

# AIR QUALITY STRATEGY REVIEW CONSULTATION: ASSESSMENT OF ADDITIONAL POLICY MEASURES

## Background

1. This paper is an extract from Chapter 3 of the consultation document on the review of the Air Quality Strategy, issued on 5 April 2006, which assessed the contribution of potential additional policy measures that could be deployed internationally, nationally and locally to improve air quality.
2. The impact of the potential additional measures is assessed up to 2020 in terms of monetary cost benefit analysis; exceedances of national and European air quality objectives; impact on habitats and ecosystems; and qualitative assessments focused on impacts on noise, social deprivation, competitiveness and small businesses.
3. A number of potential additional policy measures show positive results for all the assessments. These are: new EU level vehicle emission standards; incentives for their early uptake; incentives for low emission vehicles; national road pricing; reducing small combustion plant emissions; and reducing ship emissions. A table of the list of measures is set out below.
4. A cost effective package of some of these additional measures can generate additional benefit to society (net of additional cost) of up to £1,437m per annum, while at the same time reducing exceedances of the 2010 particles (PM<sub>10</sub>) objective by about 55% (at background locations) and exceedances of nitrogen dioxide objective by about 60% (near urban roads), compared to the baseline. The UK Government and the devolved administrations are considering implementing these measures or arguing for their adoption in relevant international fora.

## Summary of Results of Assessments

5. The Table below provides a simple visual summary of the results under the four types of assessment for each of the measures. A summary of the methodologies, uncertainties and detailed results for all four assessments is provided in Volume 2 of the consultation document in Technical Annex 3 and Regulatory Impact Assessment and in the accompanying Interdepartmental Group on Cost and Benefits (IGCB) report.

6. To compare different measures under different assessments a traffic light assessment, (RAG status) Red, Amber, Green or White is provided for the monetary costs and benefits assessment, the exceedences and the ecosystems assessment under each of the additional policy measures assessed. The qualitative assessment is described as positive or negative under each of the categories assessed qualitatively.

**Table 1: Summary of the results of all assessments**

Measures	Monetary Costs and Benefits analysis	Exceedences assessment	Ecosystem assessment	Qualitative assessment
<b>A</b> New Euro standard V/VI – low intensity	G	G	G	SI+
<b>B</b> New Euro standard V/VI – high intensity	A	G	G	SI+
<b>C</b> Programme of incentives for early uptake of Euro V and VI standards	G	G	G	SI+
<b>D2</b> Programme of incentives to phase out the most polluting vehicles (e.g. pre-Euro)	R	A	Insignificant effects	SI+,N+,H+
<b>E</b> Programme of incentives to increase penetration of low emission vehicles (LEV)	G	A	Insignificant effects	SI+,N+
<b>F</b> Impact of national road pricing scheme on air quality	G	G	Insignificant effects	SI+,N+
<b>G2+G3</b> Low emission zone in London and 7 largest urban areas	R	A	Insignificant effects	SI+,N+,C-,SB-
<b>H</b> Retrofit (diesel particulate filters) DPFs on HDV and captive fleets (buses and coaches)	R	n/a	Insignificant effects	SI+
<b>I</b> Domestic combustion: switch from coal to natural gas or oil	R	n/a	Insignificant effects	SI+,N+,C-,SB-
<b>J</b> Domestic combustion: product standards for gas-fired appliances which require tighter NO <sub>x</sub> emission standards	R	A	Insignificant effects	SI+
<b>K2</b> Large combustion plant measure	A	A	G	C-
<b>L</b> Small combustion plant measure	G	A	Insignificant effects	SI+,SB-
<b>M</b> Reducing national VOC emissions by 10%	R	n/a	Insignificant effects	
<b>N</b> Shipping measure through IMO	G	A	G	
<b>O</b> Combined measures C + E	G	G	G	SI+, N+
<b>P</b> Combined measures C + L	G	G	G	SI+, SB-
<b>Q</b> Combined measures C + E + L	G	G	G	SI+,SB-,N+

**Table 2: Criteria for traffic light assessment**

RAG Status		Cost benefit analysis	Exceedance assessment	Ecosystem assessment
Green		The range of the annual net present value is positive, assuming the health coefficient considered most likely by the WHO & COMEAP (6%).	Measures that reduce roadside exceedences in 2010 or 2020 of an NO <sub>2</sub> or PM <sub>10</sub> objective by 50% or more compared to the baseline.	Measures that generate significant (above 2%) reduction in critical loads exceedence and/or accumulated exceedence for either acidity or nutrient nitrogen.
Amber		The range of the annual net present value spans positive and negative, assuming the health coefficient considered most likely by the WHO and COMEAP (6%).	Measures that reduce roadside exceedences in 2010 or 2020 of an NO <sub>2</sub> or PM <sub>10</sub> objective by between 5 and 49%, compared to the baseline.	Measures that generate little (between 0.5-2%) reduction in critical loads exceedence and/or accumulated exceedence for either acidity or nutrient nitrogen.
Red	White	(Red) The range of the annual net present value is negative, assuming the health coefficient considered most likely by the WHO and COMEAP (6%).	(White) Measures that reduce roadside exceedences in 2010 or 2020 of an NO <sub>2</sub> or PM <sub>10</sub> objective by 5% or less, compared to the baseline.	(White) Measures that generate insignificant or no (less than 0.5%) reduction in critical loads exceedence and accumulated exceedence for acidity and nutrient nitrogen. Also for measures that have not been assessed.
<b>Qualitative assessment</b>				
SI = social impacts(people in deprived areas/lower income groups); N = noise; H = additional health impacts; C = competition; SB = small businesses.			+ = positive impacts expected - = negative impacts expected.	

### Other measures assessed

7. As well as the assessments presented above, a number of work strands within the review have assessed the impact of other potential measures both at national and local level. Some of these measure have the effect of managing demand in the transport sector, in that they seek to influence the amount people use their private vehicles. Other measures are specific illustrative examples of

local measures that could be taken by local authorities - these are discussed in detail in Volume 2 Technical Annex 3.

### **Smarter Choices**

8. Smarter Choice measures include workplace and school travel plans, personalized travel planning, public transport information and marketing, travel awareness campaigns, car sharing, car clubs, teleworking and teleconferencing, cycling and walking. Smarter Choices can complement, rather than substitute for other policies.

9. From the results of the assessment carried out for the review it is clear that there are significant benefits to be gained by increasing the take-up of Smarter Choice measures. However, the appraisal indicates that the air quality benefits (up to £27m) represent only a small proportion (3%) of the total benefits that are dominated by the reductions in congestion.

### **Sustainable Distribution**

10. The objectives of a sustainable distribution policy are to target freight movements and attempt to reduce their impact on the environment, other road users, and to improve safety. The appraisal carried out for the review looked at extending the provision of road haulage schemes which offer drivers best practice advice on fuel saving measures and promote safer and more fuel efficient driving.

11. The assessment indicates that sustainable freight distribution such as road haulage schemes could generate up to £9m annual present value of air quality benefits. These represent about 11% of the total benefits of such a scheme which also includes reductions in emissions of CO<sub>2</sub>. The results indicate that the road haulage industry could realise large benefits by implementing fuel saving technologies and driver training. The most likely reason for these not being realized in the absence of road haulage schemes is a lack of information and knowledge within the haulage industry.

### **Traffic Speed Changes**

12. There are potential fuel efficiency benefits from limiting the speed at which vehicles travel, with related benefits on carbon and air quality pollutant emissions as well as road safety. An additional measure that considers reducing national 70mph speed limits to 60mph has therefore been assessed.

13. The appraisal indicates that reducing 70mph speed limits to 60mph can generate annual air quality benefits of up to £109m. Other benefits included a reduction in emissions of CO<sub>2</sub> and improvement in safety. However the additional

measure assessed shows an overall cost to society (i.e. negative net present value), in spite of the air quality, carbon, fuel savings and road safety benefits. The main reason for this is due to the negative impact on increased travel time. In addition, recent test data suggests that the CO<sub>2</sub> savings may be significantly smaller than previously expected.

14. At a local level however, it is possible that reduced speed limits in certain specific parts of the national and local road network can generate improvement in air quality, safety, noise and some marginal reductions in carbon emissions without causing significant impacts on travel time. Therefore localised reductions in speed limits may be helpful in order to deal with specific air quality hotspots.

### **Local Transport Appraisal Study**

15. The Evaluation of the Air Quality Strategy: Additional Analysis: Local Road Transport Measures (Defra 2005) concluded that there are number of different local transport measures that can successfully deliver improvements to air quality at a local level.

16. Schemes directed at emission improvements such as low emission zones, scrappage schemes and local motorway speed restrictions have the highest improvements in air quality and health benefits; and schemes whose primary aims do not include the reduction of air pollution (such as improvement to public transport) have low air quality benefits compared to the costs of the scheme. However these schemes are implemented mainly to address other concerns (such as congestion or improvement in accessibility) and therefore any air quality benefits would be complementary.

### **Suggested Way Forward**

17. The different assessments carried out clearly show that some measures are better than others in terms of monetised costs and benefits, impacts on our ecosystems, how far they contribute to reducing exceedences of national (and EU) objectives and other areas assessed qualitatively.

18. The analysis has also shown that there are many uncertainties that need to be taken into account. Some uncertainties have only a trivial impact on the results and some could have a larger impact. All the uncertainties are discussed in this review (see Technical Annex 3) and the accompanying third report by the IGCB. However it should be noted that the main analysis presented in this consultation document represents our best estimate based on our current knowledge.

19. The summary of the full assessment indicates that the following additional policy measures could, if implemented, generate significant net benefits to society (i.e. benefits minus costs), significant improvement for our ecosystems

and habitats and help the UK Government and the devolved administrations move closer to the air quality objectives by eliminating a significant number of areas of exceedence:

- Measure A, new Euro standards (low);
- Measure B, new Euro standards (high);
- Measure C, a package of incentives for the early uptake of Euro standards;
- Measure E, a package of incentives to increase penetration of low emission vehicles;
- Measure F, a national road pricing scheme<sup>1</sup> ;
- Measure L, reducing emissions from small combustion plants;
- Measure N, reducing emissions from ships; and
- All combined measures O, P and Q.

20. The following measures can generate health benefits to society and some small reductions in exceedences of critical loads for ecosystems and vegetation but are unlikely to generate positive net present values under the current health coefficient considered most likely by WHO and COMEAP as presented in this consultation document:

- Measure D2, programme of incentives to phase out most polluting vehicles;
- Measure H, retrofitting of diesel particulate filters to HGVs;
- Measure I, domestic combustion, switch away from coal to gas and oil;
- Measure J, domestic combustion, product standards for domestic boilers;
- Measure K2, large combustion plant; and
- Measure M, reducing volatile organic compound emissions by 9% nationally.

21. The other measures assessed indicate that:

- Some local transport measures can be effective at significantly reducing air pollution (e.g. low emission zones);
- All other local transport measures (e.g. those aimed at reducing congestion, or improving public transport) can have an impact in improving air quality even if smaller than those measures directly aimed at air quality improvements;
- Local transport measures, as outlined in the Smarter Choices report<sup>2</sup>, can improve air quality and reduce carbon emissions in a cost effective way;

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<sup>1</sup> A national road pricing scheme could take a variety of different forms and the analysis carried out in the consultation document considers only one possible variant for illustrative purposes in order to give an indication of the potential impact.

<sup>2</sup> Department for Transport, July 2004. *'Smarter Choices: Changing the Way We Travel'*.  
[http://www.dft.gov.uk/stellent/groups/dft\\_sustravel/documents/page/dft\\_sustravel\\_029721.hcsp](http://www.dft.gov.uk/stellent/groups/dft_sustravel/documents/page/dft_sustravel_029721.hcsp)

- Further restrictions on speed limits are not cost effective when applied nationally, but their feasibility in certain limited local areas needs to be investigated further; and
- Some cost effective reductions in emissions (of both air pollutants and carbon) could be achieved by more sustainable freight distribution.

22. Therefore the UK Government and the devolved administrations are considering implementing, or arguing strongly in relevant fora (such as within the European Union), for measures that could:

- generate significant net benefits to society;
- significantly reduce the impact on our ecosystems and vegetation; and
- help us to move closer to our air quality objectives by eliminating a significant number of areas of exceedence across the countries.

Such potential measures are listed in paragraph 19 above.

23. We will also keep the measures in paragraph 20 above under review in the light of any new evidence.

24. Local authorities should have in mind the measures listed in paragraph 21 above as they develop their local transport policies, including for English authorities, implementation of Local Transport Plans within the funding provided for those Plans. It is not the UK Government and the devolved administrations intention that the measures assessed in this consultation document require funding beyond that which has already or will be provided. Therefore the UK Government and the devolved administration will ensure that the final strategy published after this consultation document does not impose additional cost on local authorities, unless additional funding is provided.