Climate Change Policy Review – Outputs from the Road Transport Workshops

Facilitated by LowCVP at the LowCVP Annual Conference, Motor Heritage Centre, Gaydon, Warwickshire, 10th February 2005

1 Introduction

The Low Carbon Vehicle Partnership (LowCVP) is an action and advisory group whose members work towards accelerating the shift to low-carbon vehicles and fuels in the UK. Through this we also work to stimulate opportunities for UK business within emerging markets.

The Partnership was established in 2003 as an outcome of the Government's Powering Future Vehicles Strategy. It is independent of Government, but works closely with the Department for Transport (DfT), the Department of Trade and Industry (DTI) and Department for Agriculture Food and Rural Affairs (DEFRA) and reports to Ministerial Low Carbon Group responsible for oversight of the Powering Future Vehicles Strategy.

As part of the Government's Climate Change Policy Review the Partnership ran six workshops, each focussed upon a different aspect reducing greenhouse gas emissions from road transport. The workshops examined:

- Should road transport be included within the EU Emissions Trading Scheme?
- What are the most effective fiscal and related policy frameworks to incentivise low carbon vehicles and fuels? (separate workshops)
- What is the most effective way to market low carbon vehicles and enthuse consumers?
- How can we stimulating excellence in supply of low carbon automotive technologies?
- What are the solutions for traffic reduction?

The Workshops were held as part of the Partnership's Annual Conference held on the 10th February 2005 at the Motor Heritage Centre, Gaydon, Warwickshire. The Workshops were attended by about 200 conference delegates from the motor and oil industries,

Government Department's, academics and representatives of environmental and consumer groups. Many, but not all, of the delegates were LowCVP members. This paper presents the views and ideas of the assembled delegates about how to stimulate supply and demand for low carbon vehicles and fuels.

This paper presents the key outcomes of each workshop and has been prepared as input to the Government's Climate Change Programme Consultation. The paper does **not** represent the considered opinion of the LowCVP on the priorities for action. This is since the workshop outputs have not been through the Partnership's robust procedures to ensure a consensus view has been obtained. The views nevertheless fairly reflect the range of opinions amongst Partnership members. The views expressed in this document should therefore be referenced as from the Road Transport Workshops and not as views directly attributable to the LowCVP.

2 Workshop 1: Should road transport be included within the EU Emissions Trading Scheme?

This workshop involved a series of short presentations followed by a plenary discussion. It was chaired by Tony Grayling of ippr. The workshop addressed the specific question s*hould road transport be included within the EU Emissions Trading Scheme?*

The workshop identified a number of approaches through which road transport could potentially be included within the EU ETS:

1. Allocating permits to crude oil importers (permit to import)
2. Allocating permits to sellers of petrol (permit to sell).
3. Car manufacturers claiming credits (with a market value) if they outdid a prescribed target.
4. For large car fleets to be brought directly into the scheme. This would involve allocation of permits to car hire companies (on basis of fleet performance). This would allow large companies to include their car fleets in their carbon envelope.
5. Introduction of Domestic Tradable Quotas.

There was broad consensus from delegates that a goal, not route, based mechanism for reducing road transport emissions was preferred. Delegates appreciated all of the proposed approaches had merit but recognised that each had significant practical limitations.

Permits on the fuel were recognised as relatively simple to implement, but would effectively equate to a carbon tax or increase in duty. It was expected this would simply be passed on to consumers in higher fuel prices. With the relatively inelastic demand for fuel the overall impact upon carbon emissions would be small.

Domestic Tradable Quotas (DTQs) are a national “cap and trade” scheme in which emissions rights are allocated to energy end-users. Individuals are allocated CO2 units on an equal per capital basis that can be used to purchase energy for the home or travel. In discussion, there was support for the principle of DTQs, especially since the approach would help the public to understand the real environmental cost of their transport choices. Delegates did however express concerns about the complexity and cost of operating the scheme. There were also questions about whether it was genuinely equitable.

Whilst in principal there was sympathy for including road transport within an extended EU ETS, many delegates believed in practice this was difficult and would not achieve the desired outcomes. There was a broad consensus that road transport should not be considered for the

next phase 2008 and was questionable for inclusion in 2012. Specific concerns were that:

1 Including such a large emitter as road transport within the scheme would create a significant market distortion – merely seeking to increase the price of CO2 as the sector bought available credits. (It was, however, recognised this would also make currently uneconomic emission reduction approaches for vehicles affordable.)
2 Including transport within the EU ETS may lead to further pressure upon exposed sectors with high energy costs, which also competed in global markets (such as steel and chemicals). This was since road transport was likely to be a net sink of credits.
3 The OECD which had suggested that *'..in terms of competitiveness, it will generally be preferable to employ an environmental tax (or, equivalently, auctioned tradable permits), and use the revenue raised to reduce the rates of existing, distortionary, taxes on business, than to allocate permits through a non-revenue-raising "grandfathering" procedure'*
4 Security of supply concerns would not be addressed through including road transport within the EU ETS as this was unlikely to stimulate production of more efficient vehicles.
5 Inclusion of road transport may act as a perverse disincentive for public transport.
6 Cross-border travel could present an administrative challenge.

Despite concerns expressed about including road transport within the EU ETS there was support for the general use of trading approaches, specifically though:

1 Car manufacturers or fleet operators claiming credits (with a market value) if they outdid a target for average CO2 emissions from new vehicles sold / bought;
2 DTQs – if practical and administration cost concerns could be resolved.

It was suggested the feasibility of these approaches should be considered further. Additional details of the workshop are presented in Annex I.

3 Workshops 2 & 3: What are the most effective fiscal and related policy frameworks to incentivise low carbon vehicles and fuels?

The workshops were jointly facilitated by FUTERRA/Future Considerations and followed the World Café process. This involves a series of short discussions in which participants rotate between groups. A *Table Host* (who chairs the discussion on each table) remains at the table throughout the event whilst the other delegates (*Guests*) rotate between tables. At the start of each rotation the *Host* briefs a new set of *Guests* on the highlights of the previous discussion enabling *Guests* to build upon previous responses. After three discussion rounds, each table recommended up to five actions, on which the group voted to identify priorities.

3.1 Workshop 2: Effective incentives for low carbon vehicles

The vehicles workshop identified the following priorities in rank order to:

1. Introduce a “feebate” in regard to CO2/engine power
2. Introduce Individual Carbon Allowance (also known as Domestic Tradable Quotas)
3. Introduce demand-led road pricing
4. Research and develop cycle lane policies
5. Research and develop whole life costings for vehicles, publish and disseminate

Choices one and two were overwhelmingly considered the most important.

There was broad consensus that the current Vehicle Excise Duty differential between vehicles with different CO2 emissions is insufficient to stimulate demand for low carbon vehicles. It was proposed that a fiscally neutral purchase tax would provide a stronger incentive. The Feebate Scheme would impose a purchase tax on vehicles sold with a higher than average (or target) CO2 emission. Vehicles with CO2 emissions below average (or target) would be discounted. Overall the scheme would therefore be revenue neutral. It was postulated a purchase tax would provide a stronger incentive in regard to CO2 emitted/engine power for both company and privately bought cars. It is notable that half of the support expressed for this initiative was from companies.

The second, and almost as popular proposal was for the introduction of Domestic Tradable Quotas. This option was discussed in detail as part of the workshop on *Should Transport be included within the EU ETS?*

The introduction of *demand-led* road pricing, for both the journey and the car was the third most popular proposal. There was discussion whether or not this should be tax neutral and include higher charges for more polluting vehicles. The workshop suggested that the amount charged to use the road should be dependant upon CO2 emissions of the vehicle in addition to the type of road, degree of congestion (applied as time of day). It is proposed this will help drivers to realise the real costs of choosing a more polluting (higher CO2) vehicle.

Other recommendations from the workshop are listed in Annex II.

3.2 Workshop 3: An effective framework for alternative and low carbon fuels

The fuels workshop identified the following priorities in rank order:

1. An explicit commitment to fiscal and other policies from Government to the larger vision of 'saving the planet' to raise investment certainty; stable policies, clear timescales.
2. Introduce an effective Renewable Obligation scheme
3. Development of a biofuels assurance scheme
4. Tax-neutral incentives to kick-start low-carbon fuel supply.

The first priority indicates delegates are concerned that the Alternative Fuels Framework does not provide a sound basis for incentivising alternative low carbon fuels. Specifically, issues included that the current 3 year notice period for amending fuel excise duty does not provide the market with sufficient confidence to invest in alternative fuel infrastructure. Reference was made to longer periods of certainty on biofuels in Germany and ethanol in Sweden that has enabled these fuels to achieve significantly greater market share than that achieved in the UK. There was also concern that current duty differentials are insufficient, particularly for biofuels, to provide sufficient incentive for alternative low carbon fuels.

The second priority was for the introduction of an effective Renewable Transport Fuels Obligation. There was widespread, but not unanimous support for the obligation. Many delegates supported including within the obligation carbon certification of the fuel and possibly assurance that the fuel was supplied from sustainable sources (that have not in them self led to significant environmental harm). Carbon certification would incentivise suppliers to provide fuels with a significant greenhouse gas saving compared to conventional fuel. Through this approach suppliers of fuels with the best greenhouse gas savings would earn additional certificates to trade.

The third priority was for LowCVP to develop a voluntary biofuels accreditation scheme which can operate in parallel with the proposed RTFO but address a wider range of sustainability criteria. The Partnership proposes to establish a single, independent, biofuels assurance scheme for the UK. There is wide agreement none of the existing, or proposed, UK schemes meets all the requirements and that a BSI Publicly Available Specification should be produced. This would be a precursor to a full British Standard and ultimately European and/or ISO Standard.

The fourth priority was to create effective incentives for producers using fuel duty, without reducing Treasury revenues (which Government is reluctant to accept). For example; a 5% blend of biofuel with a 20p duty differential will cost the Treasury 1.5p/l lost revenue. If however the duty on diesel was increased by 1.5p/l to offset this cost tax revenue would be neutral but producers provided with an incentive to supply the bio-component. This approach requires the Treasury to identify the actual increase in costs for producers and to create duty differentials by both discounting the alternative fuel and at the same time raising the tax on the conventional fuel. This approach provides an incentive for suppliers to adopt the alternative fuel.

Other recommendations from the workshop are listed in Annex II.

4 Workshop 4: What is the most effective way to market low carbon vehicles and enthuse consumers?

The workshop was facilitated by Ben Lane, Ecolane Consultants, it focused on how to stimulate demand for low-carbon vehicles by influencing consumer perceptions and attitudes. Issues addressed included: consumer attitudes to vehicles and the environment, car-buyer priorities, reception of existing price signals, and increasing the amenity value of low-carbon vehicles. From these discussions four principal areas of discussion emerged concerning:

- Image and amenity value
- Education and promotion
- Economic incentives and sector targeting.

Further details of these discussions are presented in Annex III. Based upon the discussions four action points emerged:

1. Introduce new purchase incentives for low-carbon vehicles through use of VAT or 'feebates'

This point was also addressed in the workshop concerned with incentivising supply of low carbon vehicles and is elaborated there.

2. Increase promotion of low-carbon vehicles through fleet demonstration and national 'mpg challenge'

To promote low-carbon vehicles to private and fleet sectors, the benefits of low-carbon vehicles need to be continually reinforced through demonstration of real vehicles that have reached the market. These fleets would increase awareness of the range of cleaner vehicles available, provide information about the potential to reduce environmental impacts *and* overall costs. The initiatives would also provide information about grants/incentives available and reduce uncertainties regarding performance and reliability.

The emerging network of Car Clubs (for private and business users) could provide national micro-fleet support to allow potential consumers to experience low-carbon cars for the first time. A national 'mpg challenge' would also raise and maintain the media profile for low-carbon vehicles. In addition, to support fleet promotion, company chief executives need to be targeted as key players to raise the profile of, and increase use of, low-carbon vehicles within company fleets.

3. Extend incentives for low-carbon vehicles through preferential access to city-centres and low carbon vehicle lanes

In addition to purchase subsidies and fuel duty differentials, other 'amenity' incentives have been successful in promoting sales of cleaner cars. Existing measures include some free parking and congestion charge discounts in London. These measures could be extended in scope and range. New measures include use of preferential 'low-carbon vehicle (LCV) lanes' in appropriate locations (used in much the same way as HOV lanes). Congestion charge discounts could also be extended to all congestion charge zones across the UK (including the new Edinburgh scheme).

4. Survey existing consumer preconceptions and misconceptions regarding low-carbon vehicles – private and fleet sectors.

To promote low-carbon vehicles to a general public audience, education campaigns using the media and formal education could be increased. However, to design effective education and media campaigns, a more detailed understanding of *existing* consumer preconceptions and misconceptions is required (regarding environmental and economic impacts). This would provide insight in to how new messages are received and interpreted. A national study could be completed through established omnibus type surveys and conducted within a relatively short length of time (12 months).

5 Workshop 5: How can we stimulate excellence in supply of low carbon automotive technologies?

This workshop was facilitated by Geoff Callow, TEC Consulting, and Future considerations. It identified that the market for low carbon vehicle technologies is at a formative stage both in terms of relatively low user demand and the readiness of both developers and manufacturers to meet future, increased user demand, for this type of technology. With this in mind, the workshop aimed to identify and propose possible solutions for the key impediments currently faced by companies investing in the development of low carbon automotive technology. In particular, the workshop considered the challenges and opportunities for the establishment of a low carbon technology supply chain for components and systems in a market where there is not yet demand for low carbon automotive technology at levels familiar to conventional technology.

With contributors from OEM organisations, small development companies and individual developers and investors, the workshop represented a wide range of active participants in the market. Within the practical constraints placed on the workshop, a broad consensus of considerations emerged regarding market interests, concerns, barriers and most importantly, possible solutions which could stimulate excellence in the supply of low carbon automotive technologies. It was noted that the new Centre of Excellence for Low Carbon and Fuel Cell Technology (Cenex) would provide a much needed focal point for all those interested in investing, developing and manufacturing new low carbon vehicle technologies.

The workshop focused upon two key barriers to progress:

- The challenges presented by low product volumes and the prevalence of small companies in R&D
- Effective communication between R&D companies and system purchasers

The outcomes of the deliberations on each topic are presented in Annex IV.

There was a clear consensus within the workshop about the significant opportunities for, and commitment to, establishing new low carbon vehicle technologies in the market. It was also recognised that there is a high level of uncertainty as to market direction regarding:

- Future technology specifications and
- Availability of funding for R&D investment.

Access to information about these two areas was felt to be particularly inadequate and small companies were felt to be especially sensitive to these uncertainties.

There was also broad consensus on the need for market-recognised standards to evaluate the worthiness of technological development projects and the process by which they are evaluated from development through to demonstration.

Government was identified as a significant and positive market influencer. But it was felt that a clearer and more committed policy towards the development of low carbon automotive technology industry was needed.

The workshop proposed establishing a forum in which businesses and Government could exchange learning and best practices. The forum would act as a focal point where technological specifications, learning, practices, challenges and opportunities were exchanged and shared. Ideally, the forum would also act as a single 'portal' for the funding of R&D and manufacturing opportunities, as well as disseminating relevant information to all participants in the market.

The forum would involve all organisations with a commitment to a market for low carbon vehicle technology including small and large technology companies, technology developers, OEMs and Government. Initially it was felt that the forum should address the questions of what role does low carbon technology R&D have to play in the UK and what are the UK's strengths in the global market? It is hoped that the imminent creation of the Cenex would address these needs.

6 Workshop 6: Solutions for traffic reduction; sustainable demand for road transport

This workshop examined how to encourage car users to make smarter transport choices and reduce the need for travel. It considered how we can get more from our existing transport systems, make transport more attractive and reduce road freight. The workshop was facilitated by Stephen Joseph, Transport 2000.

The workshop came to the following shared conclusions:

1) Public transport has a role to play reducing carbon emissions, especially in cities. The success of Transport for London's congestion charge shows what can be achieved in terms of modal shift to buses. Elsewhere we need to see more facilities for park and ride, park and cycle, better transport interchanges and more demand responsive transport.

2) UK land-use planning and transport have been very poorly linked in the past. In the future this must be improved and parking standards are a critical component of the coordination.

3) Smart choices, as featured in a recent report by the DfT[1], were supported. In particular the scope to transfer more short car-based trips to cycling and walking was highlighted. The decision not to fund the National Cycling Strategy Board was regretted. The DfT's good work in funding local authority 'travel to school' officers was acknowledged and similar dedicated funding for workplace travel planning should be provided as a priority.

4) Road user charging, currently seen as a tool for reducing congestion, also needs to be harnessed to reduce climate change emissions. Larger vehicles could be charged more. Whatever the charging basis, transport alternatives need to be in place beforehand or alongside. The Norwich Union experience of 'pay as you drive' insurance indicates that road charging could be introduced sooner than commonly thought possible.

5) Speed Management. There is evidence that this can deliver significant carbon savings, especially on trunk roads and motorways. Enforcement of existing motorway limits would be a first step. Obtaining maximum fuel efficiency at slower speeds requires changes to vehicle design. This in turn requires a change in vehicle demand of sufficient scale to justify a shift in global production.

[1] **Smarter Choices - Changing the Way We Travel, DfT, July 2004**

6) Freight. There is much scope for improving efficiency and reducing emissions on the last leg of journeys through shared local delivery systems. Location is essential to make the most of rail-freight, for example distribution centres should be near rail lines.

Annex V provides further detail of the discussions on each of the above topic areas.

Annex I – Should road transport be included within the EU Emissions Trading Scheme?

This workshop involved a series of short presentations followed by a plenary discussion. It was chaired by Tony Grayling of ippr. The workshop addressed the specific question s*hould road transport be included within the EU Emissions Trading Scheme?*

The first contribution was by James Harries, DEFRA, who introduced basis for the EU ETS including the benefits and mechanisms of trading, National Allocation Plan and proposals for Phase II of the Scheme from 2008.

The second presenter, Nick Hartley of Oxera Consulting Ltd proposed that including road transport within the EU ETS could either be achieved through allocating permits to crude oil importers (permit to import) or sellers of petrol (permit to sell). However, the outcome would effectively equate to a carbon tax or increase in duty which operators would simply pass on to consumers in higher fuel prices. Given that oil companies cannot encourage more efficient use of their products, any impact would therefore be through the increased fuel price. With the relatively inelastic demand for fuel the overall impact upon carbon emissions would be small. Through the approach it may, however, be possible to incentivise supply of biofuels. In discussion, this was a point reinforced by several delegates.

The presentation also suggested two alternative approaches:

1. Car manufacturers claiming credits (with a market value) if they outdid their voluntary agreement target. This would introduce an economic incentive to achieve the voluntary agreement.
2. For large car fleets to be brought directly into the scheme. This would involve allocation of permits to car hire companies (on basis of fleet performance). This would allow large companies to include their car fleets in their carbon envelope.

Jos Dings, European Federation for Transport and Environment described the current suite of policies to reduce greenhouse gas emissions in different sectors as a “hotchpotch.” He suggested there was understandable appeal to integrate these under a single trading umbrella which by a progressive tightening of the CO2-cap would reduce emissions at lowest cost. However, he expressed concerns that sectors with high energy costs, which also competed in global markets (such as steel and chemicals), would be especially exposed by this approach. In comparison, transport emissions reductions could be bought more cheaply from achievements made in other sectors and would be largely unaffected by inclusion in the trading regime.

The presentation went on to present data to indicate the cost of CO2 emissions reduction from road transport is not disproportionately high when made on a life-cycle basis which negated part of the reason for inclusion within the EU ETS. He also quoted the OECD which had suggested that *'One important policy conclusion is that, in terms of competitiveness, it will generally be preferable to employ an environmental tax (or, equivalently, auctioned tradable permits), and use the revenue raised to reduce the rates of existing, distortionary, taxes on business, than to allocate permits through a non-revenue-raising "grandfathering" procedure'*

Given security of supply concerns, the presentation concluded that the EU should seek to reduce its dependence on imported oil through the introduction of more efficient vehicles. He did not foresee using the EU ETS would achieve this objective or reduce CO2 emissions from transport.

The final presentation by Richard Starkey, Tyndall Centre for Climate Change Research suggested using Domestic Tradable Quotas (DTQs) as a mechanism for bringing road transport within an emissions trading regime. DTQs are a national "cap and trade" scheme in which emissions rights are allocated to energy end-users. After the initial carbon budget has been established this is then distributed between individuals, firms and other organisations. For individuals units are allocated on an equal per capital basis for direct purchase of energy (gas, electricity and petrol/diesel). Remaining units are auctioned to organisations and firms. Units are surrendered each time fuel is bought via a carbon credit card. Below-average emitters have surplus units which can be sold. Above-average emitters require additional units which are bought. Banks make money on "bid and offer" spread. Ultimately it was proposed this system would be more equitable and efficient and could be brought into the existing EU ETS arrangements on a country by country basis.

In discussion, there was support for the principal of DTQs, especially since the approach would help the public to understand the real environmental cost of their transport choices. Delegates did however express anxiety as to the complexity and cost of operating the scheme. There were also questions about whether it was genuinely equitable – an issue being raised about those who needed to heat their home to higher temperatures or travel longer distances due to their rural location.

There was broad consensus from delegates that a goal, not route, based mechanism for reducing road transport emissions was preferred. Establishing a CO2-ceiling and allowing businesses to achieve emissions reductions through a combination of their own initiatives

and trading would reduce costs and avoid inappropriate technological solutions being imposed.

Whilst in principal there was sympathy for including road transport within an extended EU ETS, many delegates believed in practice this was difficult and would not achieve the desired outcomes (as suggested by Jos Dings). Specific concerns were that:

- Including such a large emitter as road transport within the scheme would create a significant market distortion – merely seeking to increase the price of CO2 as the sector bought available credits. (It was, however, recognised this would also make currently uneconomic emission reduction approaches for vehicles affordable.)
- Inclusion of road transport may act as a perverse disincentive for public transport
- Cross-border travel could present an administrative challenge.

There was a broad consensus emerging from the discussion that the time is not right for including road transport within the EU ETS. However, there was considerable potential for including trading approaches to reduce road transport emissions though:

- Car manufacturers or fleet operators claiming credits (with a market value) if they outdid a target for average CO2 emissions from new vehicles sold / bought;
- DTQs – if practical and administration cost concerns could be resolved.

Annex II – What are the most effective fiscal and related policy frameworks to incentivise low carbon vehicles and fuels?

RESULTS OF VOTING ON RECOMMENDED ACTIONS - VEHICLES					
WHAT?	**Total**	Academia	Business	Government	NGO
1. Policy: Vehicle Excise Duty Introduce a "feebate" in regard to CO2 emitted/engine power for both company and private cars. The differential is not currently large enough to encourage efficiency and discourage SUVs, members of the group wished to see a stick rather than carrot approach but consensus was not achieved on this.	**13**	1	6	4	2
2. Initiative: Individual Carbon Allowance (ICA) Create an ICA for each and every member of the UK (similar to tax return completed for Inland Revenue). Explore creating these for companies too.	**11**	2	7	2	
3. Policy: Road-pricing Introduce *demand-led* road pricing, for both the journey and the car. It's currently not geared towards emissions, introduce 1 financial cost for all, review in accordance with developments.	**5**		3	2	
4. Policy: Cycle lanes Create a robust policy on cycle lane provision	**2**		1		1
5. Initiative: whole life costings Research and develop whole life costings for vehicles, publish and disseminate	**2**		2		
6. Policy: Manufacture incentives Introduce policies and initiatives to make Low Carbon Vehicles R&D and production more attractive e.g. performance leading to better policing of speed limit, plus fiscal incentives to link cars to fuels.	**2**	1	1		
7. Policy: Road access Develop policies to limit access to target areas e.g. through congestion charging.	**1**		1		
8. Communications: TV campaign Develop and deliver hard-hitting public communications such as TV campaigns. The group discussed communicating the dangers of greenhouse gases with a focus on your child's future, though consensus was not gained on this.	**1**		1		
9. Communications: Consumer-facing labelling Provide evidence of "good" consumer behaviour (see box below) e.g. a sticker/label that may be displayed on a vehicle.	**1**		1		

RESULTS OF VOTING ON RECOMMENDED ACTIONS – FUELS

WHO?	WHAT?	Total	Academia	Business	Government	NGO
1. HMG	Vision: This is a request that Government communicate and **show commitment towards a long-term vision for the low-carbon emissions framework** (involving fiscal +other policies), in service of the larger goal of 'saving the planet'/ensuring a sustainable future. The long-term commitment would increase investment certainty in low carbon fuel technology and infrastructure.	**12**	2	9		1
2. HMG	Policy: There is a general recommendation for tax neutral incentives. These are seen as a practical way to 'kick-start'/stimulate the supply/production of low-carbon fuel.	**7**	2	5		
3. HMG	Policy: Renewable Obligation Scheme for Biofuels. The recommendation is for an *effective* renewable obligations scheme. The effectiveness would depend on a system for monitoring biofuels quality standards and Carbon Accreditation (pls see next point)	**8**	1	7		
4. LowCVP	Initiative: Development of Bio-fuels accreditation scheme. This would be in direct support of the previous recommendation and generate confidence in the RO scheme.	**8**		7		1
5. HMG	Policy : The recommendation is for a specific tax neutral incentive. Namely, a graduated fuel duty differential that would be sufficient to drive emerging fuels (which is not the case at present). The differential would be proportional to the WTT carbon.	**3**	1		1	1
6. HMG	Initiative: Development of capital grants for Research and Development to stimulate the necessary infrastructure for renewable fuels.	**2**		2		
7. HMG	Policy: A specific request for a 5.25% (or higher) Biofuels Obligation by 2010. The suggestion is the establishment of a buyout fund to offset losses to the treasury from graduated fuel differential.	**2**	1			1
8. HMG	Government policies to reinforce each other. This is a general recommendation in support of better coordination in government thinking (Between fiscal policies, grants, fuels and vehicles framework)	**2**			2	
9. HMG	Policy: In order to give confidence to the	**2**	1	1		

	different players in the bio-fuels market, there is a recommendation for long-term consistency on targets.					
10. LowCVP	Initiative: Customer Awareness and Education. The recommendation is for an initiative to change consumer behaviour in order to stimulate the demand for low carbon fuels. For example to both provide energy saving tips and also information on what is available to the consumer, in order both to inform the consumer and to address any prevalent myths.	**2**		1	1	
11. HMG	Policy: Increase the range of vehicle excise duty in order to amplify the fuel duty differential and to capture the tank to wheel effects.	**1**				1
12. HMG	Vision: Focused mid-term strategy with clear time scales, stable policies and short-term action plans. (Similar to point 1 but with a focus on the medium term)	**1**				1
*13. HMG	Policy: Long-term consistency on *support package* for targets	**1**		1		
*14. Industry	Clear quality standards.	**1**		1		
*15. Business	Long term commitment	**1**		1		
*16. Retail Fuel Industry	Access for consumer to petrol pumps; ie low – risk distribution.	**0**				
17. HMG	Communicate to the consumer/procurer what is (environmentally) good. Although there is some information available, there is room for a more widespread understanding of recommended overall behaviour given available products.	**0**				
*18. HMG	Rational fuel duty: Keep it simple so that it is easy to understand in lay terms.	**0**				

Key: HMG = Her Majesty's Government.
*Further notes on individual points

The following points were simply stated during the workshop as is expressed in the above list of recommendations. In the time allowed for the workshop there was not sufficient time to expand futher.

13, 15 16 and 18. All were general points put forward by the delegates with consensus
14. This was a request for more clarity from industry on their standards. A counter-point was raised by several delegates that there are standards in place. The delegate who raised this maintained that these are not always known.
16. There was not a lot of consensus on this point, which was raised by one delegate.

Annex III - What is the most effective way to market low carbon vehicles and enthuse consumers?

The workshop focussed upon three principal areas of discussion regarding:

- Image and amenity value
- Education and promotion
- Economic incentives and sector targeting.

1 Image & Amenity Value

The group considered the image of low carbon vehicles was important but only so far as vehicles needing to appear 'normal' rather than 'sexy' compared to the average car. The group consensus was that low-carbon cars simply need to have as high a standard of design as 'normal' cars with as much attention given to styling as for any production vehicle. A good example of this is the Ford Escape hybrid (not sold in the UK) which has been called "the automotive equivalent of the iPod". To improve the image of low-carbon vehicles, the group also supported the introduction of low-carbon technologies at the top end of the market – as is already beginning to happen (eg launch of the Lexus RX400h SUV).

The issue of consumers' concerns regarding longevity and reliability of new technologies was also raised (whether valid or misplaced) and it was noted that, in the majority of cases, low-carbon vehicle owners concerns reduce post-purchase.

The use of additional non-fiscal incentives were also recognised as a method of increasing the consumer appeal of low-carbon vehicles. This could be through the preferential use of 'green lanes' or bus lanes for low-carbon vehicles – much in same way that HOV lanes give preference for shared car users. Other suggestions included more dedicated parking and (free) recharging points for low-carbon cars.

2 Education & Promotion

The second key issue was that of education. The workshop attendees recognised the low level of consumer understanding (predominantly private car sector) regarding environmental, cost and technology issues. The group agreed that there was a need to more fully communicate the environmental benefits of low-carbon cars and link these to costs benefits (eg link CO_2 to mpg, an area around which there is poor consumer understanding). In addition to the introduction of the new environmental car labelling scheme (which is a step in the

right direction), a number of suggestions was made to increase consumer knowledge including:

- Schools campaigns – to ensure that transport technology and relevant environmental issues are part of the National Curriculum.
- Clearer and simpler information regarding economic benefits should be made available to potential low-carbon vehicle purchasers (eg use of websites to provide information of impact on capital and running costs). Show-room sales staff could also be involved.
- The need for more highly-publicised low-carbon vehicle demonstrations. Low-carbon fleets using a variety of technologies could be set up around the country as a promotional tool (possibly using existing/emerging Car Clubs that allow potential consumers to experience low-carbon cars for the first time). These could be linked to a national 'mpg challenge' event that demonstrates the performance of the cleanest production cars.
- The use of the media and high-profile celebrity endorsement to promote low-carbon vehicles. It was noted that care needs to be taken in use of media so as not to reinforce existing preconceptions and stereotypes (egs electric vehicles are like milk-floats, hydrogen linked to Hindenburg).

3 Economic incentives

Many workshop delegates were of the opinion that additional long-term economic incentives were required for both the consumer and manufacturer (one comment was that "PowerShift not enough"). Several groups proposed new incentive mechanisms that went beyond, but used aspects of, the existing graduated VED CO_2 banding. These included:

- Introduce VAT incentives for lower-carbon cars – on a sliding scale (eg using CO_2 VED bands)
- Increase CO_2 band differentials – although there was some question over whether this was the most effective fiscal lever.
- Link CO_2 banding to congestion charging and parking fees – this would extend the banding approach to parallel incentives.
- Enhance local incentives such as congestion charge discounts – extend to new Edinburgh scheme and others that are used across the UK.

Sector Targeting

Fleet buyers were identified as having very different buying priorities to private buyers and are more sensitive to overall lifecycle costs. Given their buying-power, fleets were also seen as a key sector to target to promote low-carbon vehicles. A *majority* view was that the economic incentives of low-carbon cars are recognised by fleet buyers, but status barriers remain. Suggested approaches to reduce this barrier were to get Board level interest in fleet purchasing by targeting key players in the decision-making process (similar to what has been done to get travel plans accepted by large organisations). This could be accompanied by identifying several key companies who would most benefit from switching existing fleets to low-carbon vehicles.

It was also recognised influencing private buyers was also important, but that the private car sector was more complex in its reception of cleaner cars.

Annex IV – Stimulating excellence in supply of low carbon automotive technologies

1 The challenges presented by low product volumes and the prevalence of small companies in R&D

Small companies are heavily engaged in the development of low carbon technologies for the automotive sector. These companies experience a number of fundamental obstacles to achieving market penetration of their technologies including that:

- Investment in new technology is inherently high risk. For a small businesses these limits investment in research and development of good ideas.
- Widespread take-up of new technology is dependant upon its adoption by either a vehicle manufacturer or Tier 1 supplier. Most small companies do not have appropriate links into these businesses. In particular, small companies have insufficient international outreach to enable them to develop such links and limited opportunities for profiling the potential of their R&D investment.
- Government policy towards the development of new low carbon technology is perceived to be complex and inconsistent.

The workshop identified 3 key solutions to address these barriers:

1 Opportunities for greater partnerships and collaborations through the development of a market trading floor and supply-chain network for low carbon technologies.
2 A market-recognised low carbon R&D technology map for the UK.
3 Single portal type solution for all possible funding sources of R&D in low carbon technologies.

As a next step, the workshop felt that Cenex could facilitate a number of these solutions and for offer a central point of focus for funding opportunities.

2 Effective communication between R&D companies and system purchasers

Key obstacles were considered to be:

- A disconnect between R&D companies and purchasers at systems and vehicle manufacturers with the former not always clear as to whom a product should be marketed to.
- The absence of a register of R&D companies.

- The large number, and mixed quality of, received ideas for reducing vehicle carbon emissions received from passenger vehicle manufacturers.
- The commercial sensitivity of vehicle manufacturers, such that access to, or dissemination of, detailed product development strategies is low and most likely only once a product enters the market. This hinders cross-industry dissemination of 'good ideas'.

Possible solutions identified by the workshop included:

- Formation of CENEX
- Government mandates and targets to incentivise vehicle manufacturers to work more closely with providers of low carbon technologies.
- Prompt delivery of promised funding that should be linked more closely, and weighted more heavily, to low carbon technology.
- A clearer strategic direction as to UK's role in R&D and an effective funding framework aligned to this.
- Better recognition that new, innovative and successful technology takes time to reach the market.

Annex V - Solutions for traffic reduction; sustainable demand for road transport

1 Public transport

The group agreed that public transport will, in some circumstances, have a role to play in lowering CO_2 emissions in future. While some doubted that public transport could achieve efficient occupancy levels outside metropolitan areas, it was also pointed out that any vehicle, public or private, is inefficient in terms of fuel efficiency and emissions when under-occupied. Beyond the benefits on emissions, public transport was felt to be important for tackling congestion, especially in urban areas.

The London congestion charge was held up as an outstanding success[2] with the overall result carbon negative even after accounting for trip diversions and small increases in traffic outside the central charging zone. It was accepted that congestion charging could not work without adequate population density and London's bus network was already extensive before the new investment.

There was a strong view that people prefer defensible space and door-to-door mobility. Many feel unsafe on public transport. One participant argued for better alternatives to large and ordinary size cars, to make better use of roadspace, reduce congestion, and demand for parking space (eg narrower small vehicles). Another supported this, citing the rise in heavier and more powerful vehicles which are felt by some to be essential for safety in increasingly hostile and congested roadspaces. This is leading to an unmanaged competition for roadspace (viz increase in urban use of 4x4s). Engine efficiency gains are being lost in higher average vehicle weight and size.

For rural/suburban dwellers working in city centres, it was felt that traditional public transport services would not be attractive. Park and ride was also distrusted as a cure-all. However, all agreed that perception of journey reliability is important and affects public acceptability.

Two participants noted that simply switching to new fuels does nothing to reduce the pressure on limited roadspace. There are equity issues about unconstrained private vehicle growth on a finite road network. There is a good case for consolidating passengers into a smaller

[2]Congestion Charging Impacts Monitoring Second Annual Report April 2004, Transport for London. Public transport (mainly bus) accounted for 50%-60% of the 18% fall in peak time car trips. Overall in 2003/4 bus patronage rose 32%, with half the increase attributable to the charge, cycling rose 23%, congestion fell 30%, traffic entering the zone fell 18%. This led to estimated 19% savings in traffic-related CO_2 emissions. NO_X and PM_{10} emissions dropped by 12%.

number of vehicles. One participant noted that market research reveals the public overwhelmingly prefer trams to buses and said that trams deliver higher modal shift than buses and better energy efficiencies.

One participant warned against congestion charges and parking control zones forcing a dispersal of development and services to settlement edges which are more car based.

Up to now, traditional transport modes have been in competition with each other and multimodal journeys have been unnecessarily difficult. Intermodal transfer needs more work especially as technology now makes it easier to integrate buses on demand with, for example rail services. Sweden has bike storage at bus stops, so people can combine modes. Folding bikes need to be better catered for on public transport.

One participant argued that public transport is a public good. Lower income families spend more time on public transport and tend to drive more polluting vehicles. Emissions and equity benefits arise from serving lower income families better.

2 Land Use Planning and Transport

The workshop agreed that the car has lifted constraints on life/work patterns and the resultant scatter is hard to serve by public transport, even in suburban areas of cities. The group discussed whether new settlements in the UK will be built to high enough densities to make public transport viable. Public transport investments (especially rail) could be funded by taxes on property around public transport nodes, but only if development densities are high enough. For example in Bristol an ultralight rail system to link park and ride sites to the centre would cost £3M for a 4.5km scheme, whereas the land value uplift is estimated to be £13M.

Some thought that it would be possible to achieve urban modal splits at European levels like the Dutch new town, Almera or Vienna which has 33% each for car, public transport and walk/cycle. Others were more sceptical. We could learn from York where a well-planned cycle network results in 20% of travel to work journeys by bike. For an example of strong planning restrictions influencing development patterns Portland (Oregon) was cited. Parking controls are critical and car free developments can have a role to play.

Pedestrianised areas in city centre tend to be successful and expand over time. There needs to be a planned approach to public transport access from the outset.

3 Smart Choices

a) Travel planning - workplaces

The group felt that there should be much more emphasis on working with employers to change travel patterns and dedicated government funding for workplace travel advisers. Case study research shows an average drop of 18% in car trips to work where employers implement travel plans fully. School travel plans achieve similar reductions or higher. The Smarter Choices Study concluded that peak hour travel could fall by as much as 20% if a combination of measures were promoted intensively. Evidence shows that up to 60% of employees can be encouraged to car-share to work. Employers need to be incentivised through the tax system to introduce measures to cut single occupancy car-commuting. Multi-employer sites offer the best opportunities, for example airports and business parks. A good example is the Blythe Valley Park in Solihull (near Jn 5 of the M42)[3] where a car sharing intranet site covers all employers. A motor industry example is Rolls Royce in Chichester which gives parking priority to employees who car share. It was said that 'park and car-share' schemes can be very effective. Car sharing at BMW in Munich was assisted by local government which set up regionally agreed designated pick-up points. Belfast runs a scheme to help rural dwellers share the costs of commuting to the city centre[4].

The group agreed that home-working should be encouraged more strongly and rail companies should facilitate this with more flexible trip-based ticketing (to allow season ticket savings for people who don't travel every day). Employers should be encouraged to offer flexible start times to spread demand either side of the peak. Home shopping has great potential to reduce carbon emissions, especially if there is a mechanism for setting up local delivery drop sites.

New technology allows Chiltern Railways to operate a taxi-bus service to Bicester rail station. This relieves pressure from a station where it is difficult to increase parking facilities. The timetable is fixed during peak hours but variable off peak. The group felt that shared taxi and other demand responsive transport solutions are important.

b) Travel planning – Schools

The government has been and continues to be very active in this area and results are very encouraging. But continued financial support (whether from national or regional funds) is essential. Dedicated local

[3] See www.blythevalleypark.co.uk for details of the car sharing scheme and http://www.britishland.com/content/property/dev_bvp.asp?printable=true for details of the site and management company

[4] See Belfast park and share initiative http://www.travelwiseni.com/commuters/parkshare.asp

authority school travel advisers funded by central government have been essential to establishing initiatives. The DfES small capital grants system for schools to make infrastructure improvements help encourage schools to take action on travel behaviour change.

Experiments with "Yellow" school buses in Ilkley show that 64% of children were previously driven to school by car. A key success factor was the density of school trips in the area, which allowed the new Yellow Bus service to save money over the previous local authority provision. Children who walk or cycle arrive at school more alert and an attractive school bus service seems to reduce truancy levels. At one Suffolk School in a new housing estate designed with safe cycle to school routes, the very high cycling levels (around 60%) seem to be linked to outstanding performance in county sports leagues.

c) Walking and Cycling

Towns and cities need to be planned to make walking and cycling feel safer. The group agreed that there is a well-established body of knowledge on how to make walking and cycling attractive yet local authority awareness and action is still poor. There is a need to learn from the success of cities like York and Cambridge. The group regretted the DfT's decision to withdraw funding from the National Cycling Strategy Development Board.

Workplaces with adequate facilities (eg lock-ups, changing areas and showers for cyclists) offer the best incentives for people to change their travel habits. There need to be good promotion schemes by employers to ensure adequate take up of cycling offers (eg UK Petroleum Industry Association finds take-up of tax-efficient company bicycles has been slow). Park and cycle schemes would work well in some places (eg Warwick University campus).

4 Charging and Tax-reform

The group agreed that charging and tax have a very important role to play. VED reform and company car tax has had a profound effect by driving the switch to diesel in the UK. To make a road user charging scheme deliver emissions benefits, it would be essential to vary charges by vehicle CO_2 emissions. The group felt that car-drivers would need to see attractive travel alternatives paid from hypothecated revenue.

A government-led working party has explored how a universal road user charging (RUC) scheme could reduce congestion. The findings suggest an RUC scheme would be most likely to cover all vehicles on all roads but with charges differentiated by time of day (like a mobile

phone tariff). Modelling suggests that people will change their time of travel and car-share more often, especially in areas of high congestion, like the M25. Survey work shows that the public are not unduly worried about a system tracking vehicle movements especially if it results in fairer pricing. Norwich Union are piloting a scheme for charging insurance according to where and when the vehicle is driven. It would be possible have higher charges where traffic growth is fastest but there would also have to be a safety net against charges further dispersing land-use. There is a debate whether a RUC scheme should be revenue neutral (ie accompanied by reductions in other vehicle taxes) or hypothecated to fund transport improvements (either just roads or also new public transport infrastructure and services as in London).

5 Speed Limits

Currently speed limiters can be either advisory or physically limit the vehicle's speed. In future limiters could vary the maximum speed by time of day, proximity of other road users, location (eg by schools at certain times) or road conditions.

The group agreed that from an emissions point of view a vehicle travelling at 50mph emits less than at 70 or 80 mph and quite good carbon reductions could be achieved by dropping the UK national speed limit from 60mph to 50mph. But larger cars have been optimised for higher speeds and fuel efficiency drops off rapidly at slower speeds. The largest gains are to be made on motorways. One suggestion was that strict enforcement of existing motorway speed limits would dampen demand for 3 litre cars and fuel efficiencies would adapt. There is massive potential for cutting emissions if the industry could market a shift to one litre cars. This could not be driven by the UK unilaterally, because car manufacturers serve global markets. However, if the government wants to be serious about emissions savings, they could negotiate international agreements to set and enforce lower motorway speed limits across global markets.

6 Freight

The group felt that handling freight more efficiently needed strong land-use planning policies. More development should be rail connected. The most fuel inefficient links are the local distribution legs of the journey where more economical vehicles and delivery sharing can make a large difference. Delivery trucks are currently designed to be multi-functional whereas more diverse and tailored designs may be required for local delivery.