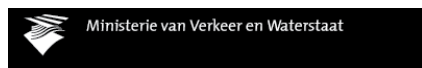


# WORKSHOP on ECODRIVING

22-23 November 2007

**FINDINGS and MESSAGES  
for POLICY MAKERS**





## Workshop on Ecodriving

Paris, 22-23 November 2007

The Workshop on Ecodriving provided a valuable opportunity to review current experience around the world in implementing and promoting ecodriving. The Workshop, organized by the International Transport Forum, the International Energy Agency, the Dutch Ministry of Transport and Water Management and the ECODRIVEN platform, brought together around 100 ecodriving experts, policy makers, researchers and stakeholders to discuss recent developments in the field from Europe, the United States, Canada, Japan, and South America. It reviewed some of the successful practice in integrating ecodriving into national policies. The two day meeting explored national strategies, policies to promote ecodriving in different modes, communication campaigns and partnership programs as well as issues of measuring, monitoring and evaluating ecodriving initiatives. Workshop presentations and conclusions are available at the IEA and the International Transport Forum websites ([www.internationaltransportforum.org](http://www.internationaltransportforum.org) and [www.iea.org](http://www.iea.org)).

### WORKSHOP FINDINGS AND MESSAGES FOR POLICY MAKERS

#### ***Ecodriving has become a key part of national strategies to reduce CO<sub>2</sub> emissions in a number of countries***

The Workshop showed that ecodriving has become a key element of national strategies to reduce CO<sub>2</sub> emissions in a number of countries; notably the Netherlands, Austria, Germany, and Spain while ecodriving is widely encouraged also in Canada, Japan, and the United Kingdom.

There are several different ways in which ecodriving has been incorporated in national transport policies. In some countries, ecodriving is linked to national CO<sub>2</sub> reduction targets. Other motives for introducing ecodriving include oil security and contributing to reducing oil import dependency. In some countries, ecodriving is a part of national strategies for clean air, health and sustainable resource use. Ecodriving can also contribute to improving safety, reducing noise, and driver stress. Therefore, in some countries, ecodriving programmes are also an important part of road safety programmes.

Whatever the approach taken to incorporating ecodriving in national policies, the presentations at the Workshop showed that the key to success is an integrated approach. The combination of safe, economical and environmentally friendly driving brings significant benefits. Because ecodriving may bring cost savings, many ambitious private company initiatives have also been developed.

#### ***Ecodriving has the potential to reduce CO<sub>2</sub> emissions by around 10%***

The workshop showed clearly that ecodriving has significant potential to deliver CO<sub>2</sub> reductions quickly and cost-effectively. Based on the ecodriving initiatives reviewed in the workshop there appears to be savings potential of 10 percent of surface transport sector emissions.

**Table. Fuel economy improvements in different countries or projects.**

<b>Country</b>	<b>Method</b>	<b>Short-term</b>	<b>Mid-term</b>
<b>Netherlands</b>	National programme	10-20%	5-10%
<b>Austria</b>	National programme	10-15%	5-10%
<b>Japan</b>	Smart driving contest	25%	
<b>Japan</b>	Idle stop driving	10%	
<b>Japan</b>	Ecodrive workshop	12%	
<b>Japan</b>	Average mileage workshop	26%	
<b>Sweden</b>	Driver training courses	5-15%	
<b>Austria</b>	ÖBB Post Bus Best Practice training courses, competition, monitoring, feedback	10%	
<b>Austria</b>	Ecodriving competitions for licensed drivers	30-50%	
<b>Austria</b>	Mobility management for company fleets	10-15%	
<b>Germany DVR</b>	- National novice drivers programme		6-10%
	- Professional fleet drivers <7.5t	6-10%	6-8%
	- Driver training courses for passenger cars (evaluation)	10-25%	10-15%
<b>Deutsche Bahn</b>	Training courses, monitoring, feedback, rewards		3-5%
<b>Shell</b>		5-20%	
<b>Ford</b>	Training courses and trip/driving style analysis	25%	10%
<b>FIA – AASA</b>		15%	
<b>FIA – Plan Azul</b>		14%	
<b>FIA – ADAC</b>		25%	
<b>FIA – öAMTC</b>		6%	
<b>FIA – JAF</b>		12-16%	
<b>Nissan</b>		18%	
<b>UK</b>	Freight Best Practice	10%	
<b>UK – Lane Group</b>			4%
<b>UK – Walkers</b>			9 %

Presentations at the Workshop quantified these impacts on both a short-term and mid-term basis. Immediately after ecodriving training, average fuel economy improvements of between 5-15 per cent on group level were recorded for cars, busses and trucks. The best results for individual drivers showed 20-50 per cent improvements in fuel economy under test conditions.

Over the mid-term (<3 years) presentations at the Workshop quantified fuel savings at around 5 per cent on average in cases where there is no support beyond the initial training. In cases in which there is continuous feedback, average fuel savings of ten percent are feasible.

There is little evidence available regarding the long-term impacts (>3 years) of ecodriving training. A few studies have been conducted on companies with truck and bus fleets that provided one-off training with no follow-up incentive programmes, recording a 2-3% residual improvement in fuel consumption.

Data from the rail sector indicate a very significant savings potential – an average of 5 per cent CO<sub>2</sub> emissions reduction from the power supplied to German intercity trains, on a long-term basis. The potential for inland waterways may be even higher and has been estimated at 10-15 percent fuel savings, although the current programme in the Netherlands aims at 5% improvement in 2010. Large savings are possible with GPS-based

guidance systems that plan optimal speeds according to tides, currents, water levels and weather conditions. Further areas for introducing ecodriving include the agricultural sector, with significant potential savings for tractors and other machinery.

### ***In-car equipment helps improve long-term fuel economy***

A number of strategies are available to maintain the habit of ecodriving once training is over. There was a wide consensus among the participants that in-car equipment such as gear shift indicators, cruise controls and on-board computers giving feedback on the current fuel consumption help improve fuel economy. Instrumentation alone can achieve around five percent savings. In-car gauges can further improve driver performance after training as they create an incentive for better performance. It might therefore be appropriate for national administrations to stimulate equipment of vehicles with on-board monitoring devices, for example through tax incentives. The participants also discussed the possibility of a higher-ratio top-gear so that highway driving cars can cruise at more efficient engine speeds, closer to those recommended. Some manufacturers already provide overdrive gears but they have not become a standard feature.

In commercial fleets, IT applications are available that monitor fuel economy in real time and provide instantaneous readouts to drivers or to fleet managers via mobile communications systems. Instrumentation in private cars has also been found to provide incentives for behavioural change, which can encourage energy efficient behaviour more generally. There seems also to be some evidence of a reduction in overall vehicle travel through increased awareness of fuel economy, which may counter any rebound effect that results from saving fuel costs.<sup>1</sup> Cars are increasingly equipped with on-board computers that have an instantaneous fuel consumption readout functions. Making this the default display would be an effective way to draw the drivers' attention to their contribution to fuel-efficient driving.

### ***Ecodriving is a cost effective measure***

The Workshop confirmed ecodriving as a highly cost-effective measure to reduce CO<sub>2</sub> emissions. The Dutch presentation provided a figure of cost effectiveness for all ecodriving projects of an average of less than 10 euros per ton of CO<sub>2</sub> avoided. It should be noted that this figure includes only government spending while many of the actions are being (partly) funded by partner organizations and private companies on a commercial basis. Because of the relatively low costs (compared to most technical measures) ecodriving can be defined as a first order "no regret" measure for administrations.

### ***Policies to promote ecodriving***

Many ecodriving initiatives are undertaken without the help of government measures. Fleet operators often take action themselves because there are significant cost-saving potential and ecodriving initiatives fit perfectly into responsible/green entrepreneurship. However, there is a potential for many more fleet operators to introduce ecodriving with government support because upfront costs of ecodriving are still more visible than the long-run savings.

Workshop participants identified the following areas for government intervention in promoting ecodriving.

#### *i. Dealing with information failure*

Communication campaigns that directly or indirectly draw attention to practical driving tips have been successful in many countries. Beyond providing information about the way to drive to reduce fuel consumption, greenhouse gas emissions and accident rates, communication is most effective when ecodriving is promoted as a "brand" with advertising inspired by commercial marketing. The presentation of the message has to be both teasing and appealing and it has to avoid at all cost casting doubt on the driving skills of the target groups. Presentations at the Workshop suggested that communication campaigns, supported by information materials, can achieve around five percent savings for those that adapt their behaviour in response to the campaign.

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1. Improved fuel economy reduces the cost of motoring, which tends to increase the distance driven per year, other things being equal.

## *ii. Driver training*

Ecodriving is already required to be taught to novice drivers under EU regulations. Presentations at the Workshop showed that implementing ecodriving as a part of the driver licence education and examination can bring significant savings. Above all it is the best way of introducing ecodriving principles to future licensed drivers. Participants emphasised the role of partnership with driving instructors. In Germany, for example, ecodriving is a part of qualification for driving instructors. Including ecodriving as a part of test criteria for awarding both commercial and general driver licenses is recommended as an effective measure to convey the ecodriving message to (future) licensed drivers.

## *iii. Fiscal incentives*

The Netherlands promoted on-board instrumentation in new cars through fiscal incentives for a number of years, achieving very high levels of uptake (> 75% of new cars). The measure was, in fact, so successful that the Ministry of Finance ended the programme as the resulting shortfall in tax revenue was larger than anticipated. It was expected that after cancellation of the fiscal incentive the rate of equipping new cars with fuel-saving devices would fall sharply. However, car manufacturers and distributors maintained the level of equipment to avoid potentially falling behind competitors. Few other countries have implemented fiscal incentives to bolster ecodriving. However, in addition to in-car technology, fiscal incentives could be used, for example, to encourage companies to participate in ecodriving courses. The effectiveness of fiscal incentives has been shown. Governments are encouraged to examine their potential cost effectiveness.

## *iv. Building partnership programmes*

One of the key lessons of the Workshop was that a platform of different stakeholders provides confidence in information and training in ecodriving. Administrations and their agencies are generally not viewed as a very reliable sources of information in this field by target groups. There are many potential intermediaries that can perform this role more effectively, including automobile clubs, industry associations and consumer organisations. Enlisting the help of other organisations also improves the return on government expenditure. The role of government in initiating partnership programmes is important. Collaboration with a range of stakeholders, including private sector and non-governmental organisations, reaches the widest audience. Voluntary government partnership agreements, based on quantified CO<sub>2</sub> reductions, are a very useful tool for maximising the effectiveness of private sector ecodriving initiatives.

## *v. Monitoring and evaluating ecodriving initiatives*

The Workshop showed clearly that there are instruments available for solid, validated, measuring, monitoring and evaluation for ecodriving initiatives. Assessing the effects of a behavioural programme is, nevertheless, a challenge, and 100% coverage of a programme can only be achieved when all of the vehicles concerned are equipped with monitoring devices. This is usually feasible only with fleet vehicles. Measurement and evaluation of ecodriving programmes is important for securing financial resources and there are some good examples of monitoring methodologies available. It was noted, however, that too much monitoring can be counter-productive and might undermine ecodriving projects by diverting resources away from the core of the program. It was concluded that in no case should a higher level of proof be required to justify support for ecodriving initiatives than is applied in determining subsidies for biofuels or introducing vehicle emissions regulations.

### *Messages for policy makers*

- Ecodriving should be treated as a key component of Government CO2 abatement strategies , as it provides for rapid, cost effective and relatively large potential savings.
- Government support for ecodriving initiatives should include communication campaigns mediated through partnerships with stakeholders, driver training, partnership contracts with fleet operators and possibly fiscal incentives for in-car feedback instrumentation.
- The EU Directive on driving licences, which already requires ecodriving to be taught to novice drivers could be modified to make questions on ecodriving part of the formal test criteria.
- When launching ecodriving programmes it is important to embed them in a long-term programme, rather than launching isolated activities. Only with a long-term vision is it possible to achieve significant results and to maintain partnerships with vital intermediaries.