



Department  
for Transport

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# Freight Carbon Review

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Department for Transport  
Great Minster House  
33 Horseferry Road  
London SW1P 4DR  
Telephone 0300 330 3000  
Website [www.gov.uk/dft](http://www.gov.uk/dft)  
General email enquiries [FAX9643@dft.gsi.gov.uk](mailto:FAX9643@dft.gsi.gov.uk)

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# Contents

1. Background to Freight Carbon Review .....	4
Climate Targets .....	4
2. Evidence considered .....	6
Statistical evidence on emissions and training.....	6
Logistics Carbon Reduction Scheme .....	7
LCRS member survey .....	8
LCRS Submission for Freight Carbon Review 2012 .....	9
DfT voluntary online survey .....	9
Other evidence (including non-road freight).....	10
3. Summary of Freight Carbon Review .....	12
Is the freight industry doing enough?.....	12
Conclusion .....	12

# 1. Background to Freight Carbon Review

- 1.1** In October 2010 the Department issued the response to its consultation on options to increase the uptake of eco-driving training for drivers of large goods vehicles and passenger carrying vehicles. Consistent with the government's de-regulation agenda it was decided that eco-driving training would not be made a mandatory part of the Driver Certificate of Professional Competence (CPC) at that time. Mike Penning, then Minister for Freight, said: "I will instead respond to industry assurances that they have the will to increase uptake of eco-driving training without direct Government intervention, and will encourage and support industry-led initiatives to improve fuel efficiency and tackle carbon emissions, of which a number have emerged as a result of this consultation."
- 1.2** At that time, it was also decided that during 2012 the Department would review the level of uptake of eco-driving training and fuel savings resulting both from industry-led initiatives and from voluntary uptake of eco-driving training and reconsider the case for Government intervention.

## Climate Targets

- 1.3** Forecast emissions savings from industry-led action to improve HGV efficiencies during carbon budgets 1-3 (2011 to 2022) were set out in the Government's Carbon Plan (2011)<sup>1</sup>. The analysis forecast cumulative savings of 5.2 MtCO<sub>2</sub>e<sup>2</sup> by 2022 (compared to a baseline emissions projection without policy). These forecast savings are based on a 5% improvement in energy efficiency by 2015, through industry-led measures to reduce emissions intensity of their operations through all possible means, including driver training and performance monitoring, vehicle aerodynamics and engine efficiencies, logistics efficiency, modal shift and moving to low carbon power sources.

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<sup>1</sup> The Carbon Plan: Delivering our low carbon future; Annex B

<sup>2</sup> Carbon dioxide equivalent emissions



## 2. Evidence considered

**2.1** During the latter half of 2012 the Department set out to establish the type and scale of measures being taken by industry to reduce carbon emissions. The following sources of information were considered:

- Statistical evidence on emissions and training
- FTA's Logistics Carbon Reduction Scheme & LCRS Submission to Freight Carbon Review 2012
- DfT voluntary survey
- Information submitted by industry (including non-road freight sectors).

### Statistical evidence on emissions and training

**2.2** It has not been appropriate to draw on statistical evidence in this review for the reasons set out below.

**2.3** The Continuing Survey of Road Goods Transport (CSRGT) captures information on fuel purchased which, along with distance travelled, can be used as a proxy for fuel efficiency. However, there is insufficient data available from the 2010 baseline: there is a timelag between data being gathered and its being published but in any case the period is not long enough to demonstrate any changes in trends.

**2.4** The National Atmospheric Emissions Inventory publishes emissions data for HGVs but again this is subject to a timelag and, furthermore, HGVs are used as the balancing factor for road diesel consumption meaning that the data is not sufficiently accurate to be relied upon to show year on year changes in emissions<sup>3</sup>.

**2.5** It has not been possible to quantify the uptake of eco-driving training. There are many different training providers and although the Joint Approval Unit for Periodic Training (JAUPT) records training undertaken by all drivers as part of their Periodic Training, the recording and evidencing database was designed primarily to maintain training records and trigger the issue of Driver Qualification Cards and not for scrutiny of course content. There are many different courses containing varying elements of eco-driving; around 290 courses include relevant key words

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<sup>3</sup> The difference between calculated diesel consumption and fuel sales figures across all vehicle classes is attributed to HGVs, mainly because HGVs consume fuel on UK roads that was purchased abroad and which does not therefore appear in UK sales figures.

such as green, eco, carbon etc, but it is unclear how much eco-driving content is in these courses. There are also likely to be courses that have appropriate content but which is not reflected in the title. Tracking the uptake of courses through training records would not therefore be a reliable indicator of eco-driving training. Furthermore, operators provide eco-driving training which is not undertaken as part of Periodic Training and therefore not recorded in the JAUPT database.

## Logistics Carbon Reduction Scheme

- 2.6** In December 2009 the Freight Transport Association (FTA) announced its intention to introduce the Logistics Carbon Reduction Scheme (LCRS), as an industry-led voluntary initiative to record, report and reduce CO<sub>2</sub> emissions from freight transport. In April 2011 the DfT gave its formal endorsement for the scheme and the Government's endorsement was subsequently included in the Government's Carbon Plan. By December 2012 the LCRS had 72 members operating over 60,000 commercial vehicles between them. The FTA estimates that this represents approximately 30% of the vehicles within the FTA membership. LCRS members have committed to a collective reduction of 8% in the carbon intensity of their freight operations by 2015 against a 2010 baseline.
- 2.7** The LCRS is open to any business operating commercial vehicles in the UK and is free of charge. Participants do not have to be a member of the FTA and the scheme includes both large and small companies. Participants are required to provide annual data on fleet fuel use and vehicle kilometres as well as information on vehicle stock, turnover and full-time equivalent employees. On joining the LCRS, participants are also required, where possible, to provide retrospective data from 2005 to the present.
- 2.8** The current membership of the LCRS does not necessarily provide a snap-shot of the industry as a whole, but a self-selecting sample of those organisations who are making substantial efforts to reduce their CO<sub>2</sub> emissions (for reasons of social responsibility as well as economy).
- 2.9** In 2011 there were 465,000<sup>4</sup> licensed HGVs (of 3.5t and over). In 2011/12 342,473 vehicles fell within the operator licensing regime. Licensed HGVs which are exempt from the operator licensing regime include some types of engineering and construction vehicles as well as vehicles owned by hire companies, some of which are likely to be involved in the freight sector. The LCRS scheme is open to all commercial vehicle operators (except passenger vehicles) and therefore includes a number of vans (commercial vehicles <3.5t): almost 34% of the vehicles in the scheme<sup>5</sup>. The Department has not historically

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<sup>4</sup> DfT Vehicle Licensing Statistics Table VEH0506

<sup>5</sup> LCRS Second Annual Report

included vans as part of the freight sector as vans generally carry tools or equipment rather than goods or produce for commercial gain, although vans do include home delivery fleets. Therefore we estimate that the LCRS covers approximately 8.6% of licensed HGVs or 11.7% of HGVs falling within the operator licensing system.<sup>6</sup>

**2.10** Each year the FTA calculates the CO<sub>2</sub> emissions from the LCRS members and measures these against four activity-based normalisers (vehicle kilometres, turnover, full time equivalent employees and vehicle fleet payload). The LCRS second annual report showed that absolute emissions from LCRS participants continued to increase as membership grew in 2010. Indeed, national freight emissions are expected to rise over time due to drivers such as GDP growth. The normalisers are therefore used to show trends in intensity of emissions:

- Emissions per vehicle kilometre show that the overall carbon intensity of scheme participants has improved over time, with a 2.6% reduction in the intensity of emissions during 2010.
- Reductions in carbon intensity during recent years are also shown in emissions per £ turnover and per full time equivalent employee although the recession will have had an impact on these figures.
- The fourth normaliser, emissions per tonne of available vehicle payload shows a slight increase in emissions between 2009 and 2010 but this is a newly introduced normaliser for which no retrospective data is available.

## LCRS member survey

**2.11** In October 2011 the FTA undertook a survey of LCRS participants to establish the extent to which low carbon measures had been put in place since 2010 as well as other measures being either trialled or planned. The survey covered 38 separate intervention measures that can be taken by an operator to reduce CO<sub>2</sub> emissions. 29 LCRS members responded to the survey.

**2.12** The results of the survey showed that the carbon saving interventions with the most widespread take-up since 2010 were eco-driving training and fuel performance monitoring: 74% of LCRS members who responded had an eco-driving programme in place and the same percentage regularly monitored the fuel performance of their HGV drivers. This was closely followed by using vehicles with automated manual transmission and measures to reduce engine idling (both at about 70%).

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<sup>6</sup> It should be noted that these are approximate figures, based on published information available in January 2013.

**2.13** The survey also showed that amongst operators responding to the survey interventions aimed at reducing vehicle activity (i.e. mileage) since 2010, there has been a saving of 77 million vehicle miles. The interventions with the greatest savings were reducing empty running (25% of the saving) and the use of on-board vehicle telematics to optimise delivery schedules (20% of the saving).

## LCRS Submission for Freight Carbon Review 2012

**2.14** In November 2012 the FTA submitted a document on behalf of the LCRS members summarising the role and achievements of the LCRS. The document notes that the scheme is on course to meet its target reduction of 8% by 2015.

## DfT voluntary online survey

**2.15** We conducted our own questionnaire, using a simplified version of the questions posed in the LCRS low carbon intervention survey to enable operators who are not part of the LCRS to provide information on the uptake of carbon saving interventions.

**2.16** The survey was anonymous to encourage broad participation, in particular by those for whom carbon reduction measures may not be a high priority. The online survey ran during September and October 2012 and operators were encouraged to participate through their trade associations. At industry's request, we re-opened and extended the survey to 31 January 2013 to allow time for further participation, in particular by smaller operators<sup>7</sup>.

**2.17** We consolidated the 38 separate intervention measures contained in the LCRS survey into the following 8 groups of measures and asked operators to tell us which they had taken since 2010:

- Measures to improve fuel efficiency
- Fuel performance monitoring
- Eco-driving training
- Reduction in empty running
- Alternative fuels
- Improved logistics efficiency
- Modal shift
- Measures to improve loading capacity and utilisation

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<sup>7</sup> This increased the number of responses received from 46 to 56.

**2.18** We received 56 responses covering approximately 15,000 vehicles. We consider that the resulting sample size is too small to produce robust data and cannot be considered to be representative of the industry as a whole. Although anonymous, we do not know to what extent the sample may have been self-selecting i.e. only those companies with a strong eco-message to tell may have responded which would create bias in the results.

**2.19** However, the main conclusions that we consider can be drawn from the DfT survey are:

- The most common methods of reducing fuel consumption implemented by hauliers since 2010, based on the survey of 56 responses, are training drivers in fuel efficiency, implementing new fuel saving equipment/procedures in vehicles and making drivers subject to fuel performance monitoring.
- Modal shift appears to be very unpopular in the responses received. However, we must note that for some companies modal shift may not be possible; in addition, it is very difficult to estimate the mileage taken off the roads.
- Increasing the number of vehicles running on low carbon fuels also appeared to be a less popular method of reducing fuel consumption. Reasons for this include high upfront capital costs, lack of refuelling infrastructure and uncertainty over costs and benefits. It should also be noted that the use of alternative fuels in HGVs is still at an embryonic stage and is expected to increase if the above-mentioned barriers can be removed or reduced.

**2.20** These results appear to be consistent with the findings of the LCRS survey which also showed that the most popular interventions were driver fuel performance and eco-driver training closely followed by adopting vehicles with automated manual transmission and reducing engine idling. However it should be noted that operators who are part of the LCRS may have answered both the LCRS and DfT surveys.

## Other evidence (including non-road freight)

**2.21** In addition to the voluntary survey, we also invited industry to submit any information about measures to reduce carbon emissions in other types of freight operation, such as rail, inland waterway or coastal shipping, as well as any other comments or contributions about the work being done across the freight sector to reduce carbon emissions.

**2.22** We received a detailed response from the Chamber of Shipping which set out the steps that the shipping industry is taking to reduce its carbon footprint, both nationally and internationally.

**2.23** In addition to circulating the DfT survey to its members, the RHA also drew our attention to the results of Commercial Motor publication’s May 2012 survey of operators which asked “As fuel prices continue to increase, which of the following measures are you using to control/reduce fuel consumption?”

**2.24** The results of the survey (below) showed that regularly training drivers in fuel-efficient driving was one of the more popular measures for reducing fuel consumption.

<b>Table 2.1</b>		
Measure	157	100%
Ensuring close coupling of trailer and tractor unit	52	33%
Investing in routeing and telematics technology to optimise routes	66	42%
Lifting redundant axles off the road	87	55%
Limiting motorway speed to 52mph	37	24%
Regularly checking that tyre pressures are at optimum levels	102	65%
Regularly training drivers in fuel-efficient driving	84	54%
Running aerodynamic trailers	32	20%
Running double-deck trailers	12	8%
Running with no clutter/bling on trucks’ exterior	48	31%

**2.25** As with the DfT survey, we consider that the small sample size cannot be considered to be representative of the industry as a whole.

## 3. Summary of Freight Carbon Review

### Is the freight industry doing enough?

- 3.1** The information we have received suggests that eco-driving training is one of the more popular measures being undertaken to reduce HGV fuel consumption. The evidence we have seen also shows that some areas of the road freight industry are undertaking a wide range of other carbon and/or fuel reduction interventions but it is not possible at this stage to say what the effect of that activity is. Nor do we know for certain what is happening across the wider industry.
- 3.2** We do know that many carbon reduction measures are win:win for the environment and the operator in that they provide fuel efficiency savings which in turn cut operators' fuel bills. Some measures may incur an upfront cost e.g. training, aerodynamic equipment, telematics, route planning software etc but this will be offset by fuel savings and increased operational efficiency. Therefore many operators are likely to be implementing measures that will reduce their costs and those that aren't should be open to doing so, provided they are aware of the measures and the benefits. Even the relatively high upfront cost of an alternatively fuelled HGV can be offset within the vehicle's lifespan by the cheaper cost of alternative fuels compared with diesel.

### Conclusion

- 3.3** Available evidence shows that some parts of the freight industry are making substantial efforts, through a wide range of measures, to reduce their carbon emissions. It is less clear what is happening across the wider industry. The Department will therefore continue to work closely with the freight industry to ensure that all parts of industry are taking the actions that we know to be effective in reducing emissions and which also help to reduce operating costs. Whilst eco-driving training has clear carbon reduction benefits, particularly when backed up by performance monitoring, the Department remains of the view that operators are best placed to know the particular development needs of their drivers and therefore has no plans to make eco-driving training a mandatory element of periodic training at present but will keep the issue under review.