speed up the deployment of such improvements.

#### Examples

- In 2010, the Chinese government approved subsidies for 16 car manufacturers to produce fuel efficient vehicles.
- In Thailand, the government is supporting the development of 'Eco-cars' through a number of incentives for vehicle manufacturers. The programme was launched in 2007 with the aim of becoming a regional hub for the production of 'eco cars'. Tax incentives were offered to vehicle manufacturers as part of the programme to produce fuel efficient vehicles in the country.

### **2.2 Develop new fuels (national level)**



Policies could be implemented to ensure that new, more efficient fuels (Gasoline [petrol] and diesel) are used in developing countries. As described previously, these measures have to be appropriate for the vehicle fleets in the developing countries. Policies could include implementing fuel standards similar to other countries and regions, e.g. European gasoline and diesel standards.

#### Example

The Asian Development Bank published a report in 2003 which outlined recommendations on policies for fuel and encouraged the development of cleaner, more efficient fuels.

### **2.3 Develop Smart infrastructure (national or local level)**

Policies to support the development of smart infrastructure in developing countries and regions can support the deployment of information and communication technologies (ICT) to optimise commercial and individual logistics. The availability of this information to both individuals and businesses can lead to the improvement of vehicle fuel economy through providing information about the best route to a destination, real-time traffic conditions and route optimisation.

Deploying infrastructure that can help with communication between vehicles - 'smart infrastructure', will use ICT. This infrastructure could be informative, e.g. variable message signs displaying live traffic information and suggesting alternative routes to avoid traffic or, enforced, e.g. road pricing.

While such infrastructure can be expensive the longer term benefits in terms of reduced congestion can benefit fuel economy. One potentially adverse impact, however, could be the generation of additional journeys by fuel inefficient vehicles if more road space becomes available.

#### Example

Japan began the deployment of Smart Interchanges in 2005. These interchanges equipped with ICT-enabled infrastructure are designed to speed up travel on popular routes and reduce congestion. These interchanges have improved travel times along popular routes and reduced congestion on adjacent roads. Smart interchanges are part of a Japan-wide single ITS platform – ‘Smartway 2007’, the development of which begun in 2007.



### **3 Informational**

#### **3.1 Driver training to promote more fuel efficient driving practices (local, national or private sector)**

The implementation of eco-driving techniques will help to reduce fleet fuel consumption and lead to cost savings for drivers. Such policies could vary from formal driver training to an increased emphasis on voluntary education and information about the benefits of eco-driving.

#### Example

Eco-driving measures are being promoted in Indonesia, Singapore and by the Department of Energy in the Philippines.

#### **3.2 Marketing campaigns to promote the use of green vehicles practices (local, national or private sector)**

Marketing campaigns can be used to raised awareness of the environmental and wider co-benefits of purchasing relatively fuel efficient vehicles, such as cost savings as a result of lower fuel consumption, should help to stimulate sales of fuel-efficient vehicles.

#### Examples

Thailand has a green vehicle programme that is part of a broader ‘Eco-car’ initiative and which comprises an extensive marketing campaign.

#### **3.3 Improved purchaser information practices (national level or private sector)**

Clear and transparent information provided at the point of sale will help the purchasers of vehicles to make more informed decisions. This could support the consideration of fuel efficiency during vehicle purchase.

#### Examples

- The Indian Government has recognised the need for the development of fuel efficiency labelling for cars to strengthen India’s energy security. The Bureau of Energy Efficiency (BEE) was given the responsibility of developing the standards and labels.

- Singapore launched a voluntary Fuel Economy Labelling Scheme in 2003, as did Thailand in 2006.

### **3.4 Establishment of regional vehicle fuel economy frameworks practices (national or local level)**

The establishment of a vehicle fuel economy framework, which can usefully be done on any geographical scale where the appropriate level of co-ordination exists, can be developed to support the sharing of knowledge and good practice. In doing so vehicle fuel economy policies that are appropriate and consistent can be established between regions where they might otherwise have varied significantly.

#### Example

It has been proposed that a common framework for fuel economy policies and measures should be set up in the ASEAN region. The framework is expected to cover elements that will support the linking and wider contextualisation of vehicle fuel economy policies and those in the wider transport sector and indeed external sectors. It will: help to integrate other policies and efforts that relate to relevant issues associated with fuel, vehicles, energy, climate change and air pollution; facilitate awareness raising, knowledge sharing and capacity building between ASEAN countries; and address technical issues and other barriers to implementing vehicle fuel economy measures.

## **4. Regulatory**

### **4.1 Fuel economy standards (national or local level)**

Vehicle fuel economy standards can take the form of regulatory standards or voluntary targets, or a combination of the two. If they are effectively enforced then their introduction can catalyse the improvement of both vehicle and fuel efficiency. Regulatory standards can mean that older less fuel efficient vehicles are scrapped and replaced with newer vehicles thereby speeding up fleet turnover. These differ from financial incentives in that they are mandatory limits which should be met by vehicle fleets.

#### Examples

- Fuel economy standards have been introduced in China.
- Mandatory fuel efficiency standards are to be introduced in India by the end of December 2011.
- The EC has introduced new car CO<sub>2</sub> emission limits for vehicle manufacturers for all cars sold in Europe. These are very closely linked to fuel economy and are based on the entire fleet average emissions. These regulatory limits were introduced after the automobile industry failed to meet self imposed limits on vehicle emissions.

### **4.2 Improve vehicle maintenance practices (national or local level)**



If a country has regulations in place then it will stimulate the effective maintenance of vehicles and will help to ensure that engine fuel efficiency is maintained over time. Regular vehicle maintenance will directly contribute to improved vehicle fuel economy as factors such as the condition of tyres and the drive-train have an impact on fuel consumption.

#### Example

In Singapore all in-use vehicles must undergo mandatory inspection tests supervised by the

National Environmental Agency and Land Transport Authority. The pass rate of vehicles on the first inspection has been increasing since 1998 indicating the success of the scheme and also of other supporting measures in improving the condition of road-worthy vehicles.

#### **4.3 *Better regulation of the import of used vehicle sales practices (national level)***

Regulations can be introduced to discourage the import of relatively fuel inefficient vehicles. These will also support the establishment of accurate fuel efficiency baselines that can be used as a basis for the development of further targeted vehicle fuel economy measures. This is currently not possible in many developing countries as the lack of regulations tends to translate to a lack of monitoring, and as such in some countries relatively little is known about the types of vehicles that are in use.

##### Example

GFEI are sponsoring research on ways to regulate the import of second hand vehicles with respect to fuel economy and safety in Mexico and other developing countries (GFEI, 2010).

#### **4.4 *Testing new drivers in fuel efficient driving practices (national level)***

A new generation of drivers can be created if fuel efficient driving practices are taught to citizens. Lessons can be introduced to make drivers (both learners and experienced drivers) more conscious of the implications of their driving style on fuel economy.

##### Examples

- Korea is actively involved in promoting eco-driving. The presidential committee adopted a five-year action plan for green growth (2009-2013), which includes several initiatives to promote eco-driving (IEA, 2011).
- The UK Energy Research Centre (UKERC) made recommendations in 2006 that energy efficient driving should become a compulsory part of the practical driving test in the UK and that the assessment of energy-efficient driving in the theory test should be strengthened.
- Under EU regulations, it is compulsory to teach eco-driving to novice drivers. Many countries have implemented eco-driving through national and regional eco-driving programmes (IEA, 2011).





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