



House of Commons
Environmental Audit
Committee

Air quality: A follow up report

Ninth Report of Session 2010–12

Volume I

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Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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The Reports of the Committee, the formal minutes relating to that report, oral evidence taken and some or all written evidence are available in a printed volume.

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Summary

In 2010 our predecessor Environmental Audit Committee reported on Air Quality. It found that poor air quality is shortening the life expectancy of people in the UK by an average of seven to eight months and is costing society up to £20 billion per year. It called for an urgent step change in policy to reduce pollution from transport.

Over the past year the evidence of the damage caused by air pollution has grown stronger. But the UK is still failing to meet European targets for safe air pollution limits across many parts of the country. The step change called for has not happened.

The Government has failed to get to grips with this issue. Most of the measures set out in its response to our predecessors' report are yet to be brought in. Forty out of the UK's 43 assessment zones are failing to meet EU targets and poor air quality is now found to be shortening the lives of up to 200,000 people by an average of 2 years. The Government must not continue to put the health of the nation at risk. It needs to:

- Prioritise action across central Government by putting improving air quality in the Defra Business Plan, and set up a Cabinet Office lead Ministerial Group to oversee delivery of a new cross government air quality strategy;
- Engage with local authority leaders clearly to set out the risks of failing to act to improve air quality, and join up thinking across local authority departments so they all contribute to solving this problem;
- Establish a national framework of low emissions zones to help local authorities reduce pollution from traffic;
- Ensure that thinking on air quality is central to public health reforms that will transfer public health functions to local authorities;
- Launch a public awareness campaign to drive air quality up the political agenda and inform people about the positive action they could take to reduce emissions and their exposure to these.

Four thousand people died as a result of the Great Smog of London in 1952 and this led to the introduction of the Clean Air Act in 1956. In 2008, 4,000 people died in London from air pollution and 30,000 died across the whole of the UK.

1 Introduction

Fifth Report of Session 2009-10

1. The previous Environmental Audit Committee published its report on air quality in March 2010.¹ The background to that inquiry was the prospect of the UK incurring EU fines for non-compliance with air quality directives. The UK was failing to meet EU limits for nitrogen dioxide (NO₂) and particulate matter (PM10).² The report highlighted that life-expectancy was reduced on average by 7-8 months because of poor air quality, while in the worst affected areas this could have been as high as 9 years. Research suggested that between 30,000 and 50,000 people a year were dying prematurely because of it. Air pollution was also causing significant damage to ecosystems.

2. The Committee found that, despite these facts being known, air quality was not seen as a priority across Government, which as a result was failing to meet a range of domestic and European targets. The quantified costs of poor air quality, used to develop policy, were out-dated and did not take account of all the known health effects, treatment costs or environmental damage. Nor did they take account of potential multi-million pound fines that could be imposed by the EU for failing to meet targets. Many Government departments did not seem fully to understand how their policies affected air quality, the impact poor air quality had or its cost to the economy. Awareness needed to be raised and public and political behaviour needed to change if air quality targets were to be met. Transport caused the most exposure to harmful air pollutants, and air quality targets would never be met without a significant shift in transport policy. Local authorities needed to do more to tackle poor air quality, and the Committee concluded that they must be given the information and power to do this.

3. Our predecessors' report recommended a set of actions to raise the profile of air pollution, in local and central government and with the public, and to provide for better policy making:

- Defra raising the profile of the issue by publicising the latest data on premature deaths more widely and making clear the benefits of improving air quality, with Ministers driving this from the top in introducing measures to ensure that policy decisions routinely investigate policy implications and accepting responsibility for policies that worsen air quality.³
- Transport policy changing dramatically to reduce air pollution.⁴
- The Government raising the profile of air quality with all local authorities.⁵

1 Environmental Audit Committee, Fifth Report of Session 2009-10, *Air Quality*, HC 229.

2 PM10 is very fine particulate matter, less than 10µm in diameter.

3 HC (2009-10) 229, para 39

4 para 50

5 para 56

- The Government ensuring early publication of research upon which local authorities could establish low emissions zones.⁶
- The Government educating the public about the health risks from poor air quality, and about how they could limit their exposure and improve air quality.⁷

The Government response

4. After the election the Government published its response in November 2010.⁸ Its overarching theme was a shift of responsibility for delivering air quality improvements away from central government to local authorities, in line with the Government's localism agenda. It recognised that more needed to be done to tackle poor air quality. The approach to do this would be to encourage and guide local authorities rather than require particular actions. It promised that local authorities would be encouraged to communicate on action to tackle air pollution and would leave the means to local discretion through setting transport policies and priorities locally.⁹

5. Those transport projects which were assessed centrally would follow an enhanced 'Green Book' methodology for departmental investment appraisals, that better accounted for air quality impacts.¹⁰ While seeking ways to meet air quality standards in the cheapest way, the Government would apply a 'cost-effectiveness' approach (rather than a 'cost-benefit' approach), so that measures would be used if they helped meet pollution limits even if they involved a net cost.¹¹

6. In May 2010 the Government applied to extend the compliance deadline for European PM10 targets. In March 2011, the European Commission published a Decision accepting the UK's application and granted an extension until June 2011 to comply with the PM10 limits in London. The Government also submitted a time extension notification to the European Commission for NO₂ targets in September 2011.

7. We undertook this inquiry to assess the extent to which the Government had implemented the processes outlined in its response and to assess their results. We heard evidence from James Grugeon from the Healthy Air Campaign, Ed Dearnley from Environmental Protection UK, Professor Frank Kelly from King's College London and Councillor Richard Kemp from the Local Government Group on 8 June, and from the Minister, Lord Henley, and Defra officials on 6 July.

6 para 60

7 para 41

8 Defra, *Government response to the Environmental Audit Committee Report on Air Quality in the UK*, Cm7966, November 2010

9 Cm (2010-12) 7966 para 58

10 para 59

11 paras 23-24

2 The current situation

Health effects

8. A range of significant findings on the health risks of air pollution have emerged since the previous Committee reported. In December 2010, the Committee on the medical effects of air pollution (COMEAP), the Government's advisory body on this issue, published a report on the *Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the UK*¹². This presented the results of calculations of mortality in 2008. The burden of particulate air pollution (specifically PM2.5) was estimated to be an effect equivalent to about 29,000 deaths, or a loss of life expectancy from birth of 6 months. COMEAP speculated that it was reasonable to consider that air pollution may have made at least some contribution to the earlier deaths of up to 200,000 people (the number dying of cardiovascular causes) with an average loss of life of about two years. COMEAP also reported, in November 2010 that, as well as exacerbating asthma in those already having the condition, air pollution might also play a role in the induction of new cases of asthma amongst those living close to busy roads with a lot of lorry traffic.¹³

9. Aphekom, a European research project co-funded by the European Commission, reported its findings in 2011. It estimated that exceeding WHO guidelines for exposure to fine particulate matter in 25 European cities with a total of 39 million inhabitants resulted in health costs of €31.5 billion a year. The study also concluded that those living near main roads in cities could account for some 15-30% of all new cases of asthma in children and chronic obstructive pulmonary disease and coronary heart disease in adults 65 years of age and older. Aphekom further estimated that 15-30 per cent of exacerbations of these illnesses are attributable to air pollution.¹⁴ Research has also shown, that in the very short-term, poor air quality can increase the risk heart attack in those susceptible.¹⁵

10. Initial findings of research by Imperial College and environmental research groups in the Netherlands suggest that poor air quality is hitting the poorest hardest. That research is examining the associations, at a local level, between air pollution and socio-economic groups. Preliminary findings for the Netherlands, presented in September 2011, indicated that pollution levels increased with higher degrees of urbanization, higher numbers of non-western immigrants and lower house prices;¹⁶ while preliminary results for England indicated that poor air quality is associated with areas of low income, low employment and low educational attainment, with differences in exposure to air pollution between different ethnic groups. Several other studies have also shown that elevated levels of pollution are concentrated amongst socially deprived neighbourhoods.¹⁷

12 COMEAP, *The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom*, 2010

13 COMEAP, *Does Outdoor Air Pollution Cause Asthma?*, 2010

14 <http://www.aphekom.org>

15 <http://www.bbc.co.uk/news/health-14978027>

16 Fischer P, de Hoogh K, Marra M, Kruize H, Hoek G, Beelen, Vienneau D, Briggs D. *Associations Between Small Area Levels of Air Pollution and Socio-Economic Characteristics in the Netherlands and England* (Abstract). *Epidemiology* 2011. In press

17 Goodman A, Wilkinson P, Staffor M, Tonne C, *Characterising socio-economic inequalities in exposure to air pollution: A comparison of socio-economic markers and scales of measurement*. *Health & Place* 2011;17:767-774

11. The main cost of air pollution arises from these adverse health effects on people. Defra's Air Quality Strategy estimates that the health impact of man-made particulate air pollution experienced in the UK in 2005 cost between £8.5 billion and £20.2 billion a year. These figures were calculated by the Interdepartmental Group on Costs and Benefits (which includes Defra, the Department of Health and the Department for Transport) using a survey of people's willingness to pay for avoiding the adverse health effects of air pollution.

12. In our current inquiry Defra told us that substantial progress has been made in quantifying and understanding the health and ecosystem impacts of air pollution as a result of recent reports from COMEAP and Defra's publication of the National Ecosystems Assessment, which puts values on ecosystems services.

Environmental Damage

13. Air pollution also causes significant damage to the environment. Our predecessor Committee reported that ozone reduces the yield of wheat grown in southern Britain by 5-15%.¹⁸ Sixty percent of sensitive habitats exceed the critical load for nitrogen, of which atmospheric pollution is a major cause. The Joint Nature Conservation Committee, Countryside Council for Wales, Natural England and Scottish Natural Heritage told us that oxides of nitrogen (NO_x) harms UK biodiversity and is compromising our ability to deliver current conservation commitments such as the objective to achieve favourable conservation status under the Habitats Directive.¹⁹

EU Targets

14. European policies aim to improve air quality by reducing exposure to air pollution. The EU sets legally binding concentration limit values for specific air pollutants, which are also reflected in the UK's national air quality objectives. The UK is still not meeting EU limit values or UK objectives for PM10 particulate matter and NO₂ and is predicted by some to fail to meet targets for fine particulate matter (PM2.5).²⁰

Particulate matter

15. Since 2005 the UK has reported exceeding PM10 limit values in 8 zones, though these are now only exceeded in London. In April 2009 the Government submitted an application to seek exemption, as provided under EU law, from the obligation to comply with PM10 targets until 2011.²¹ The application was accepted. Under European Union air quality laws daily pollution levels of PM10 must not be above the legal limit on more than 35 days in a

Briggs D, Abellan J, Fecht D, *Environmental inequity in England: Small area associations between socio-economic status and environmental pollution*. Social Science & Medicine 2008;67:1612–1629

18 HC (2009-10) 229

19 Ev w 8

20 Defra, *Air Pollution in the UK 2010: Compliance Assessment Summary*, 2011 & Ev 29

21 HC (2009-10) 229, para 12

year. The Campaign for Clean Air in London reported that by 21 April London had already exceeded this target for 2011; the worst performance in 8 years.²²

16. The now-extended deadline for commencing compliance with the EU limit values for PM10 was 11 June 2011. A number of short term measures have been introduced at ‘hot spots’ in London to reduce PM10 levels and achieve EU targets, while longer-term measures in the Mayor’s Air Quality Strategy are being implemented. These short-term measures include re-routing the most polluting buses and spraying roads with adhesives to suppress particulate matter.²³ Despite these measures PM10 daily limit values are still being exceeded (at the time of publication 48 exceedences had been reported).²⁴ **There is still much to be done to resolve the situation in London. The Olympics Delivery Authority has made a commitment to holding the greenest Olympics ever, but we note that it is proving difficult to for the Mayor to make the required policy trade-offs and achieve acceptable levels of air quality. We welcome Defra’s consultation to invite views on the short-term measures that have been adopted in London, but the fact that these measure have had to be used clearly indicates that air quality is not being addressed in the long-term. Further measures must address the causes of air pollution and must be more credible than spraying the roads with adhesive.**

17. EPUK told us that to date little attention has been given by the Government to 2020 targets for PM2.5.²⁵ A recent report, *PM2.5 in the UK*, by the Scottish and Northern Ireland Forum for Environmental Research (SNIFFER) concluded that the challenge of meeting PM2.5 targets is greater than previously anticipated, and that control strategies for PM2.5 may need to be significantly different to those used for PM10 and that further research is required to understand all its sources.²⁶

Nitrogen dioxide

18. Defra regard meeting EU limits for NO₂ in areas exceeding targets as presenting a much more significant challenge than PM10, requiring additional action to limit emissions from transport in many urban areas across the UK.²⁷ The limits for NO₂ came into force in January 2010. For 2010 40 of the 43 UK air quality assessment zones did not achieved compliance.²⁸ On 9 June 2011 Defra launched a consultation on an application under EU law to postpone the compliance date for NO₂ limits until 2015. As Client Earth and the Chartered Institute of Water and Environmental Management pointed out, Defra’s consultation document shows that compliance will not be achieved in 17 of 43 zones by 2015, even under a best case scenario. As such, they argued, it would be difficult to see how an extension could be granted, and Client Earth is now seeking judicial review of the

22 http://www.cleairinlondon.org/blog/_archives/2011/4/21/4800288.html

23 Ev w 52

24 London Air Quality Network Results of Air Quality Strategy Objectives for PM10 for 2011.
<http://www.londonair.org.uk/london/asp/advstatsaqobjresults.asp?site1=MY7&site2=&site3=&site4=&sday=1&smont=h=jan&year=2011&Submit=View>

25 Q 4

26 SNIFFER, *PM2.5 in the UK*, 2010

27 Ev 45

28 Ev w 55; Ev w 43; ,Defra, *Air Quality Plans for the achievement of EU air quality limit values for nitrogen dioxide (NO2) in the UK*, 2011

Government's application.²⁹ The 30 air quality plans for England were amended following the consultation and, along with 10 plans covering Scotland, Wales and Northern Ireland, were submitted with the application for an extension to the European Commission on 26 September 2011.

19. Some organisations have suggested that the Government is hoping that the EU will reduce limit value thresholds for NO₂ on the back of pressure from the UK and other Member States that are also failing to meet targets. An EU review of air quality legislation is required by 2013.³⁰ The Minister did not accept that the Government were hoping that EU limits would be "watered down", but conceded that:³¹

We still would like to get there but I think it is very unlikely. Therefore, we need to negotiate with the Commission about where we are going, how we are going to get there and what the timescale should be [...]

20. EU limit values are health-based standards set by Technical Working Groups of international experts set up by the European Commission, and are consistent with WHO guidance. Since these values were set, the evidence base for the health effects of poor air quality has grown rather than weakened. **As such we can see no circumstances in which a delay in achieving these targets or a lessening of these targets would be acceptable. Any delay or lessening would simply put more lives at risk. We see a case for arguing that fines would not be appropriate if the means for delivering them is not available, but this case has not yet been adequately made. The Government must set out how it intends to achieve EU targets. It must say, in its response to this report, whether or not it intends to push for less stringent targets when air quality legislation is reviewed in 2013. Its apparent tactic of avoiding EU fines by applying for extensions to limit value targets, with an expectation that target values will be diluted in the near future, is putting the health of UK residents at risk.**

21. **Applications for compliance extensions which lack sufficient policy measures to back them up could result in unlimited fines from the European Commission. The Government must now embark on a strategy that aims to achieve air quality targets.**

22. Defra's consultation for an extension to meet EU NO₂ limit values states that Greater London compliance is not expected to be achieved before 2025.³² EU air quality limits for NO₂ are not met at Heathrow and the surrounding area. DfT recognises that aircraft engine emissions, airport operations and road transport to and from airports contributes to NO₂ pollution near airports.³³ **In the event of a third runway being developed at Heathrow, compliance with NO₂ limits would be impossible.** The Government has made clear their opposition to a third runway at Heathrow and BAA announced in May 2010 that it had stopped work on a planning application for such a proposal. **However, for the Government to make the case that compliance with EU air quality limits throughout**

29 <http://www.clientearth.org/news/press-releases/uk-government-u-turn-in-face-of-legal-challenge-to-londons-air-pollution-plan-1574>

30 http://ec.europa.eu/environment/air/review_air_policy.htm

31 Q 60

32 Defra, *Air Quality Plans for the achievement of EU air quality limit values for nitrogen dioxide (NO₂) in the UK*, 2011

33 DfT, *Developing a sustainable framework for UK aviation*, 2011

Greater London will be maintained beyond 2015, their application for an extension to meet EU limit values, the forthcoming Sustainable Framework for UK Aviation and the forthcoming Aviation National Policy Statement must contain an explicit prohibition of a third runway at Heathrow.

3 Areas for action

The priority given by Defra

23. Under the previous ‘public service agreement’ system of departmental targets, DfT and Defra were given a joint responsibility for achieving air quality targets. Government priorities and commitments, and accountability against these, is now managed through departmental business plans.

24. Business plans have been published by all government departments. They are the key tool of the Government for making departments accountable for implementing the reforms set out in the Coalition Agreement, and give the public the opportunity to check that departments are meeting their commitments. Business plans include key indicators against which Government will publish data to show the cost and impact of public services and departmental activities. As explained to us by the Minister for Government Policy in a previous inquiry, they are also the means by which Ministers are internally held to account within Government.³⁴

25. There are no air quality actions for Defra or DfT in their departmental business plans. The omission is surprising in light of the Government’s statement in its response last year to our predecessor Committee that it considered ‘more needs to be achieved’ and the commitment in the Coalition Programme for Government to work towards full compliance with the EU air quality standards.³⁵ When we asked the Minister why air quality had not been included in the Defra business plan he told us that:³⁶

The fact that air quality is not explicitly mentioned in the current business plan, published in May 2011, does not in any way reflect a lack of importance we attach to this area, especially since it is a cross government, coalition commitment to work towards full compliance with EU air quality standards; this remains a major driver for action which would not be increased if air quality were covered in the Defra Business Plan itself. In addition our Natural Environment White Paper sets out more specific commitments on air quality including our consultation on plans for the achievement of NO₂ limit values, investigation of low emission zones and improving arrangements for local air quality management and delivery. This, with the coalition commitment, will continue to ensure that air quality is given priority across government policies.

34 Environmental Audit Committee, Fourth Report of Session 2010-12, *Embedding sustainable development: the Government’s response*, HC 877

35 Defra, *Government response to the Environmental Audit Committee Report on Air Quality in the UK*, Cm7966, November 2010

36 Ev 48

26. The fact that air quality is not included in any of these departmental business plans is symptomatic of its low priority. We are not satisfied that air quality's inclusion in the Natural Environment White Paper will provide sufficient drive to deliver the EU limit values targets. In particular, we fail to see how the Government's consultation on NO₂ limit values can provide a solution, because its proposals for action sit alongside explicit acceptance that targets will not be achieved. In any case neither of these processes would provide the transparency and accountability that inclusion in the business plans would provide, and that the issues clearly merit. **Defra must include progress towards achieving EU air quality targets for particulate matter and nitrogen dioxide in its business plan at the next update. If these targets are not included, we expect the Minister for Government Policy to report on why this is the case and what discussions he has had with Defra on this during his review of their business plan.**

Joined up policy

27. The Government and the devolved administrations published the latest Air Quality Strategy in 2007.³⁷ This recognised that air pollution has wide-ranging environmental impacts, from loss of biodiversity and reduced crop yields to a potential contribution to climate change, and that air quality is affected by a wide range of policy areas. The spread of causes and effects of poor air quality across departments means it is vitally important that thinking on this is joined-up across Government. Our predecessors' report found that links between departments required improvement. Defra and DfT had quarterly liaison meetings between their officials, and the Cabinet Office Strategy Unit included air pollution in its analysis of the wider costs of transport in English urban areas, but consistently joined-up policy across all relevant departments was lacking. It was essential that DECC, DCLG, DoH and the Treasury also engaged and prioritised air quality issues, which they appeared to have been somewhat reluctant to do.³⁸

28. One area in particular where air quality needs to be linked with other policy is on climate change. There are benefits of carbon emissions reduction policies for both climate change and air quality, for example in the promotion of electric vehicles and other new technologies that reduce both greenhouse gas emissions and air pollution. In these cases a coherent and consistent regulatory base is essential to drive innovation and instil investor confidence in developing products and services. For this to happen a clear message, one that involves engagement from Defra, BIS, DfT and DECC, must be developed. At the same time there can be conflicts, for example in encouraging diesel vehicles over petrol: Diesel cars are generally more energy efficient and produce less carbon dioxide per mile than a petrol equivalent, but they can also produce up to 20 times as much PM10 emissions.³⁹ Environmental Protection UK (EPUK) wanted DECC to concentrate on securing maximum policy benefits from their renewable policies rather than simply focusing on a narrow carbon reduction remit.⁴⁰ The Environmental Research Group notes that climate change targets – an 80% reduction in CO₂ equivalent emissions by 2050 –

37 Defra, *Air Quality Strategy for England, Scotland, Wales and Northern Ireland*, 2007

38 Environmental Audit Committee, Fifth Report of Session 2009-10, *Air Quality*, HC 229

39 HC Deb, 3 Oct 2011, col 1388W

40 Ev 29

could generate major improvements in air quality and public health if co-benefits are identified at an early stage.⁴¹ However, Defra told us that inter-department discussion only occurs on an ‘ad hoc’ case by case basis at official level, and that such discussions are undertaken in the context of other local environmental matters, such as noise pollution. There is no formal structure at a Ministerial level connecting policy decisions with air quality issues and it is difficult to see any formal structures that join up thinking at official level.⁴² The Local Government Group told us:

[...]it is difficult to comment on the effectiveness of the Government’s strategy due to a lack of transparency about what the strategy is. We are aware of various pieces of work on air quality being undertaken, but an up-to-date, coherent strategy taking account of all measures and planned action across government departments does not appear to exist, at least as far as we are aware. The most recent publicly available UK Air Quality Strategy was published in 2007 and is widely considered not to be fit for purpose. The LG Group has raised this with the Government, who have informed us that its application to the European Commission for a time extension for nitrogen dioxide limit values will in effect act as its strategy.⁴³

29. A lack of joined-up thinking between departments is especially worrying while the Government is undertaking the ‘Red Tape Challenge’ to reduce regulation. We recognise that the existing legal framework is somewhat disjointed and could benefit from reorganisation. Client Earth told us that it should be consolidated to clarify the legal duties and powers of central government, local authorities and devolved administrations.⁴⁴ However, this must be done carefully. Air quality could be affected by changes to regulations in a range of policy areas and any impacts to air quality must be explored before regulations are cut.

30. The Government should produce an action plan setting out how air quality is to be considered in policy development across Government, to encourage co-benefits with other policies, to discourage policy conflicts and to assess the impacts of consolidating air quality regulations. It should establish a ministerial group to oversee and ensure adherence to the action plan. The Cabinet Office, because of its role in directing policy across departments, should take the lead in implementing this.

Support for local authorities

31. The Government’s response to our predecessors’ report acknowledged that more needed to be done to tackle poor air quality. But, where that involves local authority action the approach would be to encourage and guide local authorities rather than require particular actions. This is the theme of the localism agenda. The response promised that:

41 Ev 25

42 Q 86

43 Ev 35

44 Ev w 43

- Local authorities would be encouraged to communicate locally action on air pollution but leaving the means to local discretion;⁴⁵
- Local authorities would be able to set transport policies and priorities locally, while those transport projects which are assessed centrally would follow an enhanced Green Book methodology;⁴⁶
- Government would ensure local authorities have the ‘tools’ to address air quality, without ‘unnecessary form-filling and bureaucracy’⁴⁷;
- Rather than develop a ‘national framework for low emissions zones’, as the Committee recommended, local authorities would decide on these.⁴⁸

32. The response said that the new National Planning Policy Framework (NPPF) would address ‘environmental and social priorities’ as well as economic factors and that DCLG would be reviewing how local authorities’ role on air quality could be maintained under the localism agenda.⁴⁹ We will explore these planning issues in more detail in our inquiry into the NPPF. It also envisaged that public health reforms would give local authority-based Directors of Public Health enhanced powers and ring-fenced budgets to co-ordinate local programmes aimed at improving health and wellbeing, which could address air quality issues at local level.⁵⁰

33. Under the Environment Act 1995, local authorities have a duty to work towards improved air quality. Local authorities are required to carry out regular reviews and assessments of air quality in their area against the objectives in the Defra Air Quality Strategy. Where any of these objectives are not being achieved, authorities must designate air quality management areas and prepare and implement remedial action plans to tackle the problem. Once an air quality action plan has been set, local authorities must report to Defra or the relevant devolved administration on delivery against this action plan.

34. As well as their specific role to protect the environment, local authorities are responsible for other functions that may affect air quality, and local air quality improvements are often an indirect result of measures to tackle congestion, road safety or employment. Good cooperation between transport, regulation, air quality, climate change, public health and spatial planning departments, as well as with partner organisations, is essential to ensure a strategic approach to improving the quality of life for those living near to busy roads and junctions.

35. In its guidance on Local Transport Plans, DfT expects authorities to consider their contribution to national transport goals as over-arching priorities for their local transport plans. These include reducing social and economic costs of transport to public health, including air quality impacts, in line with EU obligations. DfT also provides guidance on

45 Cm (2010-12) 7966, para 47

46 *ibid*

47 *ibid*

48 Cm (2010-12) 7966, paras 67, 72

49 Cm (2010-12) 7966, paras 67, 72, para 62

50 Cm (2010-12) 7966, paras 67, 72, para 56

assessing the impact of transport schemes on local air quality.⁵¹ It requires the impacts on air quality to be appraised and monetised.

36. The evidence we have received suggest that there is no longer a significant issue about providing local authorities with the guidance to deliver local air quality management. Instead, the problem now lies in empowering local authority environmental health officers with the levers to deliver change, and putting the air quality issue on the agenda of key decision makers at the highest levels of local government. The Government's review of Local Air Quality Management found that local politicians tend to accord air quality a low priority.⁵² the Healthy Air Campaign told us that raising air quality as a priority is particularly difficult while many local authorities have to cut their budgets and are reducing their environmental health departments.⁵³ The Local Government Group told us that Government needs to engage actively in promoting a clear message about the impacts of poor air quality with those in key decision making positions in local authorities.⁵⁴

37. The Government must engage with local authority leaders to set out clearly the risks of failing to act on improving air quality. It must help local authorities to join up thinking across their departments to help identify where conflicts arise and where improvements can be made. This needs to be done in a way that influences decisions taken by local enterprise partnerships and planning authorities and takes account of new public health reforms. Government engagement with local authorities also needs to address establishing a national framework for low emissions zones (paragraph 38) and a public awareness campaign (paragraph 43).

38. The Localism Bill would provide a means by which EU fines from failure to comply with air quality targets could be passed on from central government to local authorities. However, there is ambiguity about how the responsibility for delivering air quality improvements is divided between local authorities and central government. The LG Group have called for clearer understanding between central and local governments about which levers each can use to deliver change. Councillor Richard Kemp told us:

[...]at the moment it seems to me there is a lot that has just been devolved to local government, but frankly, if you are Warrington Council and you have two major motorways intersecting in the middle of your town, and you have another one on the fringe and you are not far from Manchester Airport, there are some things that you could and should do but there are some things that are clearly outside your control. We need to split who should be doing what so there is clarity between us. If we did that, then we could come to local agreements, council by council.⁵⁵

39. A blanket approach of transferring EU fines to those local authorities failing to meet air quality targets would be unfair. The causes of poor air quality are often beyond an individual authority's control. Any fines must take account of contributing sources of

51 DfT, *Transport Analysis Guidance*: 3.3.3, 2011

52 Defra, *Review of Local Air Quality Management*, 2010

53 Q 15

54 Q 22

55 Q 19

pollution from beyond a local authority's boundary and policy areas beyond its control. Fines should also take account of a local authority's failure to act in improving air quality. **Transferring EU fines to local authorities might help to deliver air quality improvements but, if it pursues this, the Government must establish a mechanism where it only passes on a share of fines proportionate to a local authority's ability to influence local air quality. Many of the causes of poor air quality arise from policies for which central Government is responsible. Otherwise, the process is likely to result in lengthy and costly legal battles, and risks being seen simply as cutting local government financial support. Before it does this, the Government needs to assess the resource requirements of individual local authorities, depending on their circumstances, to be able to deal efficiently with the air quality challenge at a time of squeezed budgets.**

Health reforms

40. The Health and Social Care Bill envisages directors of public health being located within local authorities, having new public health improvement and health protection duties. An air quality indicator was included in the draft public health outcomes framework.⁵⁶ The LG Group argued that it is useful to have consistent baseline evidence to allow councils to compare performance, and that the new framework for health, social care and wellbeing could lessen reporting burdens and ensure all partners are working together on the same priorities.⁵⁷

41. James Grugeon, from the Healthy Air Campaign, told the committee that the transfer of public health duties to local authorities would also provide a significant opportunity to join up action between public health and environmental health departments to tackle air quality problems, to link up funding and potentially create greater resources for local authorities to tackle air pollution.⁵⁸ Councillor Richard Kemp recognised the greater influence that public health authorities may have in steering other areas of local policy:⁵⁹

[...] we are going to make sure that public health is an important part of the work that we do within local government, not necessarily because they are a big department, but because they move into local government they are able to challenge our housing policy, our transport policy, our education policy, what we do in our parks, what we do in our youth clubs, and so on. There is a real thirst from most of the professionals for the move over.

As our witnesses noted, this will require direction at a national level with engagement from Department of Health. **The Government must take full advantage of public health reforms to improve local authorities' abilities to improve air quality. In particular the Government should introduce indicators to measure public health improvements from better air quality in its public health reforms.**

56 DoH, *Healthy Lives, Healthy People: Transparency in Outcomes Proposals for a Public Health Outcomes Framework, 2010*

57 Ev 33

58 Q 24

59 Q 25

Low emission zones

42. The European Union plays a key role in regulating pollution from road vehicles by setting European wide fuel standards and emission limits. Significant emission reductions from road vehicles have been achieved by fuel-based standards. The introduction of unleaded petrol and changes to the sulphur content of fuel led to a 99% reduction in lead emissions, a 96% reduction in sulphur dioxide.⁶⁰ The use of duty differentials incentivised rapid uptake of these cleaner fuels. Fuel standards, however, cannot be used to control NO₂ or PM10 emissions in the same way. Emission and fuel standards work to reduce emissions of air pollutants from vehicle tail pipes. Recent research, however, shows that vehicle brakes and tyres emit at least as much particulate matter.⁶¹ These types of emissions remain unregulated.

43. Retrofitting is a fast-acting solution to minimise particulate emissions from diesel exhausts, and to make older vehicle engines meet current and future emission standards. The technology works by capturing these particles or pollutants. Government incentives for retrofitting exhaust systems are limited to the Reduced Pollution Certificate scheme, which offers reductions in Vehicle Excise Duty for lorries and buses that meet new emissions standards before they become mandatory. In its application for an extension to meeting the PM10 EU limit value deadline until 2011, the Government concluded that a mass diesel retrofitting programme for all polluting road vehicles would not be cost beneficial compared to a partial exemption which would provide additional time to enable planned measures to come into effect.⁶² Several other EU countries offer direct incentives to encourage retrofitting for diesel engines. France, for example, offers a grant for the fitting of particulate filters on buses and the Netherlands provides subsidies for the fitting of particulate filters to heavy-duty vehicles.

44. Vehicle emission standards ('EURO standards') have been effective in reducing air pollution from road vehicles, including PM10 and NO_x emissions. However, the reductions achieved by EURO standards have been more modest than those resulting from fuel standards. This is because, even though they are mandatory for new vehicles, they do not apply to vehicles already on the roads. Furthermore, many NO_x abatement technologies used to achieve EURO emissions levels fail to work efficiently in urban driving cycles, and so, in larger cities, the emissions reductions have not been as good as predicted. Recent data on emissions of regulated pollutants shows that there is still capacity for EURO standards to reduce emissions of NO_x and particulate matter from all vehicles further, particularly from diesel vehicles⁶³. The European Union is introducing further EURO standards on pollutant emissions from both light and heavy-duty road vehicles, particularly for emissions of NO_x and particulate matter. As compliance with some of these standards will not be mandatory for several years, the impacts will not be seen until 2015 at the earliest.

60 Defra, *An Evaluation of the Air Quality Strategy*, 2004

61 Ev 25

62 NAO, *Air quality: Briefing for the Environmental Audit Committee*, 2009

63 *ibid*

45. Policies to encourage the use of cleaner vehicles include car scrappage schemes, tax incentives and low emission zones (LEZs), which deter the most polluting vehicles from entering a particular area. In Germany, there is a national framework for low emission zones, which facilitates local implementation of low emission zones, and, importantly, provides certainty to businesses that their fleets will be compliant with all emission zones within the country. There is no such national legislative framework in the UK. The Government response to the previous report noted that rather than develop a national framework for LEZs, local authorities would be able to decide individually on implementing these.⁶⁴ Since the Government response was published, Defra have conducted an impact assessment of the costs and benefits that such a scheme would entail. When account is taken of the costs of air pollution, this estimates a net monetary benefit for implementing a national framework. The Environmental Industries Commission regards a national framework for LEZs as a key driver in delivering 'green' economic growth.⁶⁵

46. In developing the London LEZ, Transport for London worked with authorities such as the Vehicle and Operator Services Agency and the Vehicle Certification Agency to develop certification of approved retrofit technologies. This certification could form the basis of a nationally recognised standard, which local authorities could use as part of their own LEZ schemes under a national framework. This would make it much easier for a local authority to establish a local LEZ and to prescribe what standard of vehicle would be allowed to enter, provided that they operate within the parameters of the national framework. However, lessons must be learnt from the failure of EURO standards to deliver the anticipated emissions reductions. Approved technologies for an LEZ must be proven to work effectively under the driving conditions of particular LEZ areas. **As a matter of urgency, the Government must set up a national framework for low emission zones to establish a recognised standard for emissions and vehicle identification, supported by a national certification scheme of retrofit technologies.**

Increase public awareness

47. The public are also a key player in the delivery of cleaner air. They could benefit from better understanding the health impacts associated with air pollution and what action they can take to reduce these impacts. In many aspects of their lives, people can take action to reduce the impact that air pollution has on their own health. Despite this, there remains a lack of clarity in how the Government communicates the health risks of air pollution for individuals, both in terms of differing levels of personal exposure to pollutants, and how susceptible people are to the effects of pollution. The Air Quality Management Resource Centre notes that Government reports have identified the health impacts of poor air quality in the UK as being almost twice those of physical inactivity (£20 billion a year compared to £10.7 billion) yet it fails to receive the same level of attention within medical and media circles.⁶⁶ Similarly, some studies have suggested that the cardiovascular risk of

64 Cm7966, November 2010, paras 67, 72

65 Environmental Industries Commission, *Manifesto to Government*, 2011

66 HC (2009-10) 229

exposure to traffic pollution may well be similar to that from passive smoking, though it does not get comparable attention.⁶⁷

48. EPUK say Government documents and statements have consistently downplayed the health impacts of air pollution. Often repeated quotes from the current UK Air Quality Strategy include ‘99% of the UK meets European air quality standards’.⁶⁸ This statistic is for geographical area rather than the percentage of the population affected – the 1% of the UK that does not meet the standards includes some of our most densely populated urban areas, whilst much of the 99% that is ‘clean’ is sparsely populated countryside. Another commonly repeated statistic is that ‘air pollution is currently estimated to reduce the life expectancy of every person in the UK by an average of 7-8 months’. This suggests that the impacts are evenly spread across the UK population, when in fact the impacts are concentrated in particular areas and the health impacts for those that live and work there are actually severe.

49. The Government response to our predecessors’ report was that there would be no national campaign on air quality. The Government’s own review of Local Air Quality Management for Defra reported that:

We would like to see the development of simpler and clearer messages in three areas in particular. First, while recognising that it is important not to prompt unjustified public alarm, we consider that the health impacts of poor air quality need to be communicated much more effectively. In particular, for communication purposes, we would like to see less reliance on measurement in terms of reduced average life expectancy, and the development and publication of new comparative measures which convey the health impacts in a way which is more meaningful to a non-expert audience.⁶⁹

50. In June 2011 COMEAP reported on a review it was asked to undertake by Defra on the Air Quality Index, which is used to communicate information about real-time and short-term forecast levels of outdoor air pollution. The review found that there is both a lack of awareness amongst the public regarding the links between air pollution and ill-health, and a lack of understanding concerning existing air quality information. It recommended that greater public awareness be achieved through the updating of the Air Quality Index.⁷⁰

51. The Government already supports communications expenditure which helps to raise awareness about air quality. This includes systems to inform members of the public, including vulnerable groups such as children and the elderly, about air quality risks. However this information could be used to target not only those affected by poor air quality but also those able to influence its creation. At our evidence session on 8 June all our witnesses called for a public awareness campaign on the health effects of poor air quality. They believed that it would be the most effective thing the Government could do to tackle the problem. However, there appears to be reluctance in Government because of

67 HC (2009-10) 229

68 Ev 31

69 Defra, *Review of Local Air Quality Management*, 2010

70 COMEAP, *Review of Air Quality Index*, 2011

measures to reduce spending on public awareness campaigns more generally. The Minister told us the Government had decided in March that only essential expenditure on new advertising and marketing would be allowed and that central approval would be required for government campaign spending over £100,000. He noted that:⁷¹

We are very interested in the Healthy Air Campaign sponsored by Environmental Protection UK and launched in July 2011, and are keen to explore ways of working with them to support their campaign and to promote awareness through their activities.

52. The costs to society from poor air quality are on a par with those from smoking and obesity. A public awareness campaign would be the single most important tool in improving air quality. It should be used to inform people about the positive action they could take to reduce emissions and their exposure. It should also be used to provide an impetus for action in local authorities to deliver more joined up thinking on achieving air quality targets. The Government should provide Defra with the means to launch such a campaign. This could be done in collaboration with existing campaigning groups, to ensure maximum cost effectiveness and coverage.

Conclusion

53. A year and a half since our predecessor Committee's report was published and nearly a year since the Government response, we have received no meaningful evidence to suggest that progress towards meeting air quality targets has improved. Most of the measures set out in the Government's response are yet to be brought in. There is nothing to suggest that the Government's approach, to shift responsibility to local authorities, will achieve the results required. In the meantime the evidence on the impacts of poor air quality is stacking up and we are failing, and coming closer to failing, more EU limit value targets.

54. It is estimated that around 4,000 people died as a result of the Great Smog of London in 1952.⁷² That led to the introduction of the Clean Air Act in 1956. In 2008, 4,000 people died in London from air pollution and 30,000 died across the whole of the UK. The Government needs to act now, as Government did in the 1950s, to save the health of the nation.

72 Qq 15, 16

Conclusions and recommendations

Particulate Matter

1. There is still much to be done to resolve the situation in London. The Olympics Delivery Authority has made a commitment to holding the greenest Olympics ever, but we note that it is proving difficult for the Mayor to make the required policy trade-offs and achieve acceptable levels of air quality. We welcome Defra's consultation to invite views on the short-term measures that have been adopted in London, but the fact that these measures have had to be used clearly indicates that air quality is not being addressed in the long-term. Further measures must address the causes of air pollution and must be more credible than spraying the roads with adhesive. (Paragraph 16)

Nitrogen Dioxide

2. We can see no circumstances in which a delay in achieving [EU limit value] targets or a lessening of these targets would be acceptable. Any delay or lessening would simply put more lives at risk. We see a case for arguing that fines would not be appropriate if the means for delivering them is not available, but this case has not yet been adequately made. The Government must set out how it intends to achieve EU targets. It must say, in its response to this report, whether or not it intends to push for less stringent targets when air quality legislation is reviewed in 2013. Its apparent tactic of avoiding EU fines by applying for extensions to limit value targets, with an expectation that target values will be diluted in the near future, is putting the health of UK residents at risk. (Paragraph 20)
3. Applications for compliance extensions which lack sufficient policy measures to back them up could result in unlimited fines from the European Commission. The Government must now embark on a strategy that aims to achieve air quality targets. (Paragraph 21)
4. In the event of a third runway being developed at Heathrow, compliance with NO₂ limits would be impossible. However, for the Government to make the case that compliance with EU air quality limits throughout Greater London will be maintained beyond 2015, their application for an extension to meet EU limit values, the forthcoming Sustainable Framework for UK Aviation and the forthcoming Aviation National Policy Statement must contain an explicit prohibition of a third runway at Heathrow. (Paragraph 22)

The priority given by Defra

5. Defra must include progress towards achieving EU air quality targets for particulate matter and nitrogen dioxide in its business plan at the next update. If these targets are not included, we expect the Minister for Government Policy to report on why this is the case and what discussions he has had with Defra on this during his review of their business plan. (Paragraph 26)

Joined up policy

6. The Government should produce an action plan setting out how air quality is to be considered in policy development across Government, to encourage co-benefits with other policies, to discourage policy conflicts and to assess the impacts of consolidating air quality regulations. It should establish a ministerial group to oversee and ensure adherence to the action plan. The Cabinet Office, because of its role in directing policy across departments, should take the lead in implementing this. (Paragraph 30)

Support for local authorities

7. The Government must engage with local authority leaders to set out clearly the risks of failing to act on improving air quality. It must help local authorities to join up thinking across their departments to help identify where conflicts arise and where improvements can be made. This needs to be done in a way that influences decisions taken by local enterprise partnerships and planning authorities and takes account of new public health reforms. Government engagement with local authorities also needs to address establishing a national framework for low emissions zones and a public awareness campaign. (Paragraph 37)
8. A blanket approach of transferring EU fines to those local authorities failing to meet air quality targets would be unfair. The causes of poor air quality are often beyond an individual authority's control. Transferring EU fines to local authorities might help to deliver air quality improvements but, if it pursues this, the Government must establish a mechanism where it only passes on a share of fines proportionate to a local authority's ability to influence local air quality. Many of the causes of poor air quality arise from policies for which central Government is responsible. Otherwise, the process is likely to result in lengthy and costly legal battles, and risks being seen simply as cutting local government financial support. Before it does this, the Government needs to assess the resource requirements of individual local authorities, depending on their circumstances, to be able to deal efficiently with the air quality challenge at a time of squeezed budgets. (Paragraph 39)

Health reforms

9. The Government must take full advantage of public health reforms to improve local authorities' abilities to improve air quality. In particular the Government should introduce indicators to measure public health improvements from better air quality in its public health reforms. (Paragraph 41)

Low emission zones

10. As a matter of urgency, the Government must set up a national framework for low emission zones to establish a recognised standard for emissions and vehicle identification, supported by a national certification scheme of retrofit technologies. (Paragraph 46)

Increase public awareness

11. The costs to society from poor air quality are on a par with those from smoking and obesity. A public awareness campaign would be the single most important tool in improving air quality. It should be used to inform people about the positive action they could take to reduce emissions and their exposure. It should also be used to provide an impetus for action in local authorities to deliver more joined up thinking on achieving air quality targets. The Government should provide Defra with the means to launch such a campaign. This could be done in collaboration with existing campaigning groups, to ensure maximum cost effectiveness and coverage. (Paragraph 52)

Formal Minutes

Wednesday 26 October 2011

Members present

Joan Walley, in the Chair

Peter Aldous
Neil Carmichael
Martin Caton
Katy Clark
Zac Goldsmith

Simon Kirby
Mark Lazarowicz
Caroline Lucas
Sheryll Murray

Draft Report (*Air quality – a follow up report*), proposed by the Chair, brought up and read.

Ordered, That the Draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 54 read and agreed to.

Summary agreed to.

Resolved, That the Report be the Ninth Report of the Committee to the House.

Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

Written evidence was ordered to be reported to the House for printing with the Report, in addition to that ordered to be reported for publishing on 8, 15, and 22 June, 6 July, and 7 September.

* * *

[Adjourned till Wednesday 2 November at 2.00 p.m.]

Witnesses

Wednesday 8 June 2011

Page

James Grugeon, Healthy Air Campaign, **Ed Dearnley**, Environment Protection UK, **Professor Frank Kelly**, Environmental Research Group and, **Councillor Richard Kemp**, Local Government Group

Ev 1

Wednesday 6 July 2011

Lord Henley, Parliamentary Under-Secretary of State for Environment Food and Rural Affairs, **Daniel Instone**, **Robert Vaughan** and, **Sarah Honour**, Defra

Ev 12

List of printed written evidence

1	Environmental Research Group, King's College, London	Ev 25
2	Environmental Protection UK	Ev 28
3	Local Government Group	Ev 33
4	James Grugeon, The Healthy Air Campaign	Ev 39
5	Defra	Ev 42, Ev 46

List of additional written evidence

(published in Volume II on the Committee's website www.parliament.uk/eacom)

1	Calor Gas Ltd	Ev w 1
2	Dr Dick van Steenis	Ev w 3
3	East End Quality of Life Initiative	Ev w 4
4	Country Land and Business Association	Ev w 5
5	Joint Nature Conservation Committee, Countryside Council for Wales, Natural England and Scottish Natural Heritage	Ev w 8
6	Dr Michael Bull	Ev w 8
7	Campaign for Clean Air in London	Ev w 10
8	Joule Vert Ltd	Ev w 16
9	Chartered Institution for Water and Environmental Management	Ev w 17
10	CNG Services Ltd	Ev w 21
11	Campaign for Better Transport	Ev w 22
12	Chartered Institute of Environmental Health	Ev w 26
13	British Heart Foundation	Ev w 27
14	Natural Environment Research Council	Ev w 28
15	Councillor Paul Braithwaite, London Borough of Camden	Ev w 30
16	Royal College of Physicians	Ev w 34

17	UKLPG	Ev w 35
18	CountryStyle Recycling Ltd	Ev w 37
19	Air Quality Management Resource Centre, University of the West of England, Bristol	Ev w 37
20	Transport and Environment Committee, London Councils	Ev w 40
21	ClientEarth	Ev w 43
22	Institute for Air Quality Management	Ev w 48
23	Johnson Matthey Plc	Ev w 49
24	Mayor of London	Ev w 50
25	Mayor's Office, Greater London Authority	Ev w 54
26	Chartered Institute of Water and Environmental Management and the Institute of Air Quality Management	Ev w 55

List of Reports from the Committee during the current Parliament

The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

Session 2010–12

First Report	Embedding sustainable development across Government, after the Secretary of State's announcement on the future of the Sustainable Development Commission	HC 504 (HC 887)
Second Report	The Green Investment Bank	HC 505, (HC 1437)
Third Report	Sustainable Development in the Localism Bill	HC 799, (HC 1481)
Fourth Report	Embedding sustainable development: the Government's response	HC 877
Fifth Report	The impact of UK overseas aid on environmental protection and climate change adaptation and mitigation	HC 710 (HC 1500)
Sixth Report	Budget 2011 and environmental taxes	HC 878
Seventh Report	Carbon Budgets	HC 1080
Eighth Report	Preparations for the Rio +20 Summit	HC 1026

Oral evidence

Taken before the Environmental Audit Committee

on Wednesday 8 June 2011

Members present:

Joan Walley (Chair)

Peter Aldous
Neil Carmichael
Martin Caton
Katy Clark
Zac Goldsmith
Simon Kirby

Mark Lazarowicz
Caroline Lucas
Ian Murray
Mr Mark Spencer
Dr Alan Whitehead
Simon Wright

Examination of Witnesses

Witnesses: **James Grugeon**, Healthy Air Campaign, **Ed Dearnley**, Policy Officer, Environmental Protection UK, **Professor Frank Kelly**, Director, Environmental Research Group, and **Councillor Richard Kemp**, Vice Chairman, Local Government Group, gave evidence.

Q1 Chair: I welcome all four of you to our Committee. I do apologise for the private business beforehand, which has slightly delayed us. We are expecting a vote at 4.15 pm, so we are going to find it very frustrating, with four expert witnesses with a lot to say and a lot of Committee members.

Just by way of business, it will be really helpful if you could each at the start just introduce yourselves and your organisations, so for the record we know who is here, because we do not have a video link. Then, after you have each done that, I will kick in straight away with a couple of short, sharp questions, if I may. Mr Dearnley, do you want to commence?

Ed Dearnley: My name is Ed Dearnley. I represent Environmental Protection UK where I am a policy officer and lead on air quality. Environmental Protection UK used to be called the National Society for Clean Air. We have been working in this area for over 110 years. We are a membership organisation, so we have local authority members—most local authorities are members—and consultancies, academics and individuals are all part of our group. So we have lots of expertise to draw upon. We work mainly on local environmental issues, and I think we are unique as an NGO doing most of our work in that area.

Q2 Chair: Thank you. I think the shorter the introduction the longer we will have for questions, but thank you. Mr Grugeon.

James Grugeon: I will keep it very short. I am the Chief Executive of Environmental Protection UK, but I am here today on behalf of the Healthy Air Campaign, which is a coalition of a number of transport, health and environmental charities.

Chair: Thank you. Professor Kelly, welcome again.

Professor Kelly: Good afternoon. My name is Frank Kelly. I am Professor of Environmental Health at King's College, London, where I am Director of the Environmental Research Group that is responsible for the London Air Quality Network.

Richard Kemp: I am Councillor Richard Kemp. I am Vice Chair of the Local Government Association,

which represents all but five councils in England, and it represents the Councils in Wales on some issues. We represent organisations like the National Parks Authorities as well.

Q3 Chair: Thank you very much. We hope that our session today will inform a later session with Ministers, so perhaps you could highlight for us the health problems that poor air quality is causing and also perhaps just give a brief idea of how that relates geographically. I think one of the things that we have picked up in the evidence is whether or not this is something that is right the way across the UK or how much it is related to pockets of the UK.

Professor Kelly: We need to consider this issue in two ways. Air pollution affects certain individuals acutely. That means that whenever there is an air pollution episode they respond if they have asthma or COPD or perhaps heart disease. They experience those symptoms and they require more medication. When the air pollution episode disappears, then their symptoms usually subside.

The other way to consider the issue is the chronic effects of air pollution, and these are the effects that you get if you live in an area that has high pollution. This is much more worrisome from a public health point of view, and the current estimation is that for the UK roughly 29,000 people in 2008 died prematurely because of air pollution. That is if the effect of air pollution was considered by itself. If we want to take a more holistic view, then we believe that air pollution is responsible for a lot of the heart disease that we see in the UK. 187,000 people across the UK die from heart disease, and if we consider the air pollution component that leads to that situation then probably those individuals are losing on average three years of their life.

Q4 Chair: Thank you. Does anyone want to add to that?

Richard Kemp: No.

James Grugeon: I think I would just add that the impacts are concentrated in the most polluted urban

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areas. That disproportionately hits lower income communities. One of the reasons why we have set up the Healthy Air Campaign is to be able to identify more effectively which areas of the UK are hit by air pollution and the public health consequences of that. A major component of the campaign will be to provide some research where we can break down across the UK what the impacts are, which is something that is lacking at the moment and would be, I think, very useful.

Q5 Chair: As for other aspects or problems associated with air pollution, for example, damage to the natural environment or agriculture—is that something of concern?

Professor Kelly: Yes, it certainly is. It is something that has not been quantified to the same extent as human public health issues, but it is really a major problem for the UK biodiversity.

Q6 Chair: Just finally, if I may at the start, in respect of EU air quality rules, any verdict on whether or not the UK is breaking them, or what the situation is in respect of those?

Ed Dearnley: Yes, certainly the most pressing one is for nitrogen dioxide and it certainly appears that large areas of the UK will not be meeting the annual average limit value for nitrogen dioxide, which comes into effect, well, now. In addition to nitrogen dioxide, the UK will also have to meet PM_{2.5} limit values from 2020 and we do feel these are being almost entirely ignored at the moment. There do not seem to be any plans for how we are going to meet those limit values. There was a report recently by the Scottish and Northern Ireland Forum for Environmental Research that suggested that these targets are going to be extremely difficult to meet, so we need to start acting on that now rather than later.

James Grugeon: I think the other thing to say about the EU targets, which has come up recently in a couple of ministerial meetings that we have had with a junior Transport Minister and the Minister responsible for air quality, is that it appears there may be some lobbying going on from the UK Government and other member states to water down current EU air quality regulations, and that is not something that you would be doing starting from a high base anyway, because we would argue that those are not strict enough.

Richard Kemp: There is something I would like to add there. Our concern is not the EU legislation, but it is the way the Government is currently reacting to it. The Localism Bill, which has passed through your House and is now in the House of Lords, has a clause within it that will enable the Government to pass fines on to local authorities. Inevitably, that is going to be an arbitrary decision, because who is going to decide who is responsible for what where? It is going to take years in the courts. It is not going to add to what we believe should be a dialogue between central and local government; it will create a barrier. We are concerned about the way the Government is currently thinking about how it will deal with the problems if the UK as a whole does not conform to the legislation, and particularly the targets.

Chair: Thank you for that. Of course, we will have an opportunity to question Ministers later, so please let the Committee have any further thoughts arising out of this exchange.

Q7 Martin Caton: Has the Government improved air quality policy over the last few years?

Ed Dearnley: I don't think they have. We have heard very little in the way of new air quality policy coming out of the Government, beyond that initial commitment in the coalition agreement to work towards EU limit values, which of course does not commit them to doing so. We understand there will be a nitrogen dioxide action plan coming out imminently and this will be to assist the Government with their application for a time extension for meeting the nitrogen dioxide limit values. But to date there has been very little in the way of new policy.

Q8 Martin Caton: Is that a general consensus?

James Grugeon: Yes, absolutely.

Q9 Martin Caton: What should be the urgent action they should be taking now then?

Professor Kelly: In our major cities, we have problems with air quality and we need to be bringing in policy that addresses those issues. For example, if we take London, the majority of our pollution on a normal day is from local transport. We need to be considering how we improve the public transport in London so that we remove it from being totally powered by diesel. We need to be incentivising through perhaps an enlarged congestion charging scheme or a low emission zone within the congestion charging scheme where we do not have the most polluting vehicles coming into the centre of London. We need smarter ways of dealing with these emission sources. That is the sort of policy that we will have to introduce if we are going to solve the air quality problem.

Ed Dearnley: Just to add to that, the previous Government's policy for air quality was basically to wait for better emission standards for vehicles to sort out the air quality problems. The evidence that we are now seeing, and particularly since the publication of the last Environmental Audit Committee Air Quality Report, suggests that they are just not working—particularly with diesel vehicles—as well as might be expected. The challenge is now to put in more active policies, such as the ones that Frank was talking about, to actually target these areas of poor air quality and also to make sure that the forthcoming emission regulations for vehicles, the Euro 6 standards, actually do deliver in the real world.

Q10 Martin Caton: Are you picking up any evidence that the Government is giving this some sense of priority?

James Grugeon: No, not in my view.

Professor Kelly: Well, £5 million was awarded to London to introduce measures so that they could meet the EU limit values over a short-term period. That money has been, I believe, largely spent in using adhesive to stick pollutant particulates to our road, which is not obviously the way forward. We need to

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be dealing with the source emissions. Are we going to end up spending £5 million every three months to probably not even achieve the target?

Q11 Peter Aldous: Can you repeat that, because I am not sure I heard it? Adhesives?

Professor Kelly: Yes, every evening the Embankment is sprayed with a solution whose main aim is to trap the pollution to the roadside, so it is not elevated back into the atmosphere. The hope is that if during this three-month period it can be shown that the pollution levels in London have fallen, then the EU will grant us our extension. This is something that obviously cannot go on forever. I honestly do not think it will work, but we will need to wait and see. But it is just the wrong way to be spending our money. It is not innovative. It is going about the problem back to front.

Q12 Martin Caton: How much is being spent on this experiment?

Professor Kelly: Well, the Government awarded £5 million to the Mayor of London to bring in short-term measures, and this is one of those major short-term measures.

Q13 Martin Caton: So £5 million on spraying the Embankment every evening?

Professor Kelly: It is not all being spent on it, but it is a major component of the fund.

Q14 Caroline Lucas: If you had £5 million what would you have done with it to tackle the same problem?

Professor Kelly: I had not thought of that question. £5 million is not a lot of money, sorry, it is not nearly enough. But I think off the top of my head we need to educate the public. They do not understand we have an air quality problem. They are part of the problem and will be part of the solution. If we can use that money to educate them, then we are moving in the right direction. We need to also educate ladies and gentlemen like yourselves to empower our Ministers to bring in the right laws that will allow us as a society to move forward, and ultimately we will have a much cleaner environment, a much more pleasant city, and we will have enormous savings on our public health bill: £20 billion.

Richard Kemp: That is where I would spend the £5 million as well. In other items relating to the environment, for example, recycling, we are clearly winning—slowly—with everyone except *Daily Mail* readers, this argument about the need to recycle. Air we do not understand. You cannot see it, you do not see the problem, so I think we need to embark on an exercise because we as politicians can only go so far unless the public also consent to the agreement and take different actions. I do not think anyone is dealing with that, so £5 million would not go far, but it would at least start a process of raising public awareness.

On a more general point, we should all be pleased that air quality is in the coalition agreement and therefore becomes a coalition priority. But then as we look at some of the business plans of the Departments who should be delivering this, for example, air quality is not in the DEFRA business plan and it is not in the

DfT business plan. If transport is a major problem, then why isn't it in the business plan and, if it is not, what is the commitment to the coalition agreement?

Chair: I think inevitably there are so many different aspects to all of this that it will come up in the questioning, but I think perhaps if we could move on to Neil.

Q15 Neil Carmichael: I was thinking of the passage of the Clean Air Act, which you would be very familiar with. Of course, that drew a lot of attention to some lessons, not least the co-operation between local authorities and all the rest, which is one of the reasons why it had to be passed in the first place. Which really brings me to the question that I want to ask: what do you think needs to be done to improve the joined-up nature of Government to tackle this issue of clean air? All of you have referred to areas where we are not joined up well enough, so one answer from each of you would be great.

James Grugeon: I think there are two things. For the Healthy Air Campaign, the key answer is to say that there needs to be a joined-up approach in Government. I spend a lot of time going into meetings at DEFRA, who currently take the lead, and the officials from the Department of Health, Department for Transport, DECC, frequently will not be there. It is our view that actually a co-ordinated cross-departmental approach to integrate policy and leadership should probably come from perhaps a cross-cutting Government Department like the Cabinet Office. But this is a twin-pronged thing, and I think it is very important that that national leadership position and strategy is then supported and implemented by local authorities who are also able to take a lead.

At the moment, one of the observations that I would have made earlier, as an organisation that represents the majority of environmental health officers and directors of environmental health who deal with the air pollution at a local level, is that it is an extremely challenging environment for them. We are finding that numbers are reduced when councils are looking at what are their priorities and the spending cuts. But also within the localism agenda and the emerging public health agenda where we will see public health going back into local authorities, there is an opportunity to start joining up public health and air pollution. Air pollution is one of the most significant public health risks facing the country at the moment and there really needs to be a national co-ordinated strategy that is linked to local authority-led action.

Professor Kelly: Can I just give you very a brief example? In 1952 with the great London smog we estimated after that about 4,000 people died. That led to the introduction of the Clean Air Act in 1956. We know air quality has improved incredibly since then. However, we now have this new problem that we cannot see. It is not the same old air pollution; it is a new type of air pollution, tiny particles, nitrogen dioxide. In 2008, 4,000 people died in London from air pollution. The estimates are the same. We need—

Q16 Chair: What about the rest of the country?

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Professor Kelly: In the rest of the country, 30,000. That is the best estimate. We need to be taking the same sort of level of action, I believe, that we did in the 1950s.

Q17 Neil Carmichael: You are quite right, because oddly enough, the first response to the smog was actually smog masks, wasn't it?

Professor Kelly: Yes.

Q18 Neil Carmichael: Which was a disastrous and idiotic strategy.

Professor Kelly: Spraying roads.

Q19 Neil Carmichael: Yes. What is striking about the Clean Air Act was actually Government just simply pulled its socks up and delivered a pretty powerful piece of legislation against the opposition of a large group of different vested interests, not least the miners who all got a free sack of coal each week and clearly wanted to carry on getting that free sack of coal and so on. It is a really interesting example of how Government can act if it is given the purpose, and I think that is what you are really driving at: what is going to be that trigger?

Professor Kelly: It demonstrated international leadership in the area. It was fantastic.

Neil Carmichael: Yes, because others followed us, you are absolutely right.

Richard Kemp: If I could do one thing, it would be to have a clear understanding between central and local government about which levers each of us can pull. Because at the moment it seems to me there is a lot has just been devolved to local government, but frankly, if you are Warrington Council and you have two major motorways intersecting in the middle of your town, and you have another one on the fringe and you are not far from Manchester Airport, there are some things that you could and should do but there are some things that are clearly outside your control. We need to split who should be doing what so there is clarity between us. If we did that, then we could come to local agreements council by council. Councils are not bothered about targets set with central Government; we do not like targets set by central Government. We could then work out that Warrington should be doing this or Liverpool should be doing that. At the moment, there is no way of doing that, because we lack that clarity.

Q20 Neil Carmichael: A sort of constitutional settlement, really, is what you are looking for there, isn't it?

Richard Kemp: That would be a step that I will not see in my lifetime.

Ed Dearnley: I would just add that the main thrust of the Government's policy on the environment is on climate change, rightly, and there are huge benefits to be taken from joining up climate change and air quality policy. You can put in place measures that deal with both issues very effectively. However, at the moment that is not really happening. Last year, DEFRA released a document called *Action in a Changing Climate*, which suggested how that could

be done at a national level, but that does not seem to be really happening.

The best example I can give you of what is not going right at the moment is perhaps the renewable heat incentive. When that was first floated, we realised a lot of that would go on to subsidising wood burning, and wood burning can have quite substantial air quality impacts. So there was the idea of air quality limits for wood-burning equipment supported by that scheme. These have been progressively watered down through development of the scheme and it has been launched without them. Through that process you sometimes get the view that DECC see air quality as a barrier to success of the scheme rather than an important issue to take account of when they are developing their programme.

Chair: Zac, you did not want to come in on that point, did you?

Q21 Zac Goldsmith: Yes. On this division between the national and local, you have half addressed it, but I am interested in what you think is the correct split between the two. If you look at something like the Clean Air Act, which is a big, bold, national statement—or more than just a statement—how much of the responsibility does realistically lie with the local authorities and how much has to come from the direction provided by the national Government?

Richard Kemp: I have no problem with central Government setting directions, but what it must not do is then say to local government they should take responsibility for things that are outwith our powers. So, strong central direction, strong central support—I am all in favour of that—then work out with the council what we can do. Again, if we go back to traffic, it is entirely right that the Government should be challenging every council, or in some cases groups of councils, to set targets for traffic within the conurbation or within the council area. But we cannot take responsibility for traffic coming to or through our conurbations, because they go on national roads and they are doing national things. I think it is a question of strong central direction that would be supported by local government, and working out what effective levers we have, and helping us use those levers, rather than assuming we can do things that we cannot.

Q22 Caroline Lucas: Following on that same line of thinking, once you have decided what is within the realms of a local authority's responsibility to do, is there enough guidance and support coming from national Government to enable you to do it? At the moment we have a Government that is fairly hands-off, basically encouraging and so forth. Should local authorities be required to do anything that is within their realm of responsibility or anything more?

Richard Kemp: I have been to six Select Committees in the last year, and every one has asked me roughly the same question: should we be required to, should the Government prescribe? Then I have to go back to the ranch and deal with prioritising the priorities. I do not think that there are enough councils that are fully aware of the problem. This never reflects itself in my advice centre, and it probably does not reflect itself in yours, because the difference between now and the

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smog—and I lived in London and had asthma when I was little—is that you could see the smog. You cannot see the particulate, so therefore it does not rate.

There is a lot of guidance out there now. In fact, one of the things that we have asked DEFRA to do is to compile a list of all the guidance, to make sure there are no conflicts within the guidance. I do not think it is so much guidance that is required now, but it is part of the campaigning thing; it is part of the awareness thing: make councils more aware of these issues, because many councils are not aware. We have our professional people, like environmental health, but it is not coming forward on to the agendas enough. I would raise the agenda, I would raise the issue, rather than say more guidance, because if we knew the issue was there, I think most councils would want to react to it more comprehensively than they do.

James Grugeon: I partly agree with that, in the sense that I think local authorities need to be empowered to do this stuff, but there does need to be an element of carrot and stick here. I think about the localism agenda and the way in which, for example, the demise of regional spatial strategies and national indicators on climate change has had an impact on how local authorities take a leadership position on climate change, which I believe is absolutely critical and integral to looking at air pollution. That is quite challenging.

I agree wholeheartedly that there needs to be a piece on engagement here, which is what this campaign is about. More broadly speaking—we have talked about this—the current metrics and data and evidence used by Government on air pollution are borderline misleading, and not at all engaging in terms of getting people to be thinking about what is a really significant problem. You are absolutely right, it will not be coming up in local councillors' surgeries; it will not be coming up in MPs' surgeries. There has to be a more compelling metric, and that is premature deaths and some of the stuff that Frank has been talking about. Government documents and evidence at the moment do not come close to actually outlining the gravity of the situation. It is small wonder the general public, let alone local politicians, are not engaged in it. We need to create some compelling messaging that actually starts to talk about some of the major health risks. We can start talking about children and asthma, we can talk about heart disease and all the other issues that we know are very serious. But we also need to be talking about it in the context of other public health issues that people understand, like passive smoking. What am I missing now in the other issues—road traffic accidents, stuff that has already been out there because of major public health campaigns? I think people will start to realise what a significant issue it is, and you will then find that there is kind of upward pressure publicly, but there also needs to be something coming from a national Government strategy that tells local authorities what they should be doing. I think we also need to recognise that, with limited resources in the local authorities, it is a much more challenging environment for them.

Do we need more skills there as well? Is there more research and so forth that needs to be done, or is it more a case that we know what needs doing, we just need to get the political will to do it?

Richard Kemp: We should not expect that all our staff within the council—planning, housing, education, all sorts of people who might be involved in this—should be experts in this. What we have to do is to make sure that the challenging role of our environmental health officers, where the source of expertise will always lie for something like this, is felt strongly enough throughout the councils. I think the knowledge is there, the skills are there, but sometimes I would say that our environmental health departments are hidden heroes of the council. We do not really see them enough. As a councillor, I happen to know who our chief environmental health officer is, but that is almost by accident, because they do not promote themselves very well as a profession within the council. There is more that could be done, but all the expertise is there. It is how we use that expertise.

Ed Dearnley: Air quality is often siloed in the environmental health departments of local authorities, but as your previous report said, transport functions are often in a county level authority; environmental health is a district level authority responsibility. There is often a disconnect between those two areas, and the joint working can sometimes be a little difficult in practice.

Professor Kelly: I attended a council meeting in Camden last week and a number of the councillors were very frustrated with their inability to do anything about all the taxi pollution that is around St Pancras and Euston. What they need to do is to be able to control the type of taxi that uses the rank there, but of course, they realise they cannot do that as an individual borough and it really needs to be all the neighbouring boroughs and, in fact, needs to be London-wide. That is where central Government has to act with a low emission zone, a framework that I know DEFRA at the moment are looking at across the country. That is the sort of action we need and then it can be implemented at the local level and regulated.

Ed Dearnley: Just a point on smaller local authorities, they can often lack the expertise because basically it is not economic to have that expertise in-house. Several local authorities are in county or other level groupings where they can then employ greater expertise, but these are quite vulnerable to the cuts. If you employ somebody obviously to facilitate that group and bring in expertise and a couple of local authorities pull out of the grouping, then suddenly it becomes uneconomic to have that person in place and then it all falls to bits. They are very vulnerable to the cuts.

James Grugeon: I think the general observation is that where there is a political will within a local authority they will be taking a lead on air pollution, usually integrated into action on climate change, but it is hit and miss. By raising the profile of the issue locally, getting that upward pressure, you would hope that there would be resources made available.

Q23 Caroline Lucas: So we need more awareness raising, we need more knowledge in local authorities.

Q24 Peter Aldous: Carrying on looking at the role between local authorities and the Government, I will

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try and get the questions out together. We have talked about this quite a bit. The first point is, do you believe the incentives that are placed on local authorities to improve air quality are sufficient for that purpose? If not, how do you think they could be improved? The third point is, there are various policy levers for improving air quality that rest between local and central Government; is the balance right? The final point I have, and it may be Councillor Kemp wants to come back on this, because he did refer to it previously, is it fair for local authorities to be paying for air quality fines from Europe? There are four questions there, one for each.

Chair: Who wants to go first?

Richard Kemp: Perhaps as the politician I ought to. I can see some reticence to my left. First of all, as I have made clear, I do not think the relationship is right, because we have not defined what the relationship between central and local government should be on this issue. That is the major inhibitor for activity. As a councillor, I do not need incentives for dealing with this. If someone can show me that X number of people are dying prematurely in Liverpool a year as a result of it, then that is all the incentive I need. I might need some support to do something about it, I might need some technical help, I might need some legislative help, but I do not need an incentive to do the right thing. I would not look at it that way. That is two of the questions.

The third question is certainly this thing about fining. You are not going to get any money out of us, because if you take on a council, we will go straight to court. The only people that would make any money out of this is barristers. Because if you can prove to me that Liverpool or Manchester or Knowsley or any other council are the people who have caused this problem, which led to a default with a national target in Europe, then you are going to have to have done some very good work on defining targets. If we could have defined the targets in the first place, then perhaps central and local government would have worked towards them to do something about them. This is just a lawyer's charter that won't achieve anything and I think should come out of the Bill—if you could remember that when it comes back to the House.

Ed Dearnley: I would agree with those points. On the share of responsibilities, at the moment local authorities are required to work towards the air quality objectives but are not actually required to meet them. For the reasons that have been said earlier, there are many things outside local authorities' control, so asking them to achieve the limit values is a little unfair. I would also agree that it should be perhaps a bottom-up approach rather than a setting of targets, and that we do need to get the politicians and the public more interested in this area so they feel they have a need to tackle it.

In terms of joint working, national Government needs to put in place that framework for local authorities to work within. The best example of this is perhaps the low emission zones we talked about earlier. We do need a national framework for low emission zones like they have in Germany, so that local authorities can then establish something within that and it makes it a great deal easier and cheaper for them to set it up.

On fines, I agree that it is unfair. National Government sets the framework for local authorities to act within. For example, if the Government wants to encourage polluting fuels, which they do through tax breaks on diesel vehicles, or not deal with rising volumes of traffic on the road, then it is unfair to expect local authorities to pick up the air quality pieces, so to speak.

James Grugeon: We have had some conversations with people in the public health and environmental health departments of local authorities where it is pretty clear that the devolution of public health back to local authorities is an opportunity to link up funding and potentially create greater resources for local authorities to tackle air pollution. But again, these are conversations that need to be led by a national strategy at an early stage that the Department of Health is engaged in. We were having a conversation earlier about who were the appropriate Department to be taking a lead on air pollution. In an ideal world, that would be the Department of Health. That would be very difficult at the moment, so if you started with a national strategy that was Cabinet Office-led then you could almost envisage that DEFRA's role in leading on air pollution might be deemed inappropriate.

Q25 Chair: In terms of public health and the environmental health officers you have referred to, is it your perception that it tends to be that their role is largely a preventative or an enforcement role at local level, but actually when it comes to the strategic planning—and I am thinking now particularly about the local enterprise partnerships or the proposals for local enterprise zones—there is going to be a strategic policy arena where in my experience those particular professionals, both on public health and environmental health, are just not at the top table?

Richard Kemp: Of course, that to some extent will change. Whatever comes out of the pause on the Health Bill, one thing there seems to be general agreement on is that the move of public health back to local government is a good thing. I chaired a meeting on Thursday with all the public health bodies and we have already moved on to planning how we are going to do this, how we are going to make sure that public health is an important part of the work that we do within local government, not necessarily because they are a big department but because they move into local government, they are able to challenge our housing policy, our transport policy, our education policy, what we do in our parks, what we do in our youth clubs, and so on. There is a real thirst from most of the professionals for the move over. There are some concerns about money, some concerns that were dealt with by your colleagues in the Health Select Committee yesterday, but by having the public health professionals as well as the environmental health professionals within local authorities, we will be able to do the joining up locally, which will enhance our call to local government. We have joined up here, we know what we can do, we know what we want to do, but here is the gap with what you do or what you are allowing us to do in legislation. I think in two or three years when this settles down it will be much, much stronger.

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Q26 Dr Whitehead: Joining up, though, presumably among other things reveals and quantifies the full cost of air quality, as opposed to what is often the case at the moment, which is that local authority programmes, transport programmes, and so on, will not have incorporated that full cost into what they are costing for the project itself. What would you say are the particular hidden costs, and to what extent do you think they really are currently costed in to what local authorities are doing?

Richard Kemp: Well, it is not only local authorities. I accept that challenge. What local authorities supervise is just as important. I will give you an example of that. The Government have recently relaxed environmental standards for new house building through changes to the building regulations, on the grounds that that will for the next two or three years enhance the building industry. I can see that, but these houses now have to last 200 years, so we are building in 200 years of less green effectiveness, and the cost of that is not costed anywhere at the moment. Clearly, if we just look at the sort of figures that Professor Kelly has been talking about, somewhere we are going to meet that in the health service or somewhere else. The fact is that we do not look at this in the round at the moment. If we start including it more holistically in things like our transport policy, that will have a possible effect of increasing cost, but it will have a better effect, to my mind, of focusing the mind on what those longer-term issues are, because we are not considering them properly. We will then have a much better position to look at the short term and the long term and work out what will happen. At the moment, I do not think those long-term considerations are there at all.

James Grugeon: I just want to broadly agree, to be honest. I don't think there is anything that I would add to that.

Q27 Neil Carmichael: Councillor Kemp has already touched upon this. I was going to ask about our proposals for health and social care and, in particular, the plans we have for local authorities and the public protection angle and the theme of integration. Could you three comment on how you see that unfolding? Because, of course, we are thinking here in terms of the unitary authorities and shire counties and so on having that responsibility and, of course, there is an element of accountability as well that is going to be quite interesting. Could you three comment in turn?

Professor Kelly: Just thinking back to the last air quality inquiry this Committee undertook, it was identified that within Government there was a lack of communication between Departments, and that was partly because it was not realised that it was such a large public health problem to begin with. There was some lack of enthusiasm of doing anything about it because the Department for Transport obviously clearly had an agenda to keep the country moving. I think you can take that parallel and put it into the new Localism Bill. We will need to empower the health professionals, the environmental professionals, the Department for Transport, the transport sectors in the local councils. They will all need to work together as a multidisciplinary team to be able to solve this problem. We cannot expect any one Department to

take it on. It will require everyone wearing the appropriate hat pulling in the right direction.

Ed Dearnley: Sorry, it has already been said that the health responsibilities will sit at a county level in two-tier arrangements, with air quality in the lower tier, but there are some advantages of health being where it is and being in the same local authority as the transport functions, which of course are the main lever for improving air quality. There is an opportunity there to link up health and transport and make sure that we tackle the air quality and other health aspects of transport.

Q28 Neil Carmichael: How would you strengthen the Government proposals—in the spirit, of course, of the pause that we are having on Health and Social Care Reform Bill?

Richard Kemp: As far as public health is concerned, I would want to clarify two things. Firstly, what are the key targets that the Government want to work with local government to set locally? Of course, that in the context of what we are discussing today could include clean air targets properly assessed. The other thing we have to work out is what resource, and not just the financial resource, is being transferred from the health service to local government. Because there are some signs that parts of the health service are shelling out the public health functions now so that there is not so much left to transfer, and that is of concern for us. But in terms of the principles and directions, this is going to be much more about how we in local government do the integration when it comes to us than any more prescription or direction from central Government.

Q29 Neil Carmichael: One of the things that struck me during the course of this last hour is that none of you has really mentioned the role of agencies and organisations like, for example, the Environment Agency, which does have quite a pivotal role. In my own constituency we have a rather paradoxical problem of a compost-making factory producing dirty air for local residents. It is fascinating to notice that various councils and the Environment Agency are all involved and all telling each other what to do. I just think that is something we might want to tease out because, of course, the role of agencies is an important one as well, and where they fit into the new vista of local government.

Ed Dearnley: I think that is a great point. From the Environment Agency's perspective, industrial pollution is a problem in certain areas like your own. Across the country, however, traffic is the biggest problem, and the Highways Agency have quite a large responsibility for dealing with air quality. At the moment, there is no binding responsibility on the Highways Agency to improve air quality. They simply have a duty not to make it worse. So certainly from our perspective we would like to see a stronger binding responsibility on the Highways Agency to actually actively improve air quality.

Richard Kemp: I treat the quangos as central Government, so the Highways Agency have a massive role to play in the motorway system but I class them all together. They would be included in my analysis of what central should do, and its agencies, and what

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local could do, and where we meet in the middle. The example you have given would seem to me to be a prime one that locally there should be responsibility but there needs to be some national legislation or framework for doing it. I do not see a conflict between central and local. It is knowing who does what at the right time because we have different roles and responsibilities and opportunities.

Q30 Simon Wright: I have heard from you some comments today on how you feel low emission zones can make a contribution to improving air quality. I have an LEZ in my constituency; it has been there for the last three years. I wonder if you could say a bit about what evidence there is for their effectiveness and also perhaps elaborate on the costs and risks associated with establishing LEZs.

Professor Kelly: LEZs are relatively new for the UK, and to be able to establish their effectiveness you can either look at the change in the fleet characteristics that are using that area that the LEZ is administering. For example, in London we have very clear evidence that we now have cleaner vehicles coming into London than we did have before 2008. The more convincing evidence is has air quality improved as a consequence, and that is a much more difficult question. There has been work done on it. You need to have your monitors in the right place. You need to have a decent time series of information before the LEZ is introduced and afterwards. You need to be looking at the right pollutants. In this particular case of the LEZs to deal with diesel, heavy duty vehicles, then you need to be measuring black carbon, which is not done in too many places. Those are the issues.

However, I can say that the information that is now beginning to appear in respect of the London LEZ is that it is having a beneficial effect on the type of pollutant that it was introduced to deal with, and that is black carbon. What we need to do is to go down the line and find out if we can see the associated health benefit of that, but to be honest that is another five to 10 years away.

Ed Dearnley: I think this is an area where we can work with our European neighbours as well. There is certainly a blossoming number of low emission zones all across Europe now, and there are studies being done on the effectiveness of these. As Frank said, they seem to be effective, particularly for PM₁₀. As I mentioned earlier, a national framework would make it much easier for local authorities to establish them as well as a certification scheme for retrofit equipment for NO_x.

On diesel vehicles, we have evidence now that perhaps some of the Euro standards have not been as effective as they could be for NO_x, so I think we need to make sure that low emission zones when they are set up implement criteria that will improve air quality, and the evidence suggests that this will have a measurable effect on air quality. That should be realistically perhaps a minimum of Euro 4 for diesel vehicles and then jump straight to Euro 6 when that standard is available.

Professor Kelly: Sorry, you also mentioned costs.

Simon Wright: Yes, costs and risks.

Professor Frank Kelly: Yes, so again, looking at London, the costs are very, very high for the scheme because it is a technology-based one. If you look at what has been done in Germany, they have a much cheaper system where it is just done by the colour, the equivalent of the tax disc in the car, and it can, therefore, be rolled out across whatever city in Germany wants to introduce it, at quite a low cost. I think there is a big question there about what we want to do in the UK. I imagine we want to go for the low-cost scheme. From my point of view, from a public health viewpoint, I do not see a risk; I only see benefit.

James Grugeon: The risk is not doing it.

Professor Kelly: Yes. I know that one of your interests is what has happened in respect of the information base that we are relying on in respect of linking air pollution and health since the last inquiry. It has not been a long time, but there has been confirmation that these figures in respect of loss of life and increased symptoms are correct, and they are being confirmed across the world. But the really big advance has been a new study that has come out of America, which has demonstrated for the first time that if you actually do improve air quality in an area, you can see an improvement in health as a consequence over a 20-year period. This is in respect of fine particle concentrations, which have been improved due to the Air Quality Act brought in in the States.

We are beginning to turn the corner. It is not all bad news—poor air quality, poor health. If you improve air quality, if you take action to do that, you will see public health benefit.

Q31 Dr Whitehead: Just a minor point. What evidence is there of the extent to which low emission zones permanently drive out high emissions or, alternatively, the extent to which they offset them?

Professor Kelly: The higher emitting vehicles?

Dr Whitehead: Yes.

Professor Kelly: The London scheme is administered by these automatic number plate recognition cameras, which are linked to the type of engine and fuel of that vehicle. The evidence is that those vehicles that are higher polluters are not entering the M25.

Q32 Dr Whitehead: I understand that, but then they may go somewhere else.

Professor Kelly: True, they are going somewhere else. They definitely are. We know that, of the large fleet operators, some have modernised their fleets, others have relocated where their vehicles are going.

Q33 Dr Whitehead: I would assume that, say, a national policy such as we have mentioned in Holland and Germany would effectively drive that out systematically as opposed to people saying, "Well, I am not going to drive my vehicle into that zone but I will drive somewhere else"?

Ed Dearnley: Yes, absolutely. If you basically use a low emission zone in London, then those vehicles can go elsewhere. If you do it in all the UK's largest cities, then they have nowhere to go.

Q34 Zac Goldsmith: Is there any evidence that that has happened?

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Professor Frank Kelly: Sorry, which?

Zac Goldsmith: That these vehicles that would otherwise have come to London are going elsewhere, to non low carbon zones?

Professor Frank Kelly: I do not have the data before me, but we know that the turnover of the fleet has not been sufficient to have removed all those polluting lorries from the road, so they must have gone somewhere else—probably in the UK, and probably into the continent.

Q35 Zac Goldsmith: I have a whole range of questions. I am going to be brutal and cram them down. Very briefly, maybe just one answer, why do you think the EU vehicle standards have not reduced nitrogen dioxide as much as we had expected? Is there a particular reason? Is it lack of research, lack of understanding about the cause? What do you think it is?

Professor Kelly: There is a very simple answer. We did not know it at the time of the last report, but the research now has been done, funded by DEFRA. The vehicle manufacturers have to produce emission estimates for their vehicles in the factory on a particular test bed. Under those conditions, obviously everything is optimised and you can get very, very good emission outputs when you run those tests. In the real world, when the vehicle is in a major city and it is going much slower than you would expect in the normal urban cycle, then the technology does not operate to the same efficiency. As a consequence, the pollution may be two or three times higher than it was at the factory setting. That has been true since Euro 3, and unfortunately, as scientists, all the work that we have done based around all these schemes that we are proposing have been using inaccurate emission factors. They are based on the factory settings, not the real world settings.

Q36 Zac Goldsmith: Is that problem being addressed, though?

Professor Kelly: Has it been properly addressed? It has been published by Government; it is recognised. Properly addressing it will have to be done at the EU level, because the EU sets the emission standards for vehicles, so they will need to introduce new types of tests. We will need to check those in the real world with independent tests.

Richard Kemp: Another problem, certainly for some of the vehicles that we use, is that you might think a bin lorry is a bin lorry, and it looks the same whether it is in a rural or an urban area, by and large, but it does a very different job. In an urban area, it stops every 10 yards and it uses its engines in one way. If it is rural, it might stop every 10 yards for half an hour, then it is 20 miles up to the next one. The engines are not optimised at the factory to deal with the individual needs, and I do not think they are optimised within local government either to deal with the different rounds and things. There is a learning curve for us all there. If you think about how much petrol we could save, or diesel, and then the private sector could do the same, you can see that there is a major public awareness campaign here about how to make the best use of your fleets.

Q37 Zac Goldsmith: I am going to move on, because we have so little time. You may want to postpone answering this question and submit something, but it would be interesting to have from you an idea of what you think are the most cost-effective technologies or practices for improving or reducing emissions from vehicles, and secondly, what can happen either at national or local government level to encourage the uptake of these practices and technologies? You might want to just agree to send something in on that.

Ed Dearnley: Can I take your first point? Diesel is basically the source of most of our air quality problems from transport. Diesel has been implicitly encouraged for the light vehicles anyway through the tax system. If you get a company car now, you buy a diesel vehicle, because it makes sense financially to do so. In heavy vehicles, diesel is the default choice. We have not really looked at all as a nation at other fuels particularly for heavy vehicles. I would draw attention to gas vehicles. They are used quite extensively in many other parts of the world. Los Angeles, for example, a city that is famed for its poor air quality, has now converted all its buses to natural gas. Natural gas is very clean. It burns, it is an intrinsically clean fuel, and you use it in your home to cook on. The UK has not supported natural gas—

Q38 Zac Goldsmith: Have they done that as a result of a policy direction, or another factor?

Ed Dearnley: I think that in the UK we have assumed for air quality that the Euro standards will do the job of cleaning up heavy vehicles in particular, so we have not thought it is actually worthwhile looking at gas vehicles. As the evidence is now suggesting that the Euro standards are not cleaning up heavy vehicles, gas vehicles is a great way to go.

Q39 Zac Goldsmith: No, but what triggered the shift in LA? Why did they go through that transition?

Ed Dearnley: Because they felt they needed to do more on air quality and they felt—

Q40 Zac Goldsmith: It was a policy decision?

Professor Frank Kelly: Yes, it was policy led.

Ed Dearnley: Yes, policy decision, yes.

Q41 Zac Goldsmith: I didn't know that. Does anyone else want to address that point, or I shall move on?

Professor Kelly: Well, the other point we have not mentioned yet is that shipping is an ever increasing problem. The UK is an island. We have a lot of shipping emissions coming into the UK. The solution is going to be European, at the European level, but again California is leading the field here, because they will not allow ships to come within a 200-mile zone of the coast while they have their main engines on. They have to have electric generator equipment. That is to stop the pollution coming in from the sea.

Q42 Chair: Can I just add to that? In some of the evidence that we have had there is a reference to poor quality as a result of foreign sources. Would you

include shipping in that and add other things to the list as well?

Professor Kelly: Yes.

Q43 Chair: Could you just elaborate on that?

Professor Kelly: Of course, I am not sure what the particular reference was, but air pollution does not recognise country boundaries, so we do get a lot of pollution, certainly secondary particles, coming into the UK from the continent. But at the same time we export a lot of pollution, so it is a bit of a redundant argument. I think we need at the EU level to decrease emissions from all sources.

Q44 Zac Goldsmith: Just on this point of ports, how big a factor is airport capacity, aviation capacity generally? Is it possible to see an expansion in overall airport capacity without falling foul of EU air quality rules and specifically in relation to mega projects like the third runway, which is on hold or has been cancelled but I am sure it will rear its head again at some point? How big a factor is aviation in this issue?

Professor Kelly: My understanding is that it is not the planes themselves, although they are not totally clean, it is the movement of people to and from the airport. It is the transport system—if you add another half a million passengers that need to get back and forth from that airport, it is how you get them there.

Q45 Zac Goldsmith: Why would it not be the planes themselves?

Professor Frank Kelly: Because they do emit pollution when they take off and land, so it is within 100 ft, but once they actually are in flight then the pollutants that they emit are dispersed so much that it is really what travels around the atmosphere, around the globe, it is not what we are breathing in, generally. That is why local transport in a city is such a problem.

Ed Dearnley: The original Heathrow consultation on runway 3 suggested, or the air quality modelling for that suggested, that because of vehicles becoming cleaner, there would be headroom for aviation to expand and emit more pollution, without breaching the EU limit. Because we know that the Euro standards are not working for diesel vehicles in particular, that headroom is just not there. So those assumptions that were made in that runway 3 consultation are no longer valid, really.

Q46 Zac Goldsmith: That is interesting. What do you think needs to be done to encourage the public to change their behaviour in relation to lower polluting means of transport?

Richard Kemp: Inform them. I just think there is a massive ignorance there. What you cannot see, what you cannot touch, what you cannot taste, does not exist, so therefore it is not a problem.

Q47 Zac Goldsmith: Sorry, I know that is often the point that is made that this comes down to education, but do you think it is the case that with education you will get a critical mass, enough people changing their behaviour as a result of the information they have taken on, or do you not think it comes down to financial decisions, day-to-day cost decisions?

Richard Kemp: It is both, but 10 years ago someone could have asked me the same question about recycling in exactly the same way, and I would have said you have to start. You cannot win this argument without public involvement and public consent because, frankly, people like you and I do respond to what is said to us on the doorstep. We do not just respond to scientific analysis. Unless there are more people clamouring alongside us and with us, we are not going to be able to force these issues forward. It is not going to solve things, getting people involved, but unless there are a lot more people interested in this debate, then I do not think it is going to be a real debate.

Q48 Caroline Lucas: What about specific legislative changes, though? You do not think that any are required?

Richard Kemp: If I was to say one thing as local government, I would like to see far more electric cars. We are not going to be able to do that as local government by ourselves. If I was thinking of having an electric car, I would not buy one now, because I would not be able to plug it in and use it anywhere. If we want to have any fundamental change, then we have to work out who the first person or first group of people is to do something. Now, this is a national thing. If the Government were to work with all the electricity providers to do something, then we could do something and you could then challenge me as a Liverpool councillor to react to it, which I cannot do. I think I have made that point on that, but there are several other areas perhaps where that combination of new thinking at a national level combined with local action could make a fundamental difference. But a lot of people would change to electric cars if there was a place they could plug in.

Q49 Zac Goldsmith: I think that is a really good example of the tension between national and local, because if a local authority was seen to be spending money laying out a whole grid on the assumption that there will be electric cars, they would be hammered.

Richard Kemp: Eric Pickles would be down on us like a proverbial ton of bricks—and that is a ton of bricks.

Q50 Zac Goldsmith: Yes, quite a few tons. If you are going to create the provision without there being a clear demand, then you will be accused, particularly you in local government, of wasting money.

Richard Kemp: Yes, it is chicken and egg.

Zac Goldsmith: Chicken and egg. The question is in what order it should happen. I cannot see either national or local government fully breaking through.

Q51 Chair: But doesn't that come back to where we started about the joined-up agenda of Government, whereby if you actually had Treasury and investment decisions in terms of highways investment, again accessing airports or wherever, but also if you had a business agenda that was looking towards the renewable technologies of the future and the investment and linking that to the local enterprise

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zones, you would actually have a strategic national direction of travel that would be in the process of dealing with the environmental considerations such as air pollution at the local level and fitting that into the climate change agenda? Why isn't that joined-up thinking actually happening, because then you would get the public understanding what the issues are?

Professor Kelly: And the public health benefits.

Chair: And the public health benefits and savings.

Professor Kelly: Yes, which I think are by far the biggest carrot for the Treasury.

Q52 Chair: We have the European Union standards. Is it realistic to expect that we can meet the standards that are laid down?

Professor Kelly: We cannot, certainly for nitrogen dioxide we cannot, but we are not alone. Most of the EU, 27 countries can't meet it either because the technology that we brought in through the Euro standards does not work and will not work.

Q53 Chair: Mr Grugeon, are you disagreeing with that?

James Grugeon: I would probably agree in terms of NO₂, but I think that the targets could be met with a combination of technical and non-technical measures, i.e. behaviour change being taken seriously with a national framework and, as you were talking about, a joined-up approach. We might disagree on that.

Professor Kelly: I don't think we disagree. I am just being realistic. We have to meet this target. We should have met the target already.

James Grugeon: Yes, we are way out.

Professor Kelly: Government has already said we will not meet it before 2015. I believe that is very optimistic. We have 10 years of not being able to deal with this, I think.

Q54 Chair: Each of you have mentioned innovation and technology. I am just wondering how much take-up there is of the research monies for research and development for new environmental technologies that could over the medium and long term get us much nearer to meeting the targets. Interestingly, I came across, I think it was in Spain, tiles being coated with a special solution that was actually soaking up the smog that was coming down. Are there business innovative solutions along these lines?

Ed Dearnley: Could I just revisit current technology that could help us? The Euro standards have not worked because they have not worked for diesel vehicles. In a way, if we can shift away from diesel vehicles, we can improve air quality. In the light vehicle market for cars, we have gone from diesel vehicles being a fraction, about 10%¹, of new car sales to around half in about 10 years. One way we can improve air quality is to start reversing that. There are two simple ways you can do that. You could increase the diesel penalty in the company car taxation system. At the moment it is ineffective; it does not

make people consider petrol vehicles or high-efficiency petrol vehicles. Secondly, in the vehicle excise duty system, in both the annual payment and the showroom tax, again a diesel penalty would help to shift people more towards high-efficiency petrol cars rather than diesels.

Q55 Chair: Just one last question, and then we will be within time without any extra time. Do you believe that the Government is communicating the whole risks associated with poor air quality as well as it could, and what could it do to improve that situation?

James Grugeon: We talked a little bit about the metrics that are being used being misleading at best and totally a switch-off in terms of your average member of the public at worst. To reiterate a point that was made earlier, we need to put it in the context of other public health risks that people understand—passive smoking, and so on—and secondly, to start getting into the behaviour change stuff in an engaging way.

Q56 Chair: What about reporting? For example, we have talked a lot about London. You have mentioned other areas—Warrington, I think. I have had people contact me from Walsall and parts of the West Midlands where the M6 is presenting huge problems. What about reporting, and accurate reporting, so that the risk is in the public domain?

Richard Kemp: The Local Government Association on behalf of local government in England in this case has signed a memorandum of understanding with the Department for Energy and Climate Change, which looks at some elements of this, because it has begun to work out what each should be doing. It has begun to work out a system in which we monitor each other rather than inspectors just looking at what we do. It is agreeing a series of actions, but that is one set of actions with one Department. We would like to have that memorandum of understanding with central Government, because only if we do that can we make sure that there is proper reporting, there is meaningful reporting, there is reporting to us about something we can do rather than something we cannot do. I would like to see that understanding taken further. If we can do it just for climate change—climate change is a big issue, but you know what I mean, for one particular considered area—then we should be able to expand it further. That is the relationship we want, of equals knowing what we can and cannot do.

James Grugeon: There is a piece in here, and I think you touched on it, for transparency and local monitoring done effectively in reporting so that that information is in the public domain and local politicians and the public can see that.

Chair: Last question, Peter Aldous.

Peter Aldous: No, I was just pointing out the Division bell.

Chair: Oh, right. On that point, we are absolutely within time. Thank you very much indeed for helping stimulate the debate and attending today.

¹ Note from witness—actual figure is 14%

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Members present:

Joan Walley (Chair)

Neil Carmichael
Martin Caton
Katy Clark
Simon Kirby
Caroline Lucas

Sheryll Murray
Caroline Nokes
Mr Mark Spencer
Dr Alan Whitehead
Simon Wright

Examination of Witnesses

Witnesses: **Lord Henley**, Parliamentary Under-Secretary of State for Environment, Food and Rural Affairs, **Mr Daniel Instone**, Head of Atmosphere and Local Environment Programme, Defra, **Mr Robert Vaughan**, Head of National and Local Air Quality, Defra, and **Dr Sarah Honour**, Head of Science and Evidence Team, Defra, gave evidence.

Q57 Chair: Minister, thank you very much indeed for coming along this afternoon and for bringing your officials as well, some of whom I did have the pleasure of meeting yesterday at the launch of the campaign on air quality. I wonder if you would like to introduce your officials first of all so we know what their area of remit is, and then we will get straight into some technical questions if we may.

Lord Henley: Madam Chairman, thank you very much indeed. Just to confirm, by the way, I think it is very unlikely we are going to have any votes in the Lords so I am entirely in your hands for the next hour and a half or however much time you want to give.

Chair: That is very kind. We have the monitors and I do not think we are expecting a vote in our Chamber so—

Lord Henley: Yes, I suspect both Houses are relatively quiet.

Chair: We will keep our fingers crossed.

Lord Henley: Anyway, can I introduce on my left Daniel Instone, Head of Atmosphere and Local Environment Programme in Defra, Robert Vaughan, Head of National and Local Air Quality Management, and Dr Sarah Honour, Head of Science and Evidence Team on Air Quality. As I said, I am entirely in your hands and prepared to take questions, which I and others will answer as is appropriate.

Q58 Chair: Thank you very much. We are looking to finish about 4.00pm, so that gives you some idea of the time that we have to get through the various issues. To get a sense of the actual situation and the EU Air Quality Directive Standards, we wanted to start off with a few short, sharp, factual questions. Do you think it is reasonable to expect the UK to meet European nitrogen dioxide limit values by 2015, and how far will the measures in the current consultation get us in achieving these nitrogen dioxide targets?

Lord Henley: As I think you are aware, we are going to have severe problems on meeting the targets by 2015, and we are not alone in this, along with most of the other EU countries. I understand that Malta should be okay, but for the rest of us there are going to be problems and obviously we will want to discuss that with the Commission in due course. But we obviously want to be able to show to the Commission just what we are doing, and what we can do to head

in the right direction, even if we feel we cannot get there, because obviously there are very serious risks about infraction proceedings and all that.

Q59 Chair: It is interesting you say that we are not alone, but I just wonder whether you are relying on securing a watering down of the directive proposals.

Lord Henley: We are not looking at the fact that all of us are in that position to get a watering down, but I think because of problems we will get to in probably more detailed questions later on relating to what has happened with—

Q60 Chair: I think we just want to establish at the outset how likely it is that we will meet the requirements that are there or how much we are relying, even at this stage, in going along a path that is watered down, if I can put it that way.

Lord Henley: I would not want to use the expression “watered down”. We still would like to get there but I think it is very unlikely. Therefore, we need to negotiate with the Commission about where we are going, how we are going to get there and what the timescale should be, because obviously air quality is a very serious matter and we want to get it right. But as you will well know, there are always tensions in these matters. One can, thinking of discussions with, say, DECC, do enormous things that achieve our aims in climate change but at the same time those will not help in air quality or the other way round. For example, if one is going to improve the air quality by reducing the emissions from certain engines, that might mean an increasing consumption by some of those engines. There are tensions in that respect between what we call climate change aims and air quality aims. Those have to be taken into account. Obviously, there are at the same time very important behavioural changes that will achieve both of the two aims in terms of improving—if we all drove less, that would achieve both aims.

Q61 Caroline Lucas: The Government are essentially saying they are unlikely to meet these targets by 2015, and yet the Mayor of London in his air quality strategy does seem to think that we could meet that target by that time if the Government took the 11 different proposals that he makes. I wonder

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why there is a discrepancy between what the Mayor of London is saying and what the Government are saying.

Lord Henley: Well, London is not the whole of the UK. We have a number of areas and we are going to have serious problems meeting those. We want not just London but all other local authorities to be working towards this in ways again that we will be exploring in due course in your questions. Yes, it is going to be very difficult and I do not think we can do it.

Q62 Chair: As things stand at the moment, how much could the UK be fined if we were not to meet the standards?

Lord Henley: I do not know whether we can actually give a figure on the fine. Daniel?

Daniel Instone: We cannot put a precise figure on it. The European Court of Justice has a good deal of discretion on the matter and the exact level of fines is usually a combination of a lump sum amount plus a daily rate for the period of non-compliance. The court has discretion about how much to fine based on what they see as the seriousness of the non-compliance and the length of the non-compliance. When you put all that together, clearly any fines, if you got to that stage, could be substantial, that is very clear, but of course there is quite a bit of ground to travel before we would get to that point.

Lord Henley: Can I add the political point? We do not want to be in the position of facing the European Court and facing infraction proceedings. I think it looks bad, it is bad for the reputation of the United Kingdom and, therefore, again, going back to your suggestion of watering down, we do not want to water down but we want to make sure that what is done is appropriate. As the Commissioner put it to me when discussing it, they want to be fairly strict but strictly fair in terms of how he deals with all countries, but all countries are facing this problem.

Q63 Chair: Can I just ask what discussions you had with the Department for Communities and Local Government in respect of the Localism Bill and the implications that there might be in that for fines, should there be any, being transferred over to local authorities?

Lord Henley: The Localism Bill, as you know, is in the Lords at the moment and they have already at Committee stage discussed that aspect of the Bill. DCLG are considering those particular points and it might be they will want to come back to us—

Q64 Chair: Did they speak to you about it?

Lord Henley: We, at both official and ministerial level, have spoken to DCLG but obviously at this stage, the Bill being in the Lords, it is a matter for DCLG to come back to us as to how we meet some of the concerns. I understand the concerns of local authorities.

Q65 Chair: You accept there are concerns from local authorities?

Lord Henley: I accept there are concerns. We also accept there is a case that we want to provide an

incentive to local authorities to do their bit where they can to help in these matters. Now, obviously, and this is why I want to be very careful about what I say, we want to continue to discuss—DCLG in the lead but ourselves, Transport and others—just how those particular proposals will be dealt with. Those concerns have been raised very loudly at Committee stage in the Lords. I think they went through relatively quietly in your House but—

Q66 Sheryll Murray: I want to ask about the European Court action should we not meet the targets. Because of the lengthy process any action through the European Court would take, is there not the possibility that by the time any action was taken because we did not meet our targets, we might have met them anyway?

Lord Henley: I suppose that is always possible with any judicial process.

Q67 Sheryll Murray: It does take years, doesn't it?

Lord Henley: One has to accept that the European Court of Justice can be even slower than some of our own courts, and I speak at this stage as a lawyer who has a tiny bit of knowledge about how the courts work. Yes, they could take time.

Q68 Chair: Finally, from me, could I ask about the limit values for PM2.5 by 2020? Are these achievable, do you think?

Lord Henley: Daniel, would you like to answer?

Daniel Instone: The limit values on PM2.5 are a rather different kind from the limit values we have on PM10 and NO2 because these are not limit values in the sense that the others are. Do you want to explain it a bit further, Robert?

Robert Vaughan: There are two limit values within the standard. We have a limit value for 2015, which we are on target to meet, and there is a further limit value for 2020, which is more challenging than the 2015 one. But we are on target to meet the 2015 limit value. There is also what is called a national exposure reduction target, which is to reduce population exposure to PM2.5, and that target value has not been set yet because we have to base it on average exposure over three years and we will not be able to set that target value until 2012 when we have information for all the last three, 2009, 2010 and 2011, in terms of exposure to PM2.5. Based on that, the target would be a reduction of either 10% or 15%.

Q69 Simon Wright: I understand that the main cost of air pollution comes from the effects on people's health. I wonder if you could tell us what your assessment is of the cost of the impact of poor air quality on health and how you have come to that assessment.

Lord Henley: Well, it has a major impact on a large number of people's lives in that it obviously affects life expectancy in the long term in terms of poor air quality. I seem to remember being given a figure—and officials will correct me if I am wrong—that if we could suddenly clean up all the air overnight we would see life expectancy increase by, was it six months for most parts of the country but probably nine

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months in London? Obviously, it does have a major impact. You could also say that there are a lot of deaths that are happening earlier than would otherwise be the case, and that is again a reason why we keep in very close contact with the Department of Health and why the Department of Health take an interest in these matters. Yes, air quality is fundamentally important. Whether we can put a figure on it in financial terms is another matter. I do not know whether, Robert, you can—

Robert Vaughan: If I could add, COMEAP, the Committee on the Medical Effects of Air Pollution, put a figure that estimated that air pollution had an impact of, in fact, equivalent to 29,000 deaths each year at one end of the scale or, at the other end of the scale, it might affect everyone's life by reducing life expectancy, as the Minister says, by six months. The Committee—

Chair: Could I just come in on that if I may?

Robert Vaughan: The Committee did go on to speculate, though, to say that it was more likely that air quality had a small part to play in the deaths of a number between 29,000 and around about 200,000. It had an impact on the lives of those with cardiovascular illnesses and cardiovascular disease (ie around about 200,000 people). The costs in terms of social impact were estimated at being £16 billion a year.

Q70 Chair: I wanted to come back on what you said about the number of months that a person's life might be affected by. Many people say to us that there might be an average figure, but in areas of highest pollution that six or eight months could be translated to something like nine years so that there is a real link to the whole health inequalities agenda on this issue.

Robert Vaughan: If it was 29,000 those deaths would have been affected by a loss of ten years, at that end of the scale. At the other end of the scale there would be an average loss of six months. Certainly, in places like London, for example, for the population as a whole the average loss is estimated at about nine months.

Q71 Simon Wright: What are the shortcomings in the ability to put a firm financial cost on the health effects? Is there more work that can be done so that we have an understanding of the financial cost to society as a whole of the impacts of air pollution?

Robert Vaughan: I think, as I said, we have a pretty good understanding of the health impacts, the health costs and, as I said, the cost of £16 billion annually has been put on—

Q72 Simon Wright: That is on the health service?

Robert Vaughan: That is not on the health service particularly, that is on the loss of life, what people are willing to pay in terms of their—

Q73 Simon Wright: Lost productivity?

Robert Vaughan: No, loss of life expectancy. If it is six months, people would be willing to pay a certain amount to get that back, so to speak, and that is how it is actually estimated. It is very difficult to estimate the actual costs of air pollution on the health services

because it is reflected more in terms of cardiovascular illness or asthma or other conditions like that. It is quite a different way of estimating those costs. But the estimate on the social impact is estimated at £16 billion a year.

Q74 Simon Wright: What about the costs, then, that fall on environmental impacts that come as a result of air pollution? Is there work being done on assessing the cost to the environment?

Lord Henley: There is our recently published NEA, the National Economic Assessment, where if you remember when we published that there was some criticism of us in that we were being rather—I am trying to remember the word they used, but trying to put everything down to money in terms of valuing the view, the green space and all that. But it is quite a useful exercise to go down that route just so you get an idea about what your priorities are. I would hope that the work that we did on the NEA is also work that could be translated in a very similar way into matters relating to air quality and others. Purely putting a financial figure on something can be a crude way of doing things, but it can be a useful way of doing things in terms of showing priorities. Sarah, do you want to add—

Dr Honour: Yes. The National Ecosystem Assessment set out a framework for doing this and we have begun work already on actually applying that to air pollution. It is very much a work in progress. I think we need to build up the scientific evidence and the economic evaluation to be able to do a very thorough job, but certainly we are beginning to do that. We have also made more progress in valuing the impacts on crops as well, particularly from ozone, so it is something we are beginning to do and look to take forward in the future.

Q75 Simon Wright: Moving forward then, how would these health and environment costs be used to inform and appraise Government policy and programmes? Can you give us any examples of where the costs of air quality, of impacts of poor air quality, have actually affected a policy in some way?

Lord Henley: It is difficult at this stage to give an example of the sort you want, but I think the important thing is back to what I said earlier. Having some idea of the costs does, in albeit rather a crude way, give you some idea about what your priorities should be and does certainly help inform decisions by Ministers, Departments and others. I would hope that that is something that the Committee will take into account.

Daniel Instone: If I could just add on that, that is right and we do feed the information about the benefits, including, for example, the figure of £16 billion that was quoted plus the environmental costs that we are still calculating, into government. We have a body called the Interdepartmental Group on Costs and Benefits, which covers the costs and benefits of air pollution. We feed our latest information, which we update as we get better estimates, into that group and then that is used by the economists across Whitehall to ensure some degree of consistency of appraisal. For example, that would be used in assessing transport or other measures that are going to have a bearing on air

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pollution. We make sure that those numbers were fed into the formal economic assessments for those measures.

Q76 Chair: Can I just check on that point? The figure you mentioned, was it £16 billion did you say?
Daniel Instone: Billion, yes.

Q77 Chair: Yes, because we would have expected that if there was that kind of cost that is now being attached to problems associated with poor air quality that Defra would be talking to the Chancellor and the Treasury about that. If we were really serious about moving towards more green environmental taxes, that might somehow be slotted into the whole decision-making appraisal process for green fiscal policy. Has Defra had those discussions with the Treasury and how do they pan out?

Lord Henley: We have constant discussions with the Treasury about all matters and—

Chair: On that specific issue?

Lord Henley: On that specific issue, yes.

Daniel Instone: Yes, we do. The examples about how one would apply the costs that you have talked about would cover the range of Government policies. Obviously, we have to make a distinction between that figure of £16 billion, which is about, if you like, the costs of air pollution as a whole, and then the marginal benefits of a particular policy change, which would eat into those costs. What you would be then measuring would be the marginal impact, marginal benefits one would hope, of those measures. We would be aiming to calculate some numbers there and set those against the other direct costs, for example, to business, assuming there were any. We are and would be feeding those calculations in very explicitly.

Lord Henley: If I can make one other political point on green taxes, another point that we have made repeatedly to the Treasury and I would like to repeat, have it on the record, is that the ideal green tax raises no money whatsoever because it achieves what it is designed to do. I always think that we do not want to go down the route of tobacco tax where, as it were, I think the Treasury have become rather addicted to the revenue they get from that particular tax, though it was a tax designed to reduce consumption. I give as an example that is nothing to do with air quality, the landfill tax; ultimately I would like to see the landfill tax returning to the Treasury zero pounds because there was no landfill.

Chair: I think our Committee would be very interested to see what response you have had back from the Treasury in respect of the figure that has just been quoted in terms of the damage that is being done and how fiscal policies could be developed to deal with that.

Q78 Mr Spencer: The previous Committee spent a lot of time talking about air quality. I just wonder if you could identify any new policies that have come forward that could convince us that this is being taken seriously and what policies are in place that are trying to tackle the issue.

Lord Henley: Well, I honestly do think that we are making progress. A lot of this is going to be an

educative process in terms of how people behave and what they do. But it is also a matter of talking to local authorities about what they can do. Is it worth them, for example, in particular local authorities setting up a low emissions zone, or would that not be effective? This is also part of the process of discussing these matters with the Commission, partly to make sure that we can assure the Commission that we are serious about getting to those targets and we want to get to them, because again, there is this very serious problem about infraction that we are facing.

Q79 Mr Spencer: Is the only specific policy to try and educate and communicate with our colleagues in other levels of Government?

Lord Henley: Do you want to add anything Robert? We could go through a number of different transport measures, for example, that we have engaged in.

Robert Vaughan: Yes. I think, obviously, it is important to see these measures, transport measures in particular, in relation to carbon as well, and carbon reduction measures. There are a large number of transport measures that have been introduced by the current Government that support both carbon reduction and air quality. In particular, there were measures for a Local Sustainable Transport Fund, which was announced earlier in the year, and there was an announcement on smaller level bids up to £5 million yesterday, where there were a large number, about 30 to 40 awards, made for projects on cycling and walking strategies, sustainable transport, sustainable bus transport and the like. Also, there was a green bus fund, which supported the green bus transport both in London and outside London. About £45 million was awarded to that to encourage purchase of newer buses, which have both reduced carbon and improved air quality at the same time by having new bus stock.

The Minister has mentioned that we are investigating low emission zones, which is an area where work is ongoing at the moment. Also, other measures include incentives for smart ticketing technology in local authorities to help in terms of bus interconnections to make more effective public transport so that more people use public transport and less use the car. There have been sustainable transport measures on cycling and walking, sustainable transport towns, and so on. There are a large number of measures on the transport side, which is the main area where air quality has an impact at a local level and plays an important role in improving the quality of air.

Q80 Mr Spencer: I notice that improving air quality is not a specific action plan within the Defra business plan. I just wondered why that was not the case, why air quality was not specifically mentioned in that business plan.

Lord Henley: It is certainly mentioned I think in the Coalition Agreement, our bible that governs all we do. I am fairly sure about that, but the Defra action plans are necessarily limited because we want to focus on certain things. It is still a very serious aim of the Department and we take this very seriously. Again, I mentioned the risk of infraction proceedings.

Mr Spencer: Can I just go on to—

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Q81 Chair: Sorry, before we go on, just on that point, my understanding is that it is actually not in the business plan specifically. I would like to get it straight, is it or is it not in the business plan?

Lord Henley: I think it is not in the business plan.

Chair: It is not in the business plan.

Daniel Instone: It is not in the business plan, the reason being that it is a very explicit tie-up in the Coalition commitment to specifically EU standards. It does not reflect any lack of commitment; it reflects the fact that in a sense we have that combination—

Q82 Chair: How does it get followed up in action if it is not actually in the business action plan, Lord Henley?

Lord Henley: Because we are pursuing it very vigorously, as I am making clear, in terms of the risk of infraction and other matters. We will continue to pursue it very vigorously.

Q83 Sheryll Murray: On that point, could you explain why it was not included in the business plan, then?

Lord Henley: I would have to go back and consider exactly when we drafted up the business plan. We came in 14 months ago, and quite frankly I cannot remember why it was not specifically included. It is not there but, as I said, it is still there as a commitment and it is part of the Coalition Agreement, the Coalition Agreement that binds us all.

Q84 Mr Spencer: I can understand how in the Transport Department it could be fairly well towards the fore of thinking when developing policies, but I wonder how different Government Departments interact so that when new policies are coming forward all of those Departments consider the impact of any new policy on air quality.

Lord Henley: We obviously in Defra take the lead in these matters, but obviously on matters like air quality we have to have very serious discussions with Transport, obviously, who are responsible—it is from the transport sector that an awful lot of the emissions are coming. Similarly, DECC with their interest in energy and climate change, and similarly Health because of health concerns, BIS and other Departments. We continue to talk at both an official and at ministerial level. Certainly, from my experience of Government and coming back after 13 years in opposition, I do find that Government is working much better than it did in the past. There is much less “siloesation” between Departments. If I can go back, dare I say that it is something like 20 years, to when I was a junior Minister in Social Security, there was an appalling amount of “siloesation” between Departments. That has changed. I do not know whether things have just improved in Whitehall or whether it is the result of the Coalition or whatever, but within Government as a whole from my experience I can say that things work better in that respect. I have had a very large number of discussions with colleagues in those Departments; my officials have them regularly with others. I am talking very generally now but this is also true of air quality. We,

I think, are bringing things together in a way that used not to happen.

Q85 Mr Spencer: Are there specific structured meetings for those different Departments to get together? How often do they happen?

Lord Henley: I do not think one needs what you describe as specific structured meetings because that would imply setting up a formal process whereby you had to have meetings at any given stage to achieve this. What I am saying is that Government itself is working better in terms of how we reach our decisions on these matters and how we as Defra, with our lead on air quality, can make sure that we are encouraging our colleagues in Transport to think about these things very seriously, our colleagues in BIS, DECC, Health and all the others.

Q86 Mr Spencer: I am just trying to get a feel, really, for how often those meetings take place and whether—

Lord Henley: Daniel, would you like to talk about it at an official level—

Daniel Instone: Yes, shall I just talk about it at an official level? Lord Henley will no doubt want to supplement at ministerial level. At an official level, we have very regular meetings. They are typically ad hoc or many of them would be ad hoc in relation to the particular policy measure in question. For example, if the Department for Transport are about to introduce or thinking about new transport measures or thinking about how they should negotiate in the EU on vehicle standards where they might take the lead as opposed to the air quality standards where we do, we would have detailed discussions with them about the line. Similarly, say, with the Department of Health, we have been having a lot of discussion with the Department of Health about the public health agenda, including the *Public Health White Paper*, and about the importance of seeing air quality, among other things, very prominently identified in the Public Health Outcomes Framework. Those are just two examples where we would have some quite specific discussions on those issues and we would not want to see any measure introduced that was going to have a significant bearing on air pollution where there had not been a pretty clear and systematic discussion about the air pollution implications. Obviously, it is then a matter for Ministers to judge all the conflicting, or sometimes conflicting, issues that might arise on a particular measure. But we want to make sure, and indeed I think we do make sure, that those issues are fully aired.

Q87 Caroline Lucas: On that point—and it is very good to know that you are having discussions with other Departments—what I am lacking at the minute is any sense of an overarching cross-departmental strategy to achieve ends. Given that the context is one in which the Department and the Government is failing, as indeed the previous Government did too but failing pretty dramatically to get to grips with the quality of air in this country, I am surprised that there is not a bit more urgency and momentum around some

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kind of cross-departmental strategy. I wonder if such a thing would be useful.

Lord Henley: I think, dare I say, what you are suggesting is almost setting up some formal process.

Q88 Caroline Lucas: Yes, I am. I think we need something formal, quite frankly, because what we are hearing at the moment sounds a complete—

Chair: Void.

Caroline Lucas: Void, yes.

Lord Henley: Void. Well, all I can say is I take your point, but I honestly think that we are working together pretty well as it is. Whether that would be improved by having some formal structure set up is another matter, but I am always more than happy to consider these items. What I am saying, again this is just purely from my own experience, is that across Government and particularly on this issue we are working together well and I see my other colleagues with some regularity and we are all, I hope, pushing in the same direction.

Daniel Instone: Could I just add one point?

Chair: Yes, Mr Instone.

Daniel Instone: At official level we have a Programme Board that looks across the—in fact, it looks at the air quality and noise and local environment areas, and that does meet regularly and it does bring Departments together. We do look, if you like, at the overarching issues affecting, among other things, air pollution. I do not think it is really true to say that we do not look at that at the strategic level. I think I understand what you are saying, that this all sounds a bit ad hoc. I talked, when I was talking before, about the policy-specific areas. That is very important but there are also mechanisms, and this programme board I have identified is one of them, where we do, in fact, look right across the piece and we make it quite clear that there is a shared understanding among all Government Departments about what challenges we have to meet in public health and in meeting EU limit values. It is not true to say that, if you like, there is no strategic context, interdepartmental context, in which this is put.

Chair: Simon, did you want to come in on that?

Simon Kirby: No, I am quite happy listening, Chair.

Q89 Mr Spencer: Can I just ask, Lord Henley, how you see your role, really, in pulling those different Government Departments together?

Lord Henley: I see it as one where I meet with colleagues, let us say in the Department for Transport or wherever, as regularly as is necessary and make sure that they are aware of the concerns we have, and in particular I again go back and repeat the risk of infraction and the desire to improve air quality because of its particularly serious effects on health. Therefore, it is a matter of making sure we in Defra are in the lead on this, but that we make sure that we involve our other colleagues from other Departments.

Q90 Dr Whitehead: The beginning and end of the commitment in the Coalition Agreement, as far as I can see, is as follows, “We will work towards full compliance with European air quality standards”, full stop, the end. What I must say does concern me is

not just the question of the extreme brevity of that commitment and the reference to it but the extent to which that reaches out in any way not just within central Government but beyond central Government, for example, as far as local authorities are concerned. Is there, for example, any intention that when the National Planning Policy Framework Guidance comes out that that will put more emphasis on air quality and will particularly guide how local authorities might across the board deal with the issue of air quality?

Lord Henley: I am sorry that you are unhappy with the brevity of the remarks in the Coalition Agreement, but as you will appreciate the Coalition Agreement was drawn up in a fairly short space of time and sometimes actually brevity might be the best way of approaching these matters. It is pretty straightforward and blunt. We will work towards that and that is exactly what we are trying to do. As regards national policy framework document, I cannot obviously at this stage make any guarantees as to what its shape will be, but again, we will be putting our oar in, if I can put it in those ways, into discussions about it.

Q91 Dr Whitehead: Do you agree with the analysis that we have heard to some considerable extent that it is largely the case that as far as local authorities are concerned the issue is, shall we say, left to Environmental Health officials who do not have the clout to place air quality on to a wider canvas as far as a local authority is concerned. They tend to be the people who get on with it once they are asked to do it. Do you have any thoughts or views on how local authorities, as I said, across the board can actually build on what happens—and I do not wish in any way to underplay the very important work that Environmental Health officials do, but how to integrate that to a wider extent within local authorities; for example, the account that may be taken of the full costs of poor air quality on local authority transport programmes and, indeed, other local authorities generally. How might that be better integrated into the whole analysis of how local authorities take their planning and projects forward so that that becomes a part of the process rather than a corner of the process?

Lord Henley: I think, and you probably accept this, you are being possibly slightly unfair on the Environmental Health officials, but I think the important thing is that we want local authorities to take these issues seriously. Certainly, from my experience of regional tours of one sort or another and local authorities I have visited—Sheffield only recently—I know that a lot of them are taking it very seriously indeed. They went and pointed out to me on my recent trip to Sheffield just what the problems were that they were facing, particularly in relation to Madam Chairman’s earlier remarks about the Localism Bill. This was quite important because obviously in Sheffield they would make the argument that quite a lot of the problems in their case in certain parts are outside their control because they have the M1 running through and those are the bits where it is quite serious. But it is still a matter that local authorities should take seriously along with, obviously, in a case like that—because I just

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mentioned Sheffield—the Department for Transport, which one would hope would consider its role in the matter because it is the M1 going through. But do not downplay the role of the Environmental Health officials and do not downplay the local authorities. Robert, do you want to add something?

Robert Vaughan: I just want to give examples, actually. The local Environmental Health officers work very closely with other colleagues in other parts of local government such as transport officials and also planners to develop and implement air quality improvement measures. For example, the Minister has already mentioned Sheffield but another example is Oxford, which is working towards the introduction of a low emission zone in Oxford city centre. They have worked very closely at both county and city level with officials there to actually develop the proposals, to cost them and to assess the air quality benefits of the proposals. That has been supported by Defra air quality grant funding historically, certainly. There are examples of local authorities that do work very closely within different Departments to develop policies and implement policies. We also do provide guidance on how to assess the cost impacts at a local level of air quality improvement measures and also other measures as well—so there are transport policies, too—and how those cost impacts can be assessed. That information is there. Certainly, there could be improvements and I think it often depends on the character of the local authority. We are working with them to try and identify ways of actually sharing best practice in that area so that all authorities are effectively working together to make improvements. That information is there.

Q92 Dr Whitehead: I hesitate to—sorry, I do not hesitate, I—

Chair: Find a nice way of saying.

Dr Whitehead: I want to emphasise, yes, that indeed some of my best friends are Environmental Health officers, so I do not in any way underplay what they do. In fact, what I was trying to emphasise was the opposite case, which is that a lot of these issues are put on the plate of Environmental Health officers at local authority levels and they actually have an enormous range of concerns and potential blames coming their way as far as air quality is concerned without the structures and the buy-in across the rest of the local authority departments to support what they are doing. My concern there is whether there may well be structural and framework arrangements that Government may be able to put in place that actually support and underpin what they are doing and enable that to be widened out across the whole of local authority practice. I mentioned the question of planning guidance, for example, and also life-cycle analysis of projects in order to make that particular point. I wonder whether you have views as to how those structural arrangements may actually assist the implementation of what, indeed, are very solid and good commitments as far as central Government is concerned at the point where it really makes a difference at local level.

Lord Henley: Are you seeking more guidance from us to the local authorities about how they operate, how they—

Chair: I think he is asking what guidance you give and how adequate it is.

Robert Vaughan: If I might say, we are in the process of reviewing local air quality management arrangements following the report published last year under the last Government on local air quality management. We are aware that local government have asked for clearer guidance on what they can actually do, what policy levers they have available to pull. We do provide some guidance already to local government on air quality, on carrying out air quality assessments and implementing certain measures, like low emission zones or promoting low emission vehicles. That guidance is available. Obviously, it has not been taken up as strongly as it could be, so we do want to look at how we can improve that and how we can also, as you say, share best practice on life-cycle analysis. There are some councils—Camden is one—that have done some very good life-cycle analysis of low emission vehicles and vehicle fuel efficiency in local government. There are other examples as well where good work has been done and we want to make sure we can actually make that accessible and more available to other authorities so they can understand what levers they have available to pull. I think, as the Minister says, it may not be necessary to produce some new guidance, more making sure that the actual information and good practices out there are more effectively shared across local authorities. Part of the aim of our review is to ensure that happens more effectively.

Q93 Caroline Lucas: I just want to follow that up, if that is all right, from the perspective of the funding cuts. We are hearing stories about local authorities who are producing reports for Defra but have no funding or resources to tackle the problem that they identify in their reports or indeed even to monitor the situation fully in some cases. What effect are the cuts having in terms of the capacity of people at local authority level to take action in air quality management areas?

Lord Henley: The first point I must make is the one that we always have to about the deficit. It is the first duty of this Government to get the deficit under control and before we get—

Caroline Lucas: I am asking about the impact of it.

Lord Henley: No, obviously there will be an impact but that is—

Q94 Caroline Lucas: What is it? How is it being measured?

Lord Henley: That is the priority of this Government, as the Prime Minister has made clear, and without getting—

Q95 Caroline Lucas: I am not asking a question about the deficit. I am asking a question about the impact of the deficit on the ability of local authorities to act on local air quality.

Lord Henley: I still believe that local authorities will be able to perform their duties and their tasks that they

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have under the various statutory obligations they have in front of them. But I think it is important to always remind anyone who raises these questions that we have a duty to tackle the deficit first and foremost. It is up to the local authorities to then make sure that they can still perform their statutory functions under the various provisions.

Q96 Martin Caton: Mr Vaughan, you mentioned the local air quality management review to your Department. That in fact found that action plans, although being generated, are not for the most part resulting in improvements in air quality. Is that not true?

Robert Vaughan: Well, the action plans take a while to actually be implemented and to generate improvements. The action plans referred to were implemented or introduced and first developed earlier in the 2005–06 period, when air quality matters were first identified. But implementation of improvements takes some time to feed through. They may not be as effective as we would want them to be and we are looking at ways in which perhaps we can improve the effectiveness of those. Some areas like Sheffield, for example, and Oxford have made significant improvements, but in other areas it has been more challenging for a number of reasons, part of which is to do with the effectiveness of Euro standards and also other changes in diesel fleet, for example, which have impacted on the ability of action plans to achieve the improvements intended to be achieved. We are looking at how we can improve that.

Q97 Martin Caton: Minister, you have already indicated this afternoon that you see the stick of EU fines as a way of encouraging local authorities to contribute to improving air quality and you have acknowledged there are real concerns in councils about that. What about carrots? Are you helping councils identify those policy areas where they can make a difference in air quality?

Lord Henley: I am always far keener on carrots in any process than I am on sticks, though sometimes the threat of a stick is as useful as the stick itself. Yes, there is the stick there in the threat of infringement proceedings and, as you know, as part of the Localism Bill there is discussion as to whether the local authorities, where they are responsible for the problem, should be made liable for that. As regards carrots, yes, we will continue to encourage local authorities, but I think local authorities have their own carrot in that they are doing something for their own electorate and they are responsible to their electorate and their electorate are concerned about air quality matters. Again, I just give the example, because it is the most recent one, of my visit to Sheffield where I was taken to some of the particularly bad areas where the air quality was a serious problem. I met a number of constituents affected by air quality. They were aware of that and they will make their local authority aware of that. I do not know whether that amounts to a carrot, but I would have thought getting the support of your local population to take measures to deal with air quality should count as a carrot rather than a stick.

Q98 Martin Caton: My concern is that knowing that you have had a review, which reported last year, showing that the air quality action plan approach, which leaves it very much to local authorities, was not delivering, the Government would want to take action to make sure that delivery at that local authority level is there.

Lord Henley: As Robert made clear, it is delivering in some areas—

Robert Vaughan: That is certainly true, yes. Also, just to add, as I mentioned earlier, the Local Sustainable Transport Fund does provide £500 million in carrots to assist in implementing local transport related measures, which will benefit air quality as well as carbon. Also, we have provided ourselves a pump priming fund of £2 million air quality grant funding to local authorities, which has been going on for some time, to support local air quality measures and to support the assessment of local air quality measures. That has been used by Sheffield, Oxford, Norwich and other authorities to develop measures to improve air quality at a local level, to provide communications to businesses and to the public on what they can do to improve air quality and what they can do themselves, as well as other projects to improve air quality. There are those carrots available.

Certainly, as was said, we do want to try and make improvements to the action plan process and to improve focus on delivery. I think the report said that local authorities are very good at prognosis and diagnosing where the problems were, but they are not so effective at actually delivering improvements. That is where we want to provide more focus on those as part of the work we are doing.

Q99 Martin Caton: Will the envisaged reforms to public health in the Health and Social Care Bill help local authorities to improve air quality?

Daniel Instone: Well, just on that point—sorry, am I jumping in?

Lord Henley: No.

Daniel Instone: The public health White Paper for consultation, which was published at the end of last year, already highlighted, particularly in what it said about the public health outcomes framework, that air quality was an important public health dimension. As I think I mentioned earlier, we have been working very closely with the Department of Health on ensuring that air quality is properly registered in the further White Paper that the Secretary of State for Health is likely to be producing in the near future. Now, it is obviously still for Ministers to decide exactly what that contains, but I can assure you we have been working very strongly with Department of Health officials to make sure that air pollution is properly registered. No surprise, of course, given what we have said already and what I think is well known about the very strong health costs involved here.

Q100 Martin Caton: How will health effects from improved air quality be monitored and assessed under these reforms?

Daniel Instone: Well, they will be monitored and assessed under the public health outcomes framework. The precise details of the way in which the outcomes

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framework will be monitored is a matter for the Department of Health, and we will be discussing that with them. As I understand it, the White Paper is likely to talk about that so I cannot anticipate precisely what the White Paper will say about that.

Q101 Martin Caton: In your written evidence you said a set of indicators may be developed?

Daniel Instone: Yes.

Q102 Martin Caton: How do you do it if you do not have a set of indicators?

Daniel Instone: Well, that is what the public health White Paper, which I understand is likely to be published soon, will be taking forward. That I think will be coming out soon but it has not yet come out, so I cannot tell you precisely how it will be monitored since the White Paper has not yet been published.

Q103 Dr Whitehead: The Government I think in its response just a little while ago to the PM10 EU limit value deadline concluded that a mass diesel retrofitting programme for polluting vehicles would not be cost beneficial and asked for a partial exemption instead, which would provide additional time, they said, to enable planned measures to come into effect. What are the planned measures that are coming into effect?

Robert Vaughan: Well, those were planned measures that were already in place, such as Euro standards improvements and also there are quite a lot of other measures that were intended to improve the transport sector in particular. There was a range of measures that were set out in the actual PM10 application, carbon-based measures and other measures, which were intended to improve air quality historically over the last 10 years. Also, the Commission has recently accepted our further information given to them in the last few weeks for short-term measures on the time extension.

Q104 Dr Whitehead: Why is retrofitting considered not to be—

Robert Vaughan: That measure was a mass retrofitting measure and an impact assessment was carried out that showed that the costs and benefits would not be as amenable as actually seeking a time extension.

Q105 Dr Whitehead: Forgive me, but if they are not then cost-effective and measures come in over a period of time that are essentially the same sort of thing as making them cost-effective in the first place, wouldn't it be a good idea to get on with it?

Robert Vaughan: Well, no. The retrofit measures would have brought forward the costs of those, whereas the Euro standards actually implement them over a period of years. You would have been paying the costs up front rather than paying for them over a number of years over the longer term.

Q106 Dr Whitehead: I am not sure I quite follow you. Does it become cost-effective if you pay over a period of years rather than pay up front given that the same money—

Robert Vaughan: No, the cost benefits are different.

Dr Whitehead: Sorry?

Robert Vaughan: The cost benefits will be different over a period of years as opposed to having to impose the costs immediately.

Q107 Dr Whitehead: Why would they be different?

Dr Honour: The retrofit would be you would take an existing vehicle and pay to apply a piece of technology that would reduce the emissions, whereas if you leave it over time, because of vehicle replacement, as people buy new cars and heavy duty vehicles—because of the Euro standards (we have a series of standards that improve vehicle emissions over time), as we go through and replace the fleet, the emissions from that fleet will go down over time just because we are buying newer, much cleaner vehicles. That would happen gradually over time as people replace their vehicles, which they would do anyway, whereas this would be an additional cost to pay on top to apply new technology. The other would be a cost that is taken as given anyway.

Lord Henley: Could I put it in very simple layman's terms that I would understand? No car, no lorry lasts for ever and there is no point spending a vast amount of money, or about £5,000, on a vehicle that only has a few more years of life, when its replacement that is going to come in a few more years is going to have moved on a whole stage because each generation is getting more efficient and cleaner.

Q108 Dr Whitehead: I understand that, but is that not rather similar to saying we can resolve the question of insulation in homes by waiting for the old homes to fall down and then we will build some new ones that have a much higher level of insulation and that will sort the problem out?

Lord Henley: No, you are taking, dare I say it, rather a silly point. Homes last somewhat longer than vehicles. Vehicles do not last that long. They do not live for ever and the amount of money—this is why it is not cost-effective. If you are spending that amount of money on a vehicle that only has a few more years' life, it would be better, rather than doing that, to wait those few years and then move on a couple of generations because each generation is getting more efficient.

Q109 Dr Whitehead: But we do not do anything—or not much—to get those polluting vehicles off the road in the meantime?

Lord Henley: They can be removed from low emission zones or whatever, depending on how you manage those. It is what is cost-effective and I think it is a fairly simple and straightforward point. I do not accept your analogy about homes, which last—I do not know what the average age of a house is, but there are some that are many hundreds of years old.

Robert Vaughan: If I might add, we have provided incentives to bring forward the benefits of, for example, Euro standards. With heavy goods vehicles we provide a reduced pollution certificate, which helps to encourage hauliers to buy newer vehicles, and that will be introduced for Euro 6 from 2012. There

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are those incentives there to bring forward Euro standards as well.

Q110 Dr Whitehead: I do take your point that my analogy obviously does relate to different timescales. However, what I was trying to illustrate is a process of actually deciding cost-benefit analysis on the basis of essentially just letting those vehicles get on with it until such point as they disappear from the fleet by the process of age. Meanwhile we will put on processes, such as particulate traps being made mandatory for new vehicles, so that when they come on the road they will not have the same—I am not sure on what basis that cost-benefit analysis then works other than it would be fairly costly to take more vehicles off the road. In the meantime, therefore, the cost of a large amount of air pollution appears to be factored out of the equation. What is essentially countenanced is that these vehicles just go around until they drop dead and then it will be okay after that. That appears to be the policy.

Lord Henley: If it is going to drop dead in a couple of years—and it depends on the vehicle obviously—is it worth spending a very large amount of money and asking the operators to spend that large amount of money for a gain that is relatively small compared to what you are going to get when that vehicle disappears?

Q111 Chair: Sorry, I think that the point the Committee is concerned with is, given the number of deaths and the extent of ill health, in the impact assessment how much cheaper is it to rely on the rising standards rather than relying perhaps on investment in retrofitting?

Daniel Instone: I think it is true that we are looking at each case separately and obviously each—

Chair: Each case?

Daniel Instone: There are different situations where there would be a balance. You are quite right to pose the question what is the balance between stimulating retrofit or allowing the fleet to replenish itself, if you like, naturally, as you were implying. At different times and based on the pollutant one is concerned about, the costs and benefits will fall out differently. Just to give an example of that, in relation to NO₂ one of the things we are looking at as part of our consideration of the feasibility of low emission zones more widely is just what the costs of retrofitting vehicles to achieve NO₂ standards through what is known as SCR retrofitment would be compared with the health benefits and other benefits you would get from reducing air pollution. Each case is different and we are certainly not saying that there are no occasions when it makes sense to retrofit. We already have particulate traps used quite widely both in this country and abroad and we are now, as I say, looking at this further in relation to NO₂. We are certainly not saying at all that we should not consider retrofitting in particular cases.

Q112 Chair: I know we have two quick questions in on transport, but I just want to get Sheryll Murray in first because she has to leave.

Sheryll Murray: Excellent. I just want to turn to local emission zones, which seem to have worked quite well in Holland and Germany. Why has the national scheme for the low emission zones not been introduced?

Lord Henley: We would like to see a lot of local authorities considering whether they are appropriate for themselves. Whether that should be a national scheme is another matter, but I think you are probably right in saying that we want to make sure as others appear that there are national standards, if I could put it that way, because obviously there could be problems particularly for the hauliers and others.

Q113 Sheryll Murray: Have you looked at the costs and risks in establishing them?

Robert Vaughan: We have. In the recent consultation we have published, we did do some investigation on the impacts hypothetical low emission zones might have in towns and cities to take us closer to achieving compliance. That work has been done. We have also done an impact analysis that we published of the costs and benefits of low emission zones—16 low emission zones introduced in various urban areas across the country—so that work has been done to assess those impacts. They are at a very early stage at the moment and there are some uncertainties in that. We will also be publishing shortly a technical review, an evidence gathering report to better understand the feasibility of introducing a national framework, the costs involved and also the practicalities involved in terms of administrative costs on the various departments and other agencies as well and also for local authorities as well. I have been going around in discussions with local authorities to assess their appetite for low emission zones, what the barriers are for them, what the issues are. We are investigating that. There are a number of questions to be answered before we can go any further, especially in relation to NO₂, the impact and the benefits low emission zones might have. On the continent, very few, if any, of the low emission zones are there to support the reductions in NO₂. They are more focused on particulate matter.

Q114 Sheryll Murray: So I take it from that answer you have been to Holland and Germany and had a look at their schemes, and you have familiarised yourself with them.

Robert Vaughan: We have not been there.

Sheryll Murray: Have you had discussions with them?

Robert Vaughan: We have had discussions, certainly, yes.

Sheryll Murray: Thank you very much.

Q115 Caroline Nokes: Given the very high impact that transport has on air quality, how would you respond to any proposals brought forward to either lengthen the gap between MOT tests for cars or delay the first MOT test considering the impact that might have on emissions?

Lord Henley: We would certainly have concerns and we would want to raise those with the Department for Transport and discuss what the problems might be because obviously if one did have a two year MOT

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rather than a one year, one of the things they look at in the MOT is the amount of emissions. Obviously in the end, these decisions have to be made by the Department for Transport or by the Government as a whole but we would, as I think I used the expression earlier, try and put our oar in on a subject like that to make it clear that our concerns about air quality were going to be met.

Q116 Chair: Thank you. Neil, I think you wanted to come in on this.

Neil Carmichael: Not on transport but on local government.

Chair: Okay, can we just bring that in in a second? Caroline?

Q117 Caroline Lucas: I wanted to ask about public awareness because there is quite a lot of concern that many people do not understand or make the links between poor air quality and ill health, and yet there are some quite staggering facts. For example, it could be as bad in effects as things like passive smoking, which gets an awful lot more publicity, but the cardiovascular risk of exposure to traffic pollution could well be in the same field of concern as passive smoking. Given that, will the Government be launching a new public awareness campaign to advise the public on the health effects of poor air quality?

Lord Henley: I think you are right to talk about the needs of dealing with public awareness. I am very grateful for the work of—I have now completely forgotten their name—Environment Protection UK. You were at the launch of Environment Protection UK's policy and we are very grateful for the work that they do. We will continue to encourage that and do what we can to support it. At the same time I think we have to be very careful about being over-alarmist about these things. We did mention earlier the effect it had on length of life, life expectancy and other such matters and Mr Vaughan gave the figures that COMEAP gave in terms of numbers of deaths, but one does not want to see those translated into tabloid headlines saying that all those people are being killed every year by that because that is a misunderstanding of how the figures are put out. If you want, Robert will explain them yet again because I still find it rather difficult to understand that but yes, I think all of us, this Committee, the Government, local authorities, have a duty to raise awareness about this and it is by raising awareness as you will know better than anyone that one can get things done and encourage local authorities to do their bit.

Q118 Caroline Lucas: But that being the case, rather than just saying that you will support EPUK and others, can we look forward to a real Government sponsored campaign to raise public awareness because yes, we should not be alarmist but none the less there is quite a lot to be alarmed about, not least that there are many premature deaths as a result of air pollution, that there are things that need to be done to people so they can protect themselves better from air pollution. We have lots of campaigns about people having more exercise, for example, and yet again the Air Quality Management Resource Centre says that the

Government reports have identified that the health impact of air quality in the UK is almost twice that of physical inactivity. Think about the number of times the Government tell you to get out there and have some more exercise; well, why are the Government not saying something about air quality? You mentioned Environment Protection UK who were one of the leading organisations that launched the healthy air campaign yesterday. We took evidence from them a few weeks ago and they said the single most important thing the Government could do would be to sponsor a public information campaign.

Lord Henley: With the constraints on public expenditure bearing down on me, I would be very wary of promising any expensive campaign at this stage but I can assure you we will do whatever we can to increase public awareness.

Q119 Caroline Lucas: If we take the point that poor air quality is costing the state one way or another £16 billion, could we say that if the public awareness campaign was going to cost less than £16 billion it would therefore be a rather good investment and therefore the Government will do something, because I am worried. Of course the deficit is important but it is not a get-out-of-jail free card and it gets played again and again whenever something has been suggested and a campaign does not have to be expensive.

Lord Henley: Of course it is not a get-out-of-jail free card but the idea that you could spend £16 billion on a campaign of this sort or even £16 million, would it be cost effective? I do not know.

Q120 Caroline Lucas: Could you find out? Could we have an action point that there will be—

Lord Henley: As with any advertising campaign, one remembers what Lord Leverhulme said about his advertising, "I know that 50% of it works and I know 50% of it does not work. The trouble is I do not know which 50% works".

Caroline Lucas: But on that basis you would have no Government advertising. We have plenty of Government advertising on other things but would you take this seriously enough to say—

Lord Henley: We have plenty of Government advertising. We will take it, obviously, very seriously and we will consider what is appropriate.

Chair: It would be very helpful to have details of what you think might be appropriate so that we can judge it.

Q121 Caroline Lucas: Indeed, it will, because there is a degree of complacency on this subject and I think that is my take away from this session: there needs to be far more public awareness. We have had in front of us the director of EPUK, we have had Professor Frank Kelly from Kings College London, and Councillor Richard Kemp from the Local Government Group, all of them saying the single most important thing the Government could do would be to have a real public awareness campaign and, of course, it would not have to cost £16 billion, £16 million or even £16,000. There are things that the Government

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could do that are inexpensive to get the message across.

Lord Henley: I note what you have to say and I will take that away with me and I think it is a very important point. Once again I would say that I am very grateful that the Committee is going through this process because this is also part of raising public awareness. People do occasionally note what Committees do and say and report.

Q122 Neil Carmichael: Can I just ask a few questions about local government? I am sorry it is a bit late—you may well have answered these questions already—but what I would like to know is how you envisage local authorities co-operating with each other in terms of promoting air quality because in the Localism Bill we have obviously the presumption to co-operate. Does that extend sufficiently in the direction of air quality control? That is my first question. Then I was going to raise the question about local government's relationships with other agencies which are responsible for air quality control. I am thinking here in particular of, for example, a situation which I have in my own constituency where we have ironically a composting factory belching out inappropriate smells and all the rest and really disturbing a lot of our village. It is being dealt with at the moment because the environment agency has acted in terms of effectively suspending the licence but what I have noticed is an interesting debate between the local authority and the environment agency about who is responsible for exactly what and I was just wondering if you could talk us through that.

Lord Henley: On the first one, yes, we are very keen that local authorities should, wherever possible, co-operate with each other. In another of the fields in my responsibility, the subject of waste, we are already seeing a great deal of local authority co-operation where they come together and pool their resources and this works very well. Another example is from waste where you get a bit of cross-boundary work which can assist the collection of waste, which is very important. I think we have some quite good examples of co-operation on air quality—Mid Devon, is it, and one or two others?

Robert Vaughan: Yes, there are several examples where local authorities work very closely together, which have already been mentioned. On the specific case you refer to, I cannot make any comments because I do not know about the details there but we do have very good arrangements for the Environment Agency and local authorities to work and to co-operate on managing emission risks from small industrial sites and larger industrial sites as well, so those arrangements are in place. I cannot make any comments on the specific site you mentioned because I do not know the details of that, but generally we have very good arrangements to ensure any disagreements or differences of view are resolved and appropriate arrangements put in place to manage the site through permitting and other legal arrangements such as that. For the Highways Agency, for example, there are legal requirements within the Environment Act for both agencies to co-operate on air quality matters, and for authorities both at county and local

level to co-operate on air quality matters, so those arrangements are in place. As for how they work in particular instances, I cannot really comment on the example you give, but generally there are arrangements in place to ensure it works.

Daniel Instone: It is perhaps worth adding that in some of the major conurbations there is very close working. I have been quite struck how close it is between the different parts of the major conurbations. They do work very closely together and in some cases they are managing the issue about pollution effectively as a team covering the whole of the conurbation and not simply the individual unitary authority within that conurbation.

Q123 Chair: In terms of the changes to strategic planning and the way in which some areas do not have passenger transport executives, for example, and the move towards localism, I am not very clear—returning to the point that Dr Whitehead made early on about the national planning framework—how it is possible to really integrate that strategic planning together? Because it must happen in some areas, but it is not necessarily the case that there is a mechanism in place for that joined-up transport investment regeneration strategic planning to take place.

Lord Henley: Presumably you are not thinking of your Manchesters, your Liverpools, your big areas where there would be—

Chair: I am talking about not the big areas like Manchester and Liverpool. It is more the areas like Stoke-on-Trent, the smaller areas.

Lord Henley: All right. As I said, it is all matters open to local authorities to work together and I could give you examples across a whole range of different fields where they are doing that and that should be encouraged where it is appropriate. But I think it should be a matter for the local authorities to do that themselves.

Q124 Chair: I am just going back to what you said earlier about the Department for Transport and the sustainable transport announcements which were made yesterday. I see in the list that we have of areas where they are not in compliance with the different standards, not every one of those was successful in their local sustainable transport bids to the Department for Transport. Do you have any input into which are the successful schemes or not based on the air quality issues?

Robert Vaughan: Air quality was considered as one of the issues. We provided information to the Department for Transport on all local authorities where there were air quality management areas or exceedance of the limit value or both, and that information was taken in to account in the assessments. The criteria for application also included air quality as one of the additional considerations for applications. All applications with air quality included in the benefits of the measure of the proposal would be more favourably treated than those without, so they were included in them. But the primary aim was of course to reduce carbon and to promote growth. That was the first tier. So air quality was on the second tier in terms of being favourably treated.

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Chair: Thank you. I am just very conscious of time.

Q125 Simon Wright: Paragraph 22 of your memo to us states that trans-boundary pollution continues to be a significant influence on UK air quality. I wonder if you could tell us whether you are aware of what proportion of air pollutants that we feel the effects of in the UK come from overseas? Which states are the main sources of those pollutants and what are you doing to address this problem?

Lord Henley: Now I do have some figures on trans-boundary pollution and I wonder whether Sarah might want to give the techie answer.

Dr Honour: The degree of influence of trans-boundary air pollution depends very much on the pollutant and where you are looking. Certain pollutants, the longer lived pollutants such as ozone and secondary particulate matter, those pollutants are more strongly influenced particularly from the continent. Some of the shorter lived pollutants are less influenced and again trans-boundary is less important when you are very close to an emission source. With a lot of our NO₂ issues, which are road side, the trans-boundary element is not as big because it is emissions from cars, but certainly with ozone there is a much larger trans-boundary element. Sometimes it depends on where the air mass is coming from. Quite often we get a lot of westerly winds so we are quite lucky in that way in that there is not a lot of import from there but on occasions we do get air that travels over the continent, picks up pollutants and then comes over the UK, in which case clearly if you then get stable air masses and certain conditions like sunshine it can lead to episodes like we had over the Bank Holiday weekend—high, high ozone levels.

Q126 Simon Wright: From how far across the continent?

Dr Honour: It depends. The closer it is, clearly, the bigger influence, and it depends where the air mass moves so that countries such as France, Belgium,

Germany will have a bigger influence and also shipping has an influence as well, and clearly we also export some pollution to those countries as well, Scandinavia and countries like that. But with different pollutants, like ozone, it is emissions from almost the whole of the Northern Hemisphere which will have some impact on the UK because it is so long lived and also because of some of the chemistry involved. It depends very much on the pollutant itself.

Lord Henley: At a political level, I can give the assurance that we are a party to the UN convention on long range trans-boundary air pollution. We are actively engaged in the revision of what is called the Gothenburg protocol which is expected to conclude next year in 2012, which will set tighter emission ceilings for all air pollutants, including fine particulate matter, to be met by 2020. It is a key EU objective to widen ratification of that, to revise the protocol so that more countries are willing to make emissions reductions, to reduce the overall burden of the trans-boundary pollution, but we will continue with that process.

Simon Wright: Thank you very much.

Q127 Chair: Minister, thank you very much indeed and to your colleagues. I think many people feel that this is a subject which is perhaps invisible and needs to be more on the public agenda. We certainly hope that our Committee report will contribute to that so thank you very much indeed for your time this afternoon.

Lord Henley: Thank you again for inviting us along. I hope we have shown, thinking of Caroline Lucas's point, that we are at least not complacent on this issue. Sadly air quality is one of those things that is, almost by definition, invisible. We can smell it sometimes but we do not really know what it is we are taking in, but it is something that obviously we want to raise awareness of and we want to do what we can. Thank you very much.

Chair: Thank you very much indeed.

Written evidence

Written evidence submitted by Environmental Research Group, King's College London

SUMMARY

- PM concentrations have not decreased as expected. Research should be commissioned to evaluate the policies needed to reduce PM concentrations.
- Further steps should be taken to reduce PM concentrations across the UK, even in areas where mandatory limits are achieved; in the review of the EU Directive in 2013, the UK should press for the exposure reduction targets to be mandatory.
- Further research should be commissioned into the possible toxic components of PM and an evaluation should be carried out of the policy “cover” for all potential candidates. Tyre and brake wear emissions are potentially toxic, will become more important if exhaust emissions decrease, and are not covered by existing policies.
- A large proportion of the PM_{2.5} associated with loss of life expectancy in the UK arises from countries neighbouring the UK.
 - this should be quantified more accurately, and
 - the UK should press for significant reductions in emissions from neighbouring countries in EU and UNECE negotiations, and in turn should commit to similarly significant reductions in its impact on other countries.
- Vehicle emission regulations for NO_x have been shown to be inadequate for light duty diesel vehicles. Research should be commissioned to explore further the reasons for this and to evaluate the performance of newer technologies entering the UK vehicle fleet for both NO_x and PM.
- Major public health and environmental improvements are possible with optimal policies in achieving the 2050 climate change target of 80% reduction in carbon dioxide equivalent emissions. Some progress has been made but an improved dialogue between Defra, DECC and DfT is necessary to achieve optimal outcomes.
- The Government should consider establishing centre for research on air quality in the UK.

ABOUT US

The Environmental Research Group at King's College London is one of the UK's leading institutes in air quality assessment. Focusing mainly in London and the south east we run air quality monitoring networks for local authorities and Defra including the London Air Quality Network (www.londonair.org.uk). We undertake modelling to support air quality policy and interventions on behalf of the Greater London Authority/Transport for London and local authorities. We are also active in research into the sources of urban air pollution and their health effects. ERG, almost uniquely in Europe has expertise in atmospheric science, toxicology and epidemiology of air pollution. We have a newly-established Science Policy Group which carries out research of direct relevance to policy on air quality.

THE CAUSES OF PARTICULATE AND NO₂ AIR POLLUTION IN THE UK AND HOW THESE CAN BE REDUCED MOST EFFECTIVELY

Particulate Matter (PM)

1. The sources of PM fall into three broad categories. The “primary” PM component from local combustion, “secondary” PM formed by chemical reactions in the atmosphere, and the “coarse” fraction generated by sea salt, windblown soils and dust but also by tyre and brake wear. Work at King's and elsewhere has shown that tyre and brake wear emissions are potentially toxic. Secondary PM arises from non-UK sources as well as from the UK. This fact did not feature heavily in the Committee's first report but it has fundamentally important consequences for policy and for the present inquiry. In urban areas, the main source of primary PM is from diesel vehicles. In the 2008 London Atmospheric Emissions Inventory produced by King's College London, vehicle emissions made up 57% (1465 tonnes) of the total primary PM₁₀ released. This was evenly split between exhaust (29% of total) and tyre and brake wear (28%). Of this 1465 tonnes, diesel vehicles emitted 71% of which 32% was from diesel cars, 24% from HGVs, 28% from LGVs, 7% from buses and 8% from taxis. There is evidence that primary emissions (exhaust plus tyre/brake wear) have not decreased at roadside sites in central and inner London.¹ Work at King's College London has suggested that the oxidative potential² of PM in London increased resulting from increases in the emissions from brake and tyre wear from 2000–06.³ This source is potentially very important and more research is needed to quantify the emissions and their toxicity. There is no policy measure to cover this source at present.

¹ S. Beevers et al, Air pollution and emission trends in London, King's College London report to Defra, 2009, and G. Fuller and D. Green, Evidence for increasing concentrations of primary PM₁₀ in London, *Atmos. Environ.*, 40, 6134–6145, 2006.

² A measure of the potential toxicity of a pollutant.

³ F.Kelly et al, The impact of the congestion charging scheme in London, HEI Report 155, April 2011.

2. Secondary PM arises from chemical reactions and estimates of sources of secondary PM_{2.5} in the UK are available from the EMEP⁴ model for an illustrative reduction of 15% in primary PM_{2.5} and secondary PM_{2.5} precursor emissions from sources in Europe. Reductions in annual average PM_{2.5} over the UK (the parameter on which the ~6 months loss of life expectancy has been calculated) were such that the benefit arising from the 15% reduction in the UK gave 40% of the total benefit in PM_{2.5} reduction, reductions in France contributed 12%, Germany 9% and shipping sources in the Atlantic and North Sea 12%. The spatial resolution of the EMEP model may lead to an underestimate of the benefit of reductions of primary PM_{2.5} emissions in the UK. However, this should not be sufficient to change the qualitative conclusion that a very significant proportion of the annual mean PM_{2.5} in the UK arises from sources outside the UK's direct control, and hence under EU control, confirming the need for the UK to push for wider emissions reductions, including from shipping.

3. During high pollution episodes, the contributions from different regions will differ from annual average values. A systematic analysis has not recently⁵ been carried out, but as an example, during the period of elevated PM in April 2011, using measurements of PM₁₀ at rural and urban sites in London and the south-east, ERG estimated that the non-UK contribution to PM₁₀ levels was approximately 60%-80%, at roadside and urban background locations respectively. Given that high pollution episodes tend to occur in high pressure systems with easterly airflows, non-UK contributions can be high when the EU Daily Limit Value for PM₁₀ is exceeded. However, this is not always the case and a more comprehensive analysis should be carried out to quantify this.

4. This has important implications for policy for UK emissions and more widely in Europe. The high pollution episodes of PM₁₀ causing exceedences of the EU Directive Limit Value now occur chiefly at roadside sites in London, and measures clearly need to be taken to reduce the local UK contribution to such levels. Measures to increase public awareness of the role they play in generating pollution and encouragement to walk or cycle when making a short journey is still lacking. In addition, the introduction of clean technologies across the public transport sector and the use of low-PM/low-NO_x vehicles such as petrol rather than diesel, hybrids, electric vehicles etc could be put in place. Measures such as Low Emission Zones and congestion charging also have an important role to play. The contribution of non-UK sources is important however, and reductions in PM₁₀ precursors are necessary. This does not mean that the UK is unable to do anything about these non-UK contributions as discussed below in the context of international agreements on emissions.

5. Policies to reduce PM concentrations have been established over three decades in the EU and for much longer in the UK. Successive Euro standards have set increasingly stringent limits for particle emissions from diesel vehicles; national emission ceilings are set in the EU National Emission Ceilings Directive (NECD) and the UNECE CLRTAP Gothenburg Protocol; industrial emissions were regulated through the Integrated Pollution and Prevention Directive and subsequently the Industrial Emissions Directive. These measures reduced PM₁₀ concentrations during the 1990s, but from about 2000, annual average PM₁₀ concentrations levelled out and showed no significant further decrease⁶ (see also footnote 1). This behaviour has not been fully explained, but one possible reason is the non-linear response in the secondary sulphate component of PM₁₀ to reductions in SO₂ emissions.⁷ Other possibilities are that emission controls on primary PM₁₀ have not been effective, tyre and brake wear emissions and shipping emissions may not have decreased over this period, or meteorological conditions may have led to systematic changes in PM₁₀ levels.

6. Recent analyses by King's College London show that since 2009 average PM₁₀ levels in London have begun to decrease. The reasons are not clear-no detailed analysis has been funded to explain this. Without an understanding of trends in PM levels there can be little confidence over the effectiveness of current policies to reduce PM concentrations, or to identify the most effective policies to optimise future reductions.

7. Euro 5 and 6 standards should decrease primary PM emissions still further, although given the recent experience with NO_x (see below) it would be prudent to check the effectiveness of this legislation in practice. Revisions of the emission ceilings in the Gothenburg Protocol are already progressing, aiming to conclude in December 2011; the EU NECD is due to be revised in 2013. Both offer an opportunity for the UK to reduce its own emissions of primary PM and precursors, but also to press for stringent controls in neighbouring countries, given the transboundary contributions to PM in the UK.

8. Daily PM₁₀ concentrations should also be reduced by the measures described above. The European Commission has granted the UK a time-extension to meet the daily PM₁₀ Limit Value on condition it produces short-term action plans ensuring that concentrations are reduced during periods of elevated levels. There are two points to note. Firstly the contribution of non-UK sources to many of these episodes will be high. While the Directive (in Article 22) allows exemptions from applying the limit values for PM when conformity cannot be achieved through transboundary contributions, it does require Member States to take "all appropriate measures at national, regional and local levels to meet the deadlines". Secondly, measures focussed on small areas of non-compliance can be expensive and whether or not they achieve legal compliance, they certainly

⁴ See www.emep.int, the EMEP model underpins EU and UNECE legislation on air quality.

⁵ An earlier study (by Charron et al, *Atmos. Environ.* 41, 1960-1975, 2007) showed that the "regional" contribution in episodes at Marylebone Road exceeding the EU 24-hour limit value was 55%. This regional value will include emissions from outside London and from the rest of Europe.

⁶ Harrison et al, Why are PM10 concentrations in Europe not falling?, *Atmos. Environ.*, 40, 603-606, 2008.

⁷ This means that a reduction of X% in the precursor sulphur dioxide emissions does not necessarily result in a reduction of X% in secondary sulphate in PM10 (Jones and Harrison, 2010).

will do little to improve the health impacts on the 10 million or so inhabitants of London, and certainly not of the 60 million inhabitants of the UK as a whole. This is discussed further below.

Nitrogen Dioxide

9. Urban NO₂ concentrations arise chiefly from transport sources. In the 1990s the Euro standards significantly reduced NO_x and NO₂ concentrations. This arose chiefly from the introduction of three-way catalysts on petrol vehicles which dominated the fleet in that period. From about 2004 however, ambient concentrations levelled off and in some roadside locations increased. The reasons for this are now reasonably well understood.⁸ It has become clear that the Euro 3 to 5 standards for diesel cars and other light duty vehicles have not delivered the anticipated reductions. One reason appears to be because the regulatory test driving cycle does not adequately capture actual driving behaviour. Moreover, primary emissions of NO₂ from diesel vehicles have also increased significantly over the past decade due to the use of technology to reduce PM emissions. The emissions of NO_x from petrol vehicles of Euro 3 and beyond are very much lower than those from diesel cars. These factors coupled with the large increase in diesel vehicles means that ambient NO_x concentrations from the UK vehicle fleet have not decreased as much as envisaged. A further factor is that the degradation in NO_x emission performance with time for petrol vehicles appears greater than had been assumed in emission inventories. Recent work internationally has also shown that for Heavy Goods Vehicles and buses, while NO_x control technology (Selective Catalytic Reduction) can be effective, it will not give large reductions in slow urban driving conditions unless specifically designed to do so.

10. Euro 6 standards for NO_x are significantly tighter than Euro 5 for cars but given past experience, some form of monitoring of the effectiveness of the legal limit to ensure performance under actual driving conditions is essential if one were to have confidence in future NO_x reductions from this tranche of vehicles. Moreover, there is now a large proportion of existing Euro3+ vehicles in the UK fleet with lifetimes of around ten years and which are emitting in reality more NO_x than previously thought. This makes prospects for reduction in NO_x and NO₂ in the next few years difficult. Measures to turn over the vehicle fleet more quickly and to reduce the proportion of diesel vehicles would benefit air quality. The link with climate change—the reason usually cited for the increase in diesels—is discussed below, but the argument that diesel cars are the best option for lower CO₂ emissions now and in the future is harder to sustain given the advent of low CO₂ petrol cars, hybrids and electric vehicles.

THE IMPACTS ON HEALTH AND THE ENVIRONMENT FROM PARTICULATE AND NO₂ POLLUTION, AND HOW THESE SHOULD BE MEASURED

11. The impacts of PM on health have been explored in the Committee's previous inquiry on air quality. We would add little more to this except to welcome the recent COMEAP report on the effects of long-term exposures to PM on health.⁹

12. It was noted above that the legal framework reliant on achieving limit values is inefficient in terms of achieving optimal public health improvements for pollutants like PM. The reason the UK championed the "exposure reduction" approach in the EU Directive is that the resources may be better deployed in reducing exposures across urban areas as a whole¹⁰ to gain larger public health improvements. However in the EU Directive, the "Exposure reduction" targets are not mandatory whereas the less efficient limit values are. The revision of the Directive in 2013 offers an opportunity to improve this situation.

13. How the impacts of PM should be measured in terms of a PM metric is still unclear given the absence of firm evidence on the toxic component(s) of the PM mix. Some progress has been made, not least at ERG in identifying "oxidative potential" both as a possible mechanism for action and the potentially active components of the PM mix. Other research has shown potential effects from the ultrafine fraction of PM and from some individual chemical components. However more research is needed before policies can be focussed with confidence on specific components of PM and their sources.

14. Although policies are in place on all PM components (except tyre and brake wear), legal limits only exist for PM₁₀ and PM_{2.5} as a whole. It is possible that policies could be directed to reducing one component to achieve compliance, but leave a potentially toxic component untouched. A legal limit on the primary PM component should be considered in the EU Directive review.

15. The evidence for adverse health impacts of NO₂ is less convincing than for PM. NO₂ is toxic at high concentrations, but effects at near-ambient levels in exposure chamber studies do not give clear results. Epidemiological studies frequently observe associations with NO₂ that are stronger statistically than those with PM. But the lack of biological plausibility at low levels means that these associations are generally attributed to a closely correlated pollutant such as primary PM. The public health benefits of reductions in NO₂ levels are potentially quantifiable in the same way as those of PM but this assumes that control of the source of NO₂ will also control the underlying toxic pollutant. NO_x emissions contribute to secondary PM levels; they also contribute to ozone formation, the effects of which are quantifiable and can be monetised. But the effects of

⁸ Carslaw et al, Trends in NO_x and NO₂ emissions and ambient measurements in the UK, Report for Defra, March 2011.

⁹ The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the UK, COMEAP, December 2010.

¹⁰ The reasoning is that for pollutants like PM, the health effect evidence suggests that adverse effects are likely at levels below the legal limits, suggesting that public health improvements will be greater if population-wide exposures are reduced.

direct impacts of NO₂ are not known with confidence,¹¹ neither is the benefit of achieving the EU limit value for NO₂ except insofar as abatement measures impact on PM and ozone. Research on these issues is long overdue.

THE EFFECTIVENESS OF THE GOVERNMENT'S STRATEGY FOR IMPROVING PARTICULATE AND NO₂ AIR QUALITY, AND HOW THAT MIGHT BE IMPROVED

16. The Government's Air Quality Strategy of 2007 pre-dates the EU Directive of 2008 and the possibility of time extensions for compliance, revision of the IPPC Directive to form the IED, improvements in monitoring of PM, and recognition of the failure of the Euro standards legislation to reduce NO_x from some vehicle classes. Nonetheless, since then few new policies have been introduced. Incentives for Euro VI heavy duty vehicles were introduced in Budget 2010, and in July 2010 DfT announced incentives for electric and other low emission vehicles. At the local level, the Mayor of London introduced the Low Emission Zone, albeit at a slower pace than required and there have been calls to roll this concept out across the UK. The Government response to the European Commission on short term action plans for PM₁₀ is awaited, as is the application for a time extension for compliance with the NO₂ limit values. The congruence of legal imperatives and health effect evidence for NO₂ has been questioned in a recent publication from ERG.¹²

17. An important recent strategic publication from Defra discussed the benefits of aligning air quality and climate change policies.¹³ Our view is that this alignment is crucial to improved air quality in the UK. The climate change target of an 80% reduction in CO₂ equivalent emissions by 2050 could generate major improvements in air quality and public health.¹⁴ As yet however, little evidence of this alignment is apparent save the support for electric and low emission vehicles noted above, and support for carbon-free power generation including carbon capture and storage. Other climate measures which promote biomass burning in urban areas and the use of some biofuels in transport will have little or no benefit for air quality and may even make public health worse.¹⁵ An improved dialogue between Defra, DECC and DfT¹⁶ resulting in concerted action is essential for the delivery of optimal policies for climate change and public health in the UK.

18. Policies already exist on all components of PM (except tyre and brake wear), and on NO₂, but it is essential that scrutiny of policy effectiveness is established so that all stakeholders can have confidence that policies are delivering improvements. This however is not the end of the story. Even if emission reductions can be demonstrated, research is still needed to assess the effects of these policy interventions on public health. This aspect of policy evaluation has been lacking in the UK to date.

19. The scientific basis for air quality policy is very important but at present this expertise is scattered throughout the UK. While a degree of diversification and competition is to be encouraged, there is a strong case for a single focus in an existing research institution to establish a UK Clean Air Research Centre.

1 June 2011

Written evidence submitted by Environmental Protection UK

SUMMARY OF OUR VIEWS

- Government documents and statements consistently downplay the impacts of poor air quality. Commonly used statistics such as “99% of the UK meets European air quality standards” and “Air pollution is currently estimated to reduce the life expectancy of every person in the UK by an average of seven–eight months” hide the fact that air quality problems are concentrated in densely populated urban areas where the health impacts are very large. Premature deaths is by far the most engaging metric for describing air quality impacts for both politicians and the general public, but this is rarely used at either national or local level.
- Traffic is still the most significant source of both NO_x and PM₁₀ emissions in most areas of the UK, although other sources make substantial contributions to background concentrations. Evidence is now suggesting that European vehicle emission standards for diesel vehicles have been ineffective in delivering “real world” NO_x abatement and additional measures are now needed to improve air quality. These measures need to include scrappage schemes for older vehicles, retrofit of emissions abatement equipment and national support for the establishment of Low Emission Zones.

¹¹ Quantification of the effects of long-term exposure to nitrogen dioxide on respiratory morbidity in children, COMEAP Statement, November 2009.

¹² M.L. Williams and D.C. Carslaw, New Directions: Science and policy-out of step on NO₂? Atmos. Environ., 2011, in press.

¹³ Air Pollution: Action in a changing climate, Defra, 2010, see <http://www.defra.gov.uk/publications/2011/04/13/pb13378-air-pollution/>

¹⁴ M.L. Williams, UK Air Quality in 2050-Synergies with Climate Change Policies, Env. Sci. And Policy, 10, 169–175, 2007.

¹⁵ G.Fuller et al, London PM10 biomass baseline-2009, King's College London, 2010.

¹⁶ Building on the report “Creating Growth, Cutting Carbon”, DfT, January 2011.

- There is poor alignment between Government climate change and air quality policy, despite the publication of Defra’s excellent “Air Pollution: Action in a Changing Climate” document. Opportunities for policies which improve both climate change and air quality are currently being missed. Climate and air quality policy need to be far more tightly integrated in order to maximise “win-win” benefits and minimise any potential conflicts between the two areas.
- The Coalition Government has yet to release any substantive new strategies for improving air quality. The Government response to the EAC’s previous Air Quality report simply restated existing policy, rather than adopting the EAC’s recommendation. Air quality policy is still largely siloed within Defra (the lead department), with little evidence of increased involvement by other Government departments, who often hold the power to take effective action. A new, cross Government Air Quality Strategy is urgently needed, focusing on compliance with EU limit values and securing the maximum feasible health benefits for the UK population.
- The Government is currently paying little attention to the European PM_{2.5} “exposure reduction” target, due to come into effect in 2020, despite evidence that meeting the target will be challenging and require new management strategies. Early action on PM_{2.5} is essential due the enormous health impacts of fine particles, and also to allow sufficient time to phase in appropriate control measures.

OUR RECOMMENDATIONS

- The Government should urgently develop a new air quality strategy focusing not only on PM₁₀ and NO₂, but also on PM_{2.5}. The strategy must be a cross Government document, assigning roles and responsibilities for particular actions to relevant Government departments.
- A new strategy should include measures relating to scrappage schemes for older vehicles, retrofit of emissions abatement equipment and national support for the establishment of Low Emission Zones. On a European level the Government needs to ensure that the forthcoming Euro 6 emission standards for diesel vehicles actually provide the promised emission reductions in real world urban driving conditions.
- The Government must re-think its policies on vehicle fuels. In particular the implicit advantage that diesel fuelled cars enjoy in the Vehicle Excise Duty and Company Car Tax regimes need to be re-thought. Support should also be provided to encourage the use of compressed natural gas (fossil methane and biomethane), particularly in larger vehicles such as HGVs and buses.
- DECC must concentrate on securing maximum policy benefits from their renewables policies rather than simply focusing on a narrow carbon reduction remit. Policies on renewable energy should be amended (as part of the development of a new air quality strategy) to ensure that they deliver air quality and other local environmental quality benefits in addition to carbon emission reductions.
- The Government must stop downplaying the health impacts of poor air quality in its documents and communications. Premature death statistics should be used to communicate the impacts of poor air quality, using comparisons to other areas of public health concern to allow politicians and the general public to understand the impact of poor air quality. Local statistics also need to be produced for air quality (and other health) impacts to help local decision makers allocate public health funding for the most beneficial outcomes.

DETAILED COMMENT ON THE ENQUIRY TOPICS

We have detailed our comments below in each of the four areas requested by the Committee:

The causes of particulate and NO₂ air pollution in the UK and how these can be reduced most effectively

1. Emissions from road traffic are still the most significant source of air pollution in most parts of the UK. Emissions mainly arise from vehicle exhausts; however in the case of particulate matter contributions are also made from tyre and brake wear and through vehicles re-suspending dust deposited on the road surface. Road traffic is the key source of pollution due to the quantity of NO_x and PM₁₀ it emits and also due to the way in which traffic permeates our towns and cities. Pollution from vehicles is released directly into our streets at a low level (height), where it has little opportunity to disperse before being inhaled by those who live and work in heavily populated urban areas.

2. Measures to address emissions from vehicles tend to fall into two areas—technical “end of pipe” solutions and non-technical measures. To date attention has focused overwhelmingly on technical solutions, with increasingly strict emissions standards set at European level. These have had some success in improving air quality; however since publication of the EAC’s last report evidence has come to light¹⁷ that NO_x abatement for diesel vehicles has had little impact in real world driving conditions. It is essential that these problems are rectified in the forthcoming “Euro 6” emissions standards—but even if they are “Euro 6” will have little impact on the immediate task of meeting European air quality targets as it will take many years for compliant vehicles

¹⁷ “Trends in NO_x and NO₂ emissions and ambient measurements in the UK” http://uk-air.defra.gov.uk/reports/cat05/1103041401_110303_Draft_NOx_NO2_trends_report.pdf

to build to a significant proportion of the UK vehicle fleet. Some of the reasons that the NO_x emission standards have been ineffective, such as “cycle beating”,¹⁸ also affect the PM emission standards.

3.10 years ago new car registrations were dominated by petrol powered vehicles; today diesel cars make up nearly half of all new registrations.¹⁹ This shift from petrol to diesel fuel has been driven by Government policies that link vehicle taxation to CO₂ emissions: as diesel vehicles normally have lower CO₂ emissions than equivalent petrol vehicles they benefit from cheaper Vehicle Excise Duty and (where applicable) Company Car Tax. Under the Euro standards diesel cars are allowed to emit more NO_x and PM₁₀ than petrol equivalents and also suffer from the poor real world performance highlighted in paragraph 2. This shift in the car market has had a marked impact on air quality—it is one of the main reasons why air quality has failed to respond to tighter vehicle emissions standards.

4. Measures to remove older vehicles (particularly older diesel vehicles) from the roads can be effective in reducing emissions of NO_x and PM₁₀. Whilst it had no environmental objectives, the previous Government’s scrappage scheme was still effective at replacing older vehicles with modern, small petrol powered cars (more than 82% of cars bought through the scrappage scheme were petrol-powered). A new scrappage scheme aimed at replacing elderly, diesel powered vehicles with modern low emission (air pollution and CO₂) vehicles would improve air quality and also assist an industry still badly affected by the economic downturn.

5. Older vehicles can also have their emissions performance improved via retrofit of emissions abatement equipment. This is a particularly good option for large diesel vehicles—retrofit equipment does not have to simply follow Euro emissions standards and can be tuned to deliver good “real world” performance, particularly if a vehicle has a known end use (eg predominantly urban driving, motorway use, etc). Vehicle owners need to be incentivised to retrofit their vehicles however, either through “carrots” (for example lower vehicle taxes) or “sticks” (Low Emission Zones or licensing for taxis, etc).

6. Little attention has been given to non-technical measures: those that aim to reduce traffic in our urban centres, shift journeys from private vehicles to (clean) public transport and promote active transport. These measures do not just help to improve air quality, they also fit with the Government’s ambitions to reduce carbon emissions and promote healthy lifestyle choices. Pilot projects in this area such as the Sustrans Travel Smart²⁰ initiative have demonstrated that significant modal shifts are possible through a “nudge” style process, but despite some consideration in the recent Local Transport White Paper the Government is yet to show any significant support for these types of interventions.

The impacts on health and the environment from particulate and NO₂ pollution, and how these should be measured

7. Government documents and statements have consistently downplayed the health impacts of air pollution. Oft repeated quotes from the current UK Air Quality Strategy include “99% of the UK meets European air quality standards”. This statistic is for geographical area rather than the percentage of the population affected—the 1% of the UK that does not meet the standards represents some of our most densely populated urban areas, whilst much of the 99% that is “clean” is sparsely populated countryside. Another commonly repeated statistic is that “Air pollution is currently estimated to reduce the life expectancy of every person in the UK by an average of seven–eight months”. This suggests that the impacts are small and distributed evenly across the whole UK population, when in fact the impacts are concentrated in the most polluted urban areas and the health impacts for those that live and work there are actually very large.

8. The health and other environmental risks associated with poor air quality have been explored by bodies such as the Committee on the Medical Effects of Air Pollutants (COMEAP). COMEAP have updated their assessment of the health impacts of long term exposure to air pollution²¹ since the last EAC report.

9. EPUK believes that the most engaging and hard hitting metric is premature deaths due to poor air quality. The aforementioned COMEAP report provided a figure of 29,000 UK premature deaths in 2008 due to long term exposure to PM_{2.5}, whilst the Mayor of London settled on a figure of 4,300 premature deaths in London in a health study accompanying his recent Air Quality Strategy.²²

10. It is also important to use comparisons with other, higher profile, health issues—health statistics can be difficult to comprehend in isolation. The graph below showing the comparative impacts of PM_{2.5} pollution, passive smoking and vehicle accidents is one example of how this can be done.

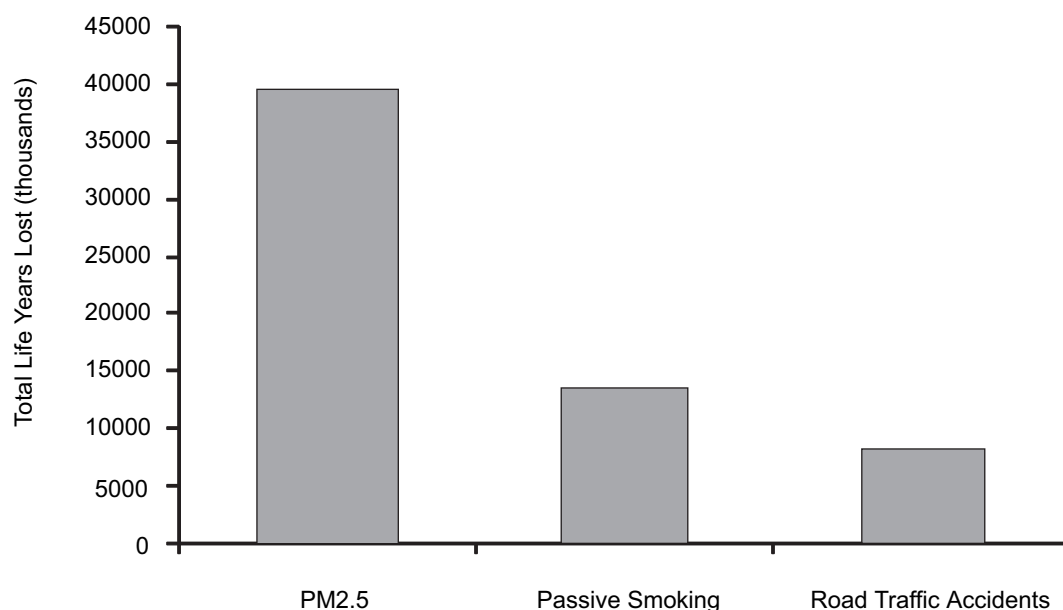
¹⁸ “Cycle beating” can result in vehicles which meet stricter emission standards by having lower emissions in the steady state (motorway) portion of the test cycle, and unimproved (or even increased) during the urban portion of the test cycle.

¹⁹ “Motor Industry Facts 2011”, Society of Motor Manufacturers and Traders www.smm.co.uk/download/?product_name=TW90b3IgdXN0cnkgRmFjdHMgMjAxMQ==&product_id=ODQ=

²⁰ See www.sustrans.org.uk/assets/files/travelsmart/behaviour_change_ff36.pdf

²¹ See <http://comeap.org.uk/component/content/article/28-page-linking/128-the-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk.html>

²² See www.london.gov.uk/publication/mayors-draft-air-quality-strategy



Source—Institute of Occupational Medicine, “Comparing Estimated Risks for Air Pollution with Risks for Other Health Effects”, March 2006. Graph shows estimated gain in life years in England and Wales from 2005–2110 for the whole population (including people born during that time) that could be achieved by eliminating each health hazard.

11. Statistics on the local impacts of poor air quality are not available in most parts of the UK. Statistics on local health impacts need to be produced urgently and communicated in an engaging way—this would help raise community awareness and put pressure on local politicians to address the issues. Local health statistics would also help local authorities to compare air quality impacts with other areas of public health concern, and decide where local public health funding was best spent.

The effectiveness of the Government’s strategy for improving particulate and NO₂ air quality, and how that might be improved

12. Environmental Protection UK welcomes the Government’s commitment to “work toward European air quality standards” contained within the Coalition Agreement, however we are concerned that “work towards” in no way commits the Government to meeting these legally binding, health based air quality standards.

13. The primary purpose of air quality legislation is to protect public health; however there is an increasing tension between the public health and legal compliance agendas, and a significant risk that the actions to achieve air quality improvement for public health benefit will be subsumed by the process of avoiding legal penalties. This tension is occurring because of the Government’s increasing use of overly optimistic monitoring and modelling techniques to prove compliance (see paragraph 16). It is also due to the current exclusive focus on meeting nitrogen dioxide limit values to the detriment of action on PM_{2.5}, which is understood to be the pollutant with the greatest impact on our health (see paragraph 18).

14. The previous Government’s strategy for improving air quality was essentially waiting for progressively tighter European emissions standards for road vehicles to impact on air quality. This strategy has not worked as well as intended, due to traffic growth cancelling out some of the improvement in emissions from individual vehicles and the poor performance of vehicles in “real world” driving conditions (see paragraph 2).

15. The EAC “Air Quality” report released in 2010 made a number of practical and well reasoned recommendations; however there is little evidence that the recommendations are being implemented. The Government Response to the report (released as a Command Paper under the current Government) simply made a re-statement of existing policy rather than initiating the major changes to air quality policy that the EAC recommended. The current Government is yet to release any substantially updated strategies for air quality, and the ineffective 2007 Air Quality Strategy for England, Scotland, Wales and Northern Ireland is still the pre-eminent document for UK air quality policy.

16. In 2010 the UK applied to the European Commission for a time extension for meeting the daily PM₁₀ limit value in London, and earlier this year was awarded a “temporary, conditional time extension”. The UK’s time extension application proposed little in the way of new action but used monitoring and modelling processes and (allowable) tweaks such as deductions for naturally occurring sea salt to prove that London would be compliant after June 2011. This process of “compliance by computer” provides no real world health benefits and the over optimistic assumptions it makes run the risk of being undermined as real world monitoring data becomes available. The high PM₁₀ concentrations observed in London²³ during the first part of this year

²³ See www.environmental-protection.org.uk/news/detail/?id=2801

give weight to this latter point, and the Government's assertions that London will be compliant after June 2011 are now under serious doubt.

17. As one of conditions for the extension, the Commission required a document on additional PM measures to be submitted to the Commission by the end of June. We also understand that Defra will be consulting imminently on an action plan for NO₂ (this will form part of the UK's application to the European Commission for a time extension for meeting nitrogen dioxide limit values). It is essential that both of these documents contain new, robust measures for reducing PM₁₀ and NO₂ concentrations if the UK is to avoid infringement action by the European Commission.

18. To date little attention has been given by the Government to 2020 targets for fine particles (PM_{2.5}). The recent report "PM_{2.5} in the UK"²⁴ by the Scottish and Northern Ireland Forum for Environmental Research (SNIFFER) indicated that the challenge of meeting PM_{2.5} targets is greater than previously anticipated, and also that control strategies for PM_{2.5} will need to be significantly different to those used for PM₁₀. More research and attention is needed for this area as soon as possible so that any control measures needed can be introduced with reasonable lead in times to meet the 2020 deadline.

19. We have covered some of the actions that could be taken to improve air quality in paragraphs 4–6. In addition to this we understand that the Government is looking to increase their support for Low Emission Zones (LEZs), where local authorities feel they should be established. Experience from Europe suggests that LEZs can be a very successful tool for improving air quality, particularly if a national LEZ framework is established to help local authorities establish them.²⁵ In light of the "real world" performance of some diesel vehicles (see paragraph 2) the LEZ framework criteria should encourage vehicles and technologies that demonstrate real world emissions reduction.

20. Alternatively fuelled vehicles have the potential to effect large improvements in air quality over the medium to long term; however the Government's support for these vehicles currently rests almost entirely with a single technology—battery electric vehicles. Whilst these vehicles are very good for air quality (they have zero tailpipe emissions), short ranges, long recharging times and high costs will confine them to niche markets for the foreseeable future. Other alternative fuels, however, are currently almost entirely unsupported. We would like to draw attention in particular to gas (compressed natural gas or biomethane) powered vehicles. This is an inherently clean technology and tailpipe emissions of particulate, NO_x and CO₂ are very low.²⁶ Gas buses can be run on biomethane—natural gas produced from the decomposition of organic waste—which results in extremely low "well to wheel" CO₂ emissions. This technology is mature and many countries have large gas vehicle fleets²⁷ (with several using biomethane). However, in the UK the technology is largely unsupported and unrecognised by the Government.

21. Harmonisation of air quality and climate change policy is key to improvements in air quality: both policy areas are aiming to address the same combustion processes. There are many opportunities to improve both climate change and air quality, such as heat and energy efficiency and promoting smaller, more efficient vehicles. Coordinated policy can lead to lower overall costs, whilst un-coordinated policy can cause unintentional trade offs. The benefits of integrated policy have been explored in Defra's "Air Pollution: Action in a Changing Climate"²⁸ document for the national level, and our own "Air Quality and Climate Change: Integrating Policy in Local Authorities"²⁹ at the local level.

22. DECC currently pay almost no attention to air quality as an issue, and often seems to regard air quality and other local environmental issues as barriers to be overcome rather than important issues to be integrated into its policy delivery. As a result win-win measures between climate change and the natural environment (including air quality) are not being identified and fast tracked, whilst the potential negative effects of climate measures are not being fully identified before implementation.

23. Some combustion based renewable and low carbon technologies have the potential to impact negatively on air quality. In particular biomass technologies (such as wood burning), which will soon be supported by the Government's Renewable Heat Incentive (RHI). Commitments to include strict air quality standards in the RHI for supported biomass equipment have been progressively watered down throughout the development process, and the scheme will be launched with only a vague commitment to introduce air quality standards in 2012. Biomass is an inherently dirtier technology (for air quality) than the natural gas boilers that currently provide most of the UK's heat needs, and modelling for the 2009 UK Renewable Energy Strategy³⁰ confirmed that the air quality impacts of a large, unmanaged expansion in biomass combustion would be very significant.

24. EPUK advocates a location based approach to renewable energy deployment. This would target renewable technologies with significant air quality impacts towards suburban and rural areas where air quality

²⁴ See www.sniffer.org.uk/Webcontrol/Secure/ClientSpecific/ResourceManagement/UploadedFiles/PM25%20Report%20Final%20%2820Dec10%29.pdf

²⁵ See "Low Emission Zones in Europe" for examples—www.lowemissionzones.eu

²⁶ See www.biogasmax.eu/media/5t4_manuel_lage__073402300_0657_30092009.pdf

²⁷ For example the Los Angeles (USA) bus fleet is almost entirely fuelled by CNG, see <http://articles.latimes.com/2011/jan/13/local/la-me-buses-20110112>

²⁸ See www.defra.gov.uk/publications/files/pb13378-air-pollution.pdf

²⁹ See www.environmental-protection.org.uk/aqclimate/

³⁰ See page 121

is good, and limit their deployment in polluted urban locations. Conversely renewable technologies with positive air quality impacts (such as solar thermal) would be strongly encouraged in urban locations with poor air quality. Such a strategic approach is currently not part of Government policy, and the ability of local authorities to implement a location based approach may be undermined by Government plans to allow greater permitted development rights for small scale renewables.

25. The culture of other Government departments, in addition to DECC, is to show at most a limited engagement with the air quality issue. DfT have shown a degree of increased willingness to engage on air quality—generally, however, air quality is still siloed within Defra. Whilst DfT and Defra share responsibilities for air quality, Defra are effectively the lead department and the policy responsibilities for most measures that can improve air quality lie outside of their remit.

26. The 2007 air quality strategy is increasingly dated, and is not focused on either compliance with EU limit values or maximising health benefits. A new, cross-Government, air quality strategy should be urgently developed. This should have the aim of re-focusing objectives, aligning policy on air quality and climate change, and perhaps most importantly sharing the responsibility for meeting targets amongst all appropriate Government departments.

The potential effects of the Government's localism agenda and proposed reforms of public health provision on local authorities' capacity for tackling poor air quality

27. The localism agenda puts UK air quality policy in a quandary: to effectively tackle poor air quality local authorities need to do much more, but localism means that Government's ability to force local authorities to take action is being reduced. We believe the solution to this problem is to raise the profile of air quality as a local issue, so that it is seen to be a priority area by communities and local politicians.

28. The Government's plans to devolve public health functions to local authorities could potentially provide both a greater remit and more funding to tackle poor air quality. However, in two-tier local authority arrangements air quality (through the Local Air Quality Management regime) is currently the responsibility of district/ borough level authorities, whilst public health responsibilities and funding will go to the county authorities. There is a parallel here with existing transport responsibilities and air quality—in practice the degree of co-operation between air quality functions (at the district level) and transport authorities (at the county level) has often been poor. Better links need to be drawn between the two tiers of Government with respect to the new health responsibilities to avoid these problems of split responsibilities being repeated.

29. Local authorities are now making significant cuts to their budgets, and many report that their capacity to manage air quality is being significantly reduced. The new public health responsibilities and funding are not due to be implemented until 2012 leaving a funding "gap" for areas such as air quality. If local authorities are to take a more active role in improving poor air quality then an expensive and time consuming rebuilding of capacity may have to take place once the public health and well-being responsibilities are implemented.

2 June 2011

Written evidence submitted by the Local Government Group

ABOUT THE LOCAL GOVERNMENT GROUP

The Local Government Group (LG Group) is made up of organisations that work together to support, promote and improve local government, including the Local Government Association (LGA), Local Government Improvement and Development (LGID), Local Government Regulation (LGR, formerly LACORS), Local Partnerships (LP) and Planning Advisory Service (PAS).

The LG Group welcomes the opportunity to provide views on air quality. This document has been agreed by the LG Group's Environment and Housing Programme Board. The Environment & Housing Programme Board has responsibility for LG Group activity in the area of the sustainability of the environment, including issues of planning, waste and housing.

SUMMARY

- Notwithstanding some specific uncertainties, there is a fairly robust understanding of emission sources. Knowing what measures are most effective in reducing pollution levels is more difficult, yet essential in directing resources most efficiently.
- The LG Group strongly welcomes the Government's commitment to decentralisation and its application to local air quality management. The nature of air quality problems varies depending on the locality and there is no one-size-fits-all solution. Reducing burdens and central prescription should free up increasingly scarce resources and give councils greater scope to address problems as appropriate for their area.

- Many councils already work to integrate health improvement into mainstream service delivery; nonetheless, the proposed transfer of public health responsibilities represents an opportunity to better integrate air quality with the health and wellbeing agenda more broadly across local government.
- However, to address the UK's air quality problems, action is needed at all levels. Councils can and do take action but many sources of pollution are out of their control, as are some of the levers and resources. There is a lack of transparency about what the Government's strategy is; no air quality actions for Defra or the Department for Transport are included in their departmental business plans.
- We are extremely concerned about the mechanism proposed in the Localism Bill, which would allow Ministers to pass any potential fines for the UK failing to meet the EU limit values on to councils. This is both unreasonable and unworkable.
- The focus must be on how government, local and central, working together can ensure that the EU limit values are met and fines avoided. To this end, the LG Group met Lord Henley and Norman Baker MP in March 2011 to discuss how we can address the problem in a more coordinated and strategic way.

Detailed comments on the specific areas of interest to the Committee are set out below. This submission largely focuses on localism and public health reform as the areas of most relevance to local government.

THE IMPACTS ON HEALTH AND THE ENVIRONMENT FROM PARTICULATE AND NO₂ POLLUTION, AND HOW THESE SHOULD BE MEASURED

1. Much valuable research has been carried out on the health impacts of air pollution by the Committee on the Medical Effects of Air Pollutants (COMEAP) and other international organisations. In our submission to the Environmental Audit Committee's previous inquiry on this subject, we commented that the manner in which the Government communicates the health evidence diminishes the impact of its message, for example by averaging out the effects across the whole population, rather than highlighting the considerable impact it has on those individuals actually affected. This is unlikely to be an effective way of increasing public understanding and awareness and we have noted no change in the Government's approach to this.

2. We welcome the Government's commitment in its response to the Committee that it will be quantifying morbidity costs associated with air pollution over the next three years. Currently, the true costs including hospital admissions and associated long-term social and economic impacts, for example of a child missing school because of asthma, are not taken into account. Failing to reflect the true cost to society of air pollution skews cost-benefit and cost-effectiveness analyses of interventions.

CAUSES OF PARTICULATE AND NO₂ AIR POLLUTION IN THE UK AND HOW THESE CAN BE REDUCED MOST EFFECTIVELY

3. As outlined in the Environmental Audit Committee's previous report, although industry and domestic combustion contribute to air quality problems, it is clear that road transport is most significant with regards public exposure. Transport is cited as the main source of pollution in 92% of all air quality management areas declared by councils.³¹ Notwithstanding some uncertainties surrounding the "real life" performance of European vehicle emission standards and the contribution of brake and tyre wear to particulate levels, there is a fairly robust understanding of sources. Understanding what actions are most effective in reducing pollution levels is more difficult, yet essential to ensure that resources are directed towards the most effective measures, particularly in light of the tough financial settlement facing councils to deliver this and other services.

4. Recognising the need for a stronger evidence base to support councils when developing their local air quality action plans, the LG Group has established an online forum (Community of Practice³²) for councils and other non-commercial stakeholders, including central government and its agencies, academia and charities, to share their experiences about what works well and what does not. As part of the launch, we organised a live online discussion on the evaluation of air quality measures, led by Dr Benjamin Barratt from the Environmental Research Group at Kings College London. This session identified several challenges for evaluation including:

- Difficulties in establishing cause and effect;
- The complex nature of air quality and isolating the many factors other than the intervention that can impact upon it eg weather;
- Small scale interventions being inherently difficult to assess and potentially impossible in some cases;
- Uncertainties associated with modelling; and
- The costs of monitoring in order to evaluate, which are particularly difficult to justify for smaller measures.

5. The LG Group continues to advocate the importance of central government co-ordinating the development of a more comprehensive evidence base on the effectiveness of different measures, to avoid duplication of

³¹ <http://archive.defra.gov.uk/environment/quality/air/airquality/local/documents/laqm-report.pdf>

³² <http://www.communities.idea.gov.uk/comm/landing-home.do?id=9584203>

effort across councils. This issue is being discussed as part of the liaison with Government noted at paragraph 16 below.

6. Tackling emissions from local transport sources is already a key part of councils' local air quality management work. The LG Group has worked with the Low Emission Strategies Partnership³³ on a project to support councils to mitigate transport emissions. The resulting report³⁴ presents a practical, flexible and action-focussed approach to help councils tackle the challenges of climate change and air pollution from transport in a joined-up way. The report identifies a range of local initiatives from across the country and outlines three "categories" of action and their potential benefits:

- Low emission fleet management of council vehicles;
- Low emission planning and development control; and
- Area-wide emissions management.

7. Crucially, it recognises that there is no "one size fits all" solution; different councils have varying needs and priorities, and are best placed to decide which level of action is most appropriate for their area. The report aims to provide a helpful framework, options and evidence base to inform these decisions. However, the fact remains that many sources of transport emissions, like those from motorways and major trunk roads, are outside the control of councils. Work to identify and implement effective solutions to reduce emissions from these sources needs to be led nationally by the Highways Agency, with the support of the Department for Transport. The existing negative duty on the Highways Agency not to make air quality worse does little to engender a shared sense of responsibility for meeting air quality objectives in order to help the UK meet its EU obligations. Like councils, the Highways Agency should be under a more positive duty to work towards air quality objectives in order to encourage action.

THE EFFECTIVENESS OF THE GOVERNMENT'S STRATEGY FOR IMPROVING PARTICULATE AND NO₂ AIR QUALITY, AND HOW THAT MIGHT BE IMPROVED

8. It is difficult to comment on the effectiveness of the Government's strategy due to a lack of transparency about what the strategy is. We are aware of various pieces of work on air quality being undertaken, but an up-to-date, coherent strategy taking account of all measures and planned action across government departments does not appear to exist—at least as far as we are aware. The most recent publicly available UK Air Quality Strategy was published in 2007 and is widely considered not to be fit for purpose. The LG Group has raised this with the Government, who have informed us that its application to the European Commission for a time extension for nitrogen dioxide limit values will in effect act as its strategy. The public consultation on this document is expected to be launched imminently and we therefore await this with interest.

9. Since our response to the Environmental Audit Committee inquiry last year, Defra and DfT have worked with the LG Group on action the Government is considering, for example the streamlining of reporting requirements placed on councils and reviewing the guidance available. These are welcome steps to reduce the burdens on councils but it remains unclear what national measures are under consideration for the Government itself to take. There are no air quality actions for Defra or DfT in their departmental business plans, which set out priorities and commitments for the period 2010–15 and ensure that departments can be held accountable to the public. The omission is surprising in light of the Government's statement in its response to the Environmental Audit Committee last year that it considered more needs to be achieved and the commitment in the Coalition Programme for Government to work towards full compliance with the EU air quality standards.

THE POTENTIAL EFFECTS OF THE GOVERNMENT'S LOCALISM AGENDA AND PROPOSED REFORMS OF PUBLIC HEALTH PROVISION ON LOCAL AUTHORITIES' CAPACITY FOR TACKLING POOR AIR QUALITY

Localism and decentralisation agendas

10. The LG Group has long campaigned for a reduction in top-down command and control mechanisms imposed by central government, in favour of giving locally democratically accountable councils the necessary flexibility to get on with their day job. Thus we welcome the Government's strong commitment to a policy of decentralisation.³⁵ In line with these commitments, Defra is working to streamline the data collection burdens and reporting requirements for local air quality management, which are currently overly prescriptive and burdensome. The LG Group strongly supports this move to free up increasingly scarce resources from unnecessary reporting to central government and we look forward to seeing the proposals. We recognise that due to the UK's EU legal obligations, the Government will still require certain information from councils; however, effectively gold-plating EU data requirements is unacceptable and proposals must clearly demonstrate why it is necessary for remaining information to be collected. The LG Group is working with councils to develop a sector-owned approach to self regulation and improvement and will continue to make the case for further reductions in data-collection for and data-reporting to government.³⁶

³³ <http://lowemissionstrategies.org/>

³⁴ <http://www.lacors.gov.uk/lacors/ContentDetails.aspx?authCode=E35DEC&id=24959>

³⁵ Essential Localism: <http://www.lga.gov.uk/lga/aio/16742200>

³⁶ Taking the lead: self-regulation and improvement in local government <http://www.local.gov.uk/lgv2/aio/1233499>

11. We also support Defra's review of its guidance for local air quality management; ultimately it is the sectors and professions, individually or working together who are best placed to decide whether guidance material is useful or necessary. The nature of air quality problems varies depending on the locality, for example buses may be a significant source of emissions in one area, whereas Heavy Goods Vehicles could be problematic in another. The challenges faced by a small market town may be different from that of a large urban area; action needs to be tailored accordingly and there is no "one-size-fits-all" solution. Reduced central prescription and increased local flexibility should provide councils with greater scope to address problems as appropriate for their area.

12. In addition to considering the application of devolutionary principles specifically to local air quality management, other areas of reform are also likely to have an impact. The reform of the land-use planning system, for example, will provide an opportunity for councils to set locally-appropriate policies and standards. Given the UK government's obligations under EU legislation, the significant health impacts of poor air quality and its transboundary implications, it is essential that the upcoming National Planning Policy Framework (NPPF) makes the Government's national environmental and/or health priorities for air quality absolutely clear. Details of how to mitigate air quality impacts of new developments, meanwhile, are best situated in local plans, where they will be subject to scrutiny of elected members and the local communities they affect. The inclusion of air quality as one of a small number of truly national planning priorities in a streamlined NPPF provides a good opportunity to increase the prominence of air quality as a consideration for plan-makers and developers, rather than getting lost amongst the excessive commentary and unnecessary prescription that exists across the current suite of Planning Policy Statements.³⁷ In addition, as set out in our response to the recent consultation on changes to planning application fees,³⁸ we strongly support locally set planning fees to allow councils to recoup the true cost of assessing impacts of developments, including on air quality. The sector has long argued that fees have been set well below the economic costs of the service, and in any case should be set locally.

13. As outlined above, we very much welcome the Government's commitment to devolve powers to councils and local communities. However, it is clear that to address the UK's air quality problems, action is needed at all levels; councils can and do take action but many sources of pollution are out of their control, as are some of the levers and resources. Central government, the private sector and individuals all play a part alongside us. This is the reason councils do not, and should not, have direct responsibility to meet the European limit values. Instead the Secretary of States is, and should remain, the designated "competent authority" responsible for meeting the UK's legal obligations. The LG Group remains extremely concerned about the mechanisms proposed by the Government in the Localism Bill to pass EU fines for failing to meet these obligations onto councils.

14. With regard to air quality, this would be particularly unfair and unworkable. The EU Directive requirements and the system of local air quality management have been in force for many years. To retrospectively make councils liable for a potential fine, for which they have not known they would be responsible and lack sufficient control over all sources of emissions, is unreasonable. The proposals are also unworkable as it would be impossible to fairly attribute liability between countries of the UK and between councils. It is impossible to say conclusively if changes to pollution concentrations are a result of local authority action and exceedances may still occur despite local measures being implemented (although these actions may prevent deterioration). At the same time councils may not have sufficient resources to introduce expensive measures which may be necessary to reduce pollution further and local communities may not support proposed measures, for example as seen with the Manchester congestion charge referendum. With the UK facing a potential £300 million EU fine for breaches of air quality limit values, at a local level, even a portion of such a significant fine could threaten the provision of local services and drastically undermine existing air quality work by councils.

15. The Defra-commissioned independent review of local air quality management, published in March 2010, recognised the unworkable and unreasonable nature of apportioning liability when considering whether mandatory targets should be imposed on councils in light of the UK's EU obligations stating that *"Giving authorities responsibility for achieving a part of the target...would be impossible to monitor and enforce; there would be no way of deciding conclusively the causes of any change to [pollution concentrations] at the specified location, and hence whether or not the authority had succeeded in meeting its target"*.³⁹

16. The focus must be on how government, local and central, working together can ensure that the EU limit values are met and fines avoided, not how to apportion them should they be incurred. To this end, we organised a meeting between the LG Group and Ministers Lord Henley and Norman Baker MP in March 2011 to discuss how we can develop a more productive relationship and address the problem in a more coordinated and strategic way. Officers have been working together to formalise current working arrangements and to identify existing evidence and any gaps to inform a future meeting.

³⁷ The LG Group looks forward to the government's formal consultation on the NPPF and will be consulting widely with our membership.

³⁸ <http://www.lga.gov.uk/lga/core/page.do?pageId=16130577>

³⁹ <http://archive.defra.gov.uk/environment/quality/air/airquality/local/documents/laqm-report.pdf>

Public Health

17. There is currently a pause in the progress of the Health and Social Care Bill and the outcome of this is not yet known. Our views outlined below are based on the proposals as they currently stand.

18. Public health has always been at the very heart of local government. As set out in our response to the Public Health White Paper, we strongly support the proposals to transfer responsibility and funding for local health improvement to local authorities. This will enable councils to provide democratic leadership and local accountability to deliver improved health outcomes and challenge health inequalities.

19. Protecting people's health is of course the principal reason for improving air quality. Many councils already work to integrate health improvement into mainstream service delivery, including transport, planning and environmental health. The LG Group paper "The Health of the Public"⁴⁰ provides a snapshot of how councils are contributing to public health and includes a case study on the work that Sheffield City Council has already undertaken to improve air quality to benefit the health of residents, including by reference to it in the area's Joint Strategic Needs Assessment (full case study attached at Appendix 1). Nonetheless, the transfer of public health responsibilities to local government represents a significant opportunity to better integrate air quality with the health and wellbeing agenda more broadly across local government.

20. In two-tier areas, air quality is the responsibility of the district council. Health and Wellbeing Boards will sit at the first-tier level. The LG Group has consistently advocated the vital role that district councils have to play; not only will they be key partners in developing local strategies for public health, they are also closest to their communities. First-tier councils will need to engage other layers of local government—district, parishes, town councils and neighbourhood structures—to ensure that the Joint Strategic Needs Assessment and Joint Health and Wellbeing Strategy accurately reflect the needs, assets, resources and activity to promote and protect health at all levels of local government.

21. The LG Group has produced a document to support council regulatory services (where air quality usually "sits" in an authority, as part of environmental health) in strengthening links with public health and inequalities, providing information on proposed reforms and practical information on existing routes. It also encourages officers to be active advocates of the health benefits their services—such as air quality management—have for local communities; one of the challenges to overcome is that air quality is often seen by people outside the air quality profession as a purely "environmental" issue rather than something with a strong link to health.

22. An air quality indicator was included in the draft public health outcomes framework, however the Command Paper for the Public Health White Paper is unlikely to be published until July and we will not know the final set of indicators until then, nor how much scope there will be to include local indicators. The LG Group accepts that it is useful to have consistent baseline evidence to allow councils to compare performance; however we have argued for a single outcomes framework for health, social care and wellbeing, which would lessen reporting burdens and ensure all partners are working together on the same priorities. It is also essential that the outcomes framework allows robust, accurate, timely and locally-appropriate data to inform local decision making and service provision without adding data collection burdens on councils.

APPENDIX 1

SHEFFIELD: IMPROVING AIR QUALITY AND PUBLIC HEALTH

Improving air quality is a health and wellbeing priority identified within Sheffield's 2010 Joint Strategic Needs Assessment as a key action to reduce health inequalities.

CHALLENGE

Up to 35,000 die prematurely in the UK each year because of air pollution. Research suggests that people whose death is caused by air pollution die on average 10 years earlier. It has been linked to worsening of asthma, chronic bronchitis, heart and circulatory disease, and cancer. It disproportionately affects vulnerable groups such as children and older people and has a greater effect in areas of deprivation, increasing health inequalities. Health and wellbeing in Sheffield is better than ever, but significant inequalities persist, with large numbers of people experiencing lower levels of health than the city or national average. National estimates of the health impact of air pollution translate locally into between 240 and 325 deaths brought forward each year in Sheffield, with estimated health costs of around £95 million per year. Within Sheffield's 2010 Joint Strategic Needs Assessment (JSNA), improving air quality is a health and wellbeing priority for two areas in the city, one of which has significantly lower life expectancy than Sheffield's average.

ACTION

As well as being recognised in the JSNA, air quality is included in other policies such as transport and planning, ensuring pollution reduction and associated health benefits are integrated into service delivery. The council also works closely with other authorities, businesses and community groups on specific projects.

⁴⁰ <http://www.lga.gov.uk/lga/aio/15474417>

The council leads the Sheffield Clean Air Partnership, working collaboratively with the Health Authority, Highways Agency, Environment Agency, local universities, Chamber of Commerce, black and other local community forums, South Yorkshire Passenger Transport Executive, bus operators and other groups to develop the air quality action plan for the area.

Air quality is a strategic priority for transport in Sheffield and the council has implemented a range of measures including more bus lanes; joining up cycle routes; free parking for registered low emission vehicles; and the first Statutory Quality Bus Partnership in England, resulting in operators using cleaner, less polluting vehicles.

The council is currently working with local companies and vehicle manufacturers on an innovative trial of biomethane vehicles, to demonstrate the benefits and are now introducing the vehicles to Sheffield City Council fleet, and establishing refuelling infrastructure, for which it now has a delivery plan. The biomethane, collected from organic waste, is supplied by a local business, helping to develop the local green economy as well as demonstrate leadership in reducing emissions from the council's own fleet.

By implementing low emission strategies through the planning system, Sheffield has secured funding and mitigation measures from new developments to help minimise transport emissions. Sheffield works with the three other councils and the Passenger Transport Executive in South Yorkshire on the award-winning Care4Air social marketing project to inform people about air quality and promote behavioural change. The campaign provides individuals, organisations, schools and businesses with information to enable them to "do their bit" and runs an awards scheme that recognises champions and good practice.

The Care4Air partnership also runs the "ECO-stars" fleet recognition scheme: a free, voluntary scheme designed to provide recognition, guidance and advice to operators of goods vehicles, buses and coaches. This reduces emissions and helps local businesses to increase efficiency, saving fuel and money.

The council works with the East End Quality of Life Initiative (EEQLI), which is funded by NHS Sheffield. EEQLI provides support to the voluntary and community sector in areas of Sheffield including those ranked as some of the most deprived in the country. They established a Community Air Pollution Monitoring Network in 1998 and local volunteers carry out pollution monitoring in their neighbourhood on a monthly basis.

The council is now working with NHS Sheffield on a feasibility study for an "AirText" system. Air quality alerts provide free predictions of moderate or high air pollution incidents and related health advice to those with medical conditions that are exacerbated by air pollution, such as asthma, emphysema or angina. This information empowers people to manage their conditions more effectively, for example making sure they have their inhaler handy and that there is plenty of medication left in it when pollution levels are high.

OUTCOMES

The health impact of man-made air pollution in the UK is estimated to cost £8–20 billion per year, comparable to the cost of alcohol misuse to society. The figures are for the cost of premature mortality and do not include morbidity costs which result in significantly higher figures. The cost to Sheffield per year is estimated to be £95 million.

By using the planning system the council has secured from new developments 32 electric vehicle charging points, 110 car park spaces reserved for low emission vehicles, subsidised bus passes, employee travel plans, car share schemes and £35,000 for air quality monitoring. By engaging with the private sector, the council gained free use of Mercedes Benz vehicles for its biomethane trial.

An evaluation of the ECO-stars scheme found that the scheme could help third party fleet operators achieve a 50% reduction in nitrogen dioxide emissions and a 75% cut in particulate matter, which is very harmful to health.

There are also obvious benefits of helping people with conditions affected by pollution to manage their own exposure through schemes like AirText, such as reduced GP and hospital visits. One in five of the population suffers from respiratory or cardiovascular complaints that can be made worse by air pollution. Research on the AirText system in London showed that 94% of users found the service useful or very useful and 71% of people changed their behaviour as a result, for example avoiding outside exercise.

Sheffield is working with the other authorities in the Low Emission Strategies Partnership to develop a toolkit which will allow robust quantification of low emission measures on a particular fleet or development providing a much stronger evidence base for actions.

Written evidence submitted by James Grugeon, The Healthy Air Campaign

The Healthy Air Campaign is supported by a coalition of NGOs working in the health and environment field. To date the coalition includes Campaign for Better Transport, Clean Air in London, ClientEarth, Environmental Protection UK, Friends of The Earth, Living Streets, Sustrans and is being advised by Professor Frank Kelly, Kings College London and The University of the West of England Air Quality Management Resource Centre. The evidence below represents a selection of the coalition's views. Individual organisations within the coalition may also make their own responses.

SUMMARY OF OUR RECOMMENDATIONS

1. A coordinated cross-departmental approach needs to be taken to integrate policy and leadership in central government and respond effectively to air pollution and its impacts on public health. This approach would require leadership from a cross-cutting department, of which the Cabinet Office may be best placed, with a remit to support local authority action to mitigate the health impacts of air pollution up to and beyond the implementation of public health reforms.
2. Compelling messaging needs to be communicated on air pollution and public health, supported by more transparent and localised air pollution monitoring and reporting, that educates and engages the public and local decision makers and encourages them to take action.
3. The Government should support non-technical measures to tackle pollution that encourage communities to choose more active transport choices and reduce car use. These should be supported by "hard" measures including a ban on the most polluting vehicles from the most polluted urban areas, and scrappage and emissions abatement schemes.

DETAILED COMMENT ON THE ENQUIRY TOPICS

We have detailed our comments below in each of the four areas requested by the Committee:

The causes of particulate and NO₂ air pollution in the UK and how these can be reduced most effectively

4. Emissions from road traffic are still the most significant source of air pollution in most parts of the UK. Emissions mainly arise from vehicle exhausts; however in the case of particulate matter contributions are also made from tyre and brake wear and through vehicles re-suspending dust deposited on the road surface. Road traffic is the key source of pollution due to the quantity of NO_x and PM₁₀ it emits and also due to the way in which traffic permeates our towns and cities. Pollution from vehicles is released directly into our streets at a low level (height), where it has little opportunity to disperse before being inhaled by those who visit, live and work in heavily populated urban areas.

5. Measures to address emissions from vehicles include technical "end of pipe" solutions and non-technical measures. To date attention has focused overwhelmingly on technical solutions, with increasingly strict emissions standards set at European level. These have had some success in improving air quality; however since publication of the EAC's last report evidence has come to light⁴¹ that NO_x abatement for diesel vehicles has had little impact in real terms. It is essential that these problems are rectified in the forthcoming "Euro 6" emissions standards—but even if they are "Euro 6" will have little impact on the immediate task of meeting European air quality targets as it will take many years for compliant vehicles to build to a significant proportion of the UK vehicle fleet.

6. The Healthy Air Campaign believes that, while technical measures are important, more emphasis is needed on non-technical measures. These are measures that aim to reduce traffic in our urban centres, shift journeys from private vehicles to (clean) public transport, promote active transport choices and reduce the need to travel. Behavioural change measures of this sort do not just help to improve air quality, they also fit with the Government's ambitions to reduce carbon emissions and promote healthy lifestyle choices.

7. Behavioural change initiatives can include "soft" measures, such as Smarter Travel Choices schemes or the Walk to School or Walk to Work campaigns, but also "hard" infrastructure measures which improve the accessibility, connectivity, safety and journey ambience of the public realm and thereby stimulate modal shift towards active and sustainable modes. Air quality itself has a major impact on mode choice and on perceptions of the urban realm, for example half of Manchester residents and 77% of Londoners consider it a major problem.⁴²

8. More research is needed to quantify the opportunities for behavioural change measures and the impacts they can have on air quality. Targets set within an air quality strategy for behavioural change should be grounded in this research and be both realistic and verifiable.

⁴¹ "Trends in NO_x and NO₂ emissions and ambient measurements in the UK" http://uk-air.defra.gov.uk/reports/cat05/1103041401_110303_Draft_NOx_NO2_trends_report.pdf

⁴² Source—The Gallup organisation on behalf of Directorate General for Regional Policy, European Commission. 2009. Perception survey on quality of life in European cities: analytical report. See http://ec.europa.eu/public_opinion/flash/fl_277_en.pdf

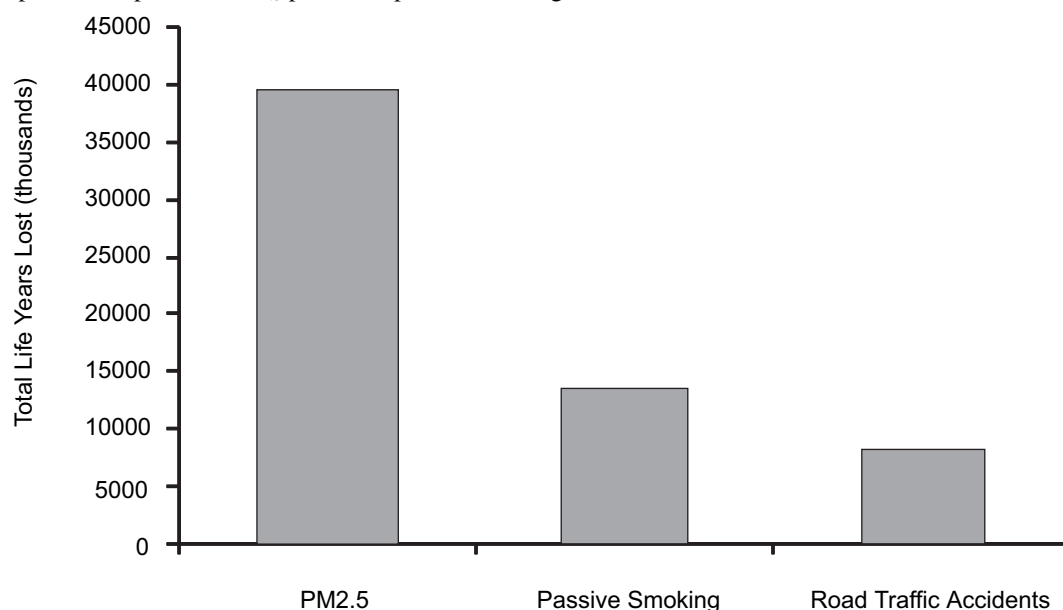
The impacts on health and the environment from particulate and NO₂ pollution, and how these should be measured

9. The health and other environmental risks associated with poor air quality have been explored by bodies such as the Committee on the Medical Effects of Air Pollutants (COMEAP). COMEAP have released their assessment of the health impacts of long term exposure to air pollution⁴³ since the last EAC report.

10. The metrics commonly used to communicate the impacts of air pollution do not engage either the general public or political stakeholders. In fact they downplay the significant health impacts of air pollution. The Healthy Air Campaign believes that the most compelling metric is premature deaths attributable to poor air quality. The COMEAP report provided a figure of 29,000 UK premature deaths in 2008 due to long term exposure to PM_{2.5}, whilst the Mayor of London's recent Air Quality Strategy⁴⁴ was supported by a health study that attributed 4,300 premature deaths annually to poor air quality in the capital alone. Government documents do not adequately convey the gravity of the health impacts of air pollution.

11. The current UK Air Quality Strategy states that "99% of the UK meets European air quality standards," a figure repeated in many other Government documents. This statistic is for geographical area rather than the percentage of the population affected—the 1% of the UK that does not meet the standards represents some of our most densely populated urban areas, whilst the 99% that is "clean" is mainly sparsely populated countryside. Another commonly repeated statistic is that "Air pollution is currently estimated to reduce the life expectancy of every person in the UK by an average of seven-eight months".⁴⁵ This suggests that the impacts are small and distributed evenly across the whole UK population, when in fact the impacts are concentrated in the most polluted urban areas where the health impacts for those that live and work there are actually very large.

12. The Healthy Air Campaign believes the Government needs to proactively raise understanding of the health impacts of air pollution and that in part this can be achieved by developing transparent and localised air quality monitoring and reporting systems that demonstrate more accurately the geographical and demographic distribution of those impacts to the public, particularly in the worst affected areas. It is also important to see the issue in comparison with other, higher profile health issues, and to engage the public and key decision-makers by focusing on the human impact of the issue, not just its scientific causes. The graph below shows comparative impacts of PM_{2.5} pollution, passive smoking and vehicle accidents.



Source—Institute of Occupational Medicine, "Comparing Estimated Risks for Air Pollution with Risks for Other Health Effects", March 2006. Graph shows estimated gain in life years in England and Wales from 2005–2110 for the whole population (including people born during that time) that could be achieved by eliminating each health hazard.

13. More research is needed into the impacts of air pollution on human health; UK research in this area is currently under resourced. The Government should consider establishing a Clean Air Research Institute and/or dedicate more funding from the relevant Research Councils and/or the Department of Health to the improved understanding of air quality and health.

⁴³ See <http://comeap.org.uk/component/content/article/28-page-linking/128-the-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk.html>

⁴⁴ See www.london.gov.uk/publication/mayors-draft-air-quality-strategy

⁴⁵ Both quotes from the current Air Quality Strategy—<http://archive.defra.gov.uk/environment/quality/air/airquality/strategy/documents/air-qualitystrategy-vol1.pdf>

The effectiveness of the Government's strategy for improving particulate and NO₂ air quality, and how that might be improved

14. The Healthy Air Campaign notes the Government's commitment to "work toward European air quality standards" contained within the Coalition Agreement. We are concerned that "work towards" does not commit the Government to meeting these legally binding, health-based air quality standards on any timescale.

15. The previous Government's strategy for improving air quality was very much based upon technical solutions, essentially waiting for progressively tighter European emissions standards for road vehicles to impact on ambient air quality. This strategy has not worked as well as intended, due to traffic growth cancelling out some of the improvement in emissions from individual vehicles and the poor NO_x performance of diesel vehicles in "real world" driving conditions (see paragraph 5). The current Government is yet to release any substantial updated strategies for air quality, although we understand that Defra will be consulting imminently on a strategy for reducing nitrogen dioxide (this will form part of the UK's application to the European Commission for a time extension for meeting nitrogen dioxide limit values).

16. As we stated in paragraph 6, the Healthy Air Campaign believes that the Government's strategy needs a much stronger focus on non-technical measures to encourage traffic reduction, modal shift and the greater use of "active travel" modes. These actions would strongly integrate with the Government's targets for improved public health and carbon reduction. Pilot projects in this area such as the Sustrans Travel Smart⁴⁶ initiative have demonstrated that significant modal shifts are possible through a "nudge" style process, but despite some consideration in the recent Local Transport White Paper the Government is yet to show much in the way of support for these types of interventions.

17. The Healthy Air Campaign is calling for a coordinated cross-departmental approach to air quality. A new, cross-Government, air quality strategy should be urgently developed. This should have the aim of refocusing objectives, aligning policy on air quality and climate change, and perhaps most importantly sharing the responsibility for meeting targets amongst all appropriate Government departments. As part of this process the Government should review whether Defra is the appropriate lead department for air quality—for example the Cabinet Office may be best placed to lead on joined-up thinking and action across Government.

The potential effects of the Government's localism agenda and proposed reforms of public health provision on local authorities' capacity for tackling poor air quality

18. The Healthy Air Campaign believes that to effectively tackle poor air quality local authorities need to be empowered to do more. There is a significant opportunity, as public health functions are devolved back to local authorities to link funding and action on air pollution at a local, community level. At the same time, however, the localism agenda may mean that Government's ability to mandate local authorities to take action is reduced.

19. The Government's plan to devolve public health functions to local authorities could potentially provide both a greater remit and more funding to tackle poor air quality. However, there are two issues to be addressed here. In two-tier local authorities, air quality (through the Local Air Quality Management regime) is currently the responsibility of district/borough level authorities whilst public health responsibilities and funding will go to the county authorities. These two levels will need to be joined up. Secondly, local authorities are having to make significant cuts to their budgets, with many reporting that their capacity to manage air quality is being significantly reduced. The new public health responsibilities and funding are not due to be implemented until 2012 leaving a potential funding "gap" for areas such as air quality. The Healthy Air Campaign is calling for the Government to take action now to prevent an expensive and time consuming rebuilding of capacity that would otherwise need to take place after the public health responsibilities are implemented locally.

20. The Healthy Air Campaign advocates efforts to raise the profile of air quality as a local issue so that it is seen to be significant by communities and local politicians. This needs to be underpinned by cross-departmental Government action at national level to support local authority delivery of air quality management strategies. A new, engaging approach to communicating poor air quality would help raise community awareness and advocate for local politicians to address the issues.

3 June 2011

⁴⁶ See www.sustrans.org.uk/assets/files/travelsmart/behaviour_change_ff36.pdf

Written evidence submitted by the Department for Environment, Food and Rural Affairs

This submission provides an update to the evidence submitted to the EAC inquiry in the 2009–10 parliamentary session and the Government's Response to the EAC's report of that inquiry published November 2010. This evidence has been prepared in consultation with Departments for Transport (DfT), Health (DH) and Communities and Local Government (CLG), and with the Health Protection Agency (HPA).

SUMMARY OF SUBMISSION

- There is very close working between Departments and with local authorities to take air quality into account in all policy areas especially public health, transport, energy and planning. This has ensured continued improvements over many years and also safeguards future air quality. Climate change mitigation measures are increasingly significant and we seek to optimise benefits with air quality.
- The Natural Environment White Paper published on 7 June includes commitments to improve air quality in urban areas and streamline local air quality management arrangements.
- Substantial progress has been made in quantifying and understanding the health and ecosystem impacts of air pollution including recent reports from the Committee on the Medical Effects of Air Pollution (COMEAP) and Defra's publication of the National Ecosystems services approach. This information will be used in policy development and appraisal and to strengthen communications on air quality.
- We continue to take action to reduce particulate matter pollution. The European Commission has accepted the UK's request for additional time to meet the PM₁₀ 24 hour limit value in London subject to updating the air quality plan to reduce the risk of future exceedences and Government has awarded Transport for London (TfL) an additional grant of £5 million to support an extension of local measures (detailed in the update to the air quality plan for PM₁₀ published on 9 June).
- On 9 June the UK also published for consultation draft air quality plans to achieve the EU NO₂ limit value as quickly as possible. Final plans will be submitted to the EU by the end of September with a view to securing postponement to 2015 in accordance with the directive where compliance by then can be demonstrated. The plans include investigating the possible provision of further support for local authorities to introduce low emission zones to see if this has potential to help reduce NO₂ emissions.
- The Government's Localism Bill proposes decentralisation of decision making to local authorities to encourage development and economic growth. With these new powers should come clearer accountability for European obligations.
- Government proposes that local authorities should lead and have responsibility for public health. Directors of public health will be able to prioritise action on air quality as appropriate to their local area and the Department of Health have consulted on a proposal to include an outcome indicator for fine particulate matter in the Public Health Outcomes framework.

GOVERNMENT STRATEGY FOR IMPROVING AIR QUALITY

1. The Government's strategy for air quality has delivered emission reductions over many years. This has included reducing emission from industrial activities, transport and domestic sources as well as international work to reduce trans-boundary emissions of air pollutants.

2. The UK is currently projected to comply with 2010 national emission ceilings and complies with all EU limit values, except for particulate matter (PM₁₀) in small parts of London, where we expect to achieve compliance in 2011, and for nitrogen dioxide (NO₂), where the under-performance of EU diesel engine standards has meant that the expected emission reductions have not been delivered in full. Further efforts are needed to reduce NO₂ and continue to reduce exposure to PM.

3. Government Departments work very closely together to reflect air quality priorities especially in transport, climate change, planning health and local government policies. Health impacts are also taken into account through the work of the Inter-Departmental Group on the Costs and Benefits of Air Quality lead by Defra.

4. Defra is working with DfT, local authorities and other stakeholders to investigate measures such as low emission zones and will continue to pursue these where it is clear that they can provide air quality benefits. However, it is increasingly challenging and expensive to achieve further reductions in air pollutant emissions in the shorter timeframes required by the air quality directive. With increasing focus in the UK, the EU and internationally on climate change mitigation, significant benefits for air quality are expected to accrue over the long term. We will continue to work to manage the short term trade-offs between air quality and climate change to optimise outcomes for both.

5. In March this year the European Commission announced its review of air quality legislation. This review covers both the ambient air quality Directive and also national emissions ceilings and is expected to conclude in 2013 with proposals for revisions to the current directives. The UK will be engaging other EU Member States and the European Commission with a view to ensuring that the review delivers a framework that is

realistic, evidence based, and strikes the right balance between Government priorities on public health, the environment, including climate change, and the economy.

LATEST EVIDENCE ON HEALTH IMPACTS OF POOR AIR QUALITY

6. Substantial progress has been made in quantifying and understanding the health impacts of air pollution including recent reports from the Committee on the Medical Effects of Air Pollution (COMEAP). This work has helped improve our understanding of the health impacts of air pollution and how these might be communicated clearly. Key developments have been that:

- COMEAP published a report on the Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the UK in December 2010.⁴⁷ This presented the results of calculations of the mortality effects in 2008 along with detailed discussion of what the results might mean. The burden of particulate air pollution (as PM_{2.5}) was estimated to be an effect equivalent to about 29,000 deaths at typical ages, or a loss of life expectancy from birth of six months (as an average across all births). The report discusses the possible distribution of this effect. The two extremes that 29,000 people had died in 2008 solely as a result of exposure to fine particles, or that everybody who died during that year died, in some part, as a result of exposure to fine particles—were considered unlikely. COMEAP speculated that it was more reasonable to consider that air pollution may have made some contribution to the earlier deaths of up to 200,000 people (the number dying of cardiovascular causes) with an average loss of life of about two years per death affected, though that actual amount would vary between individuals.
- COMEAP published a statement in November 2010 that, as well as exacerbating asthma in those already having the condition, air pollution might also play a role in the induction of new cases of asthma amongst those living close to busy roads with a lot of truck traffic.⁴⁸ However, the contribution was likely to be small in comparison with those from other contributory factors. The proportion of the population so affected is also likely to be small.
- COMEAP will publish shortly its review of the Air Quality Index used in the UK to communicate information about outdoor air pollution. This review was requested by Defra and includes consideration of which pollutants should be included in a revised index, and the concentrations of each pollutant which should be regarded as “low”, “moderate”, “high” or “very high”, based on short-term health effects. Research was commissioned to inform the requirements of the public for the provision of air quality information, which was influential in shaping the proposed health advice. Defra will consider the review recommendations in its evaluation of the air quality index and will look to publish a revised index at the end of 2011.
- DH funded a workshop in March 2011, drawing together leading experts from the UK and mainland Europe, to consider the available evidence on the possible effects on health of ambient levels of NO₂. The evidence base is widely regarded as being inconclusive. (COMEAP had concluded in 2009 that it was not possible to quantify the health impact of reducing ambient concentrations of nitrogen dioxide as its possible effects could not be disentangled from those of exposure to particulate pollution.) The report of the workshop will be available shortly.
- DH have contributed towards funding of research programmes in a Natural Environment Research Council led initiative, which include studies on the health impact of traffic pollution in London and the interaction of air pollution and weather/climate on health. The Department is also funding other studies on effects of air pollutants on health, including morbidity. The total funding in this area is of the order of £2.5 million.
- HPA ran a discussion session at the Environmental Protection UK (EPUK) spring workshop (April 2011) to gauge the needs for guidance on estimating mortality effects at local level and to gather opinions on how this might best be done.

7. All this work helps to improve government’s understanding of the health impacts of poor air quality and the assessment of impacts arising from policy measures. It also contributes towards communications to raise awareness of air quality and policy development and appraisal.

LATEST EVIDENCE ON ENVIRONMENTAL IMPACTS OF AIR POLLUTION

8. Alongside the Natural Environment White Paper, the Government recently published a National Ecosystem Assessment for the UK. This highlighted the urgent need to better manage our ecosystems and the natural resources they provide. It recommends that we take account of the full value of ecosystem services in our decision-making. An ongoing piece of research, due to report shortly, has applied an “ecosystem services approach” to valuing the impacts of air pollutants on UK ecosystems for the first time. Whilst this will not

⁴⁷ COMEAP (2010 a) The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom. Available from <http://www.comeap.org.uk/documents/reports/128-the-mortality-effects-of-long-term-exposure-to-particulate-air-pollution-in-the-uk.html>

⁴⁸ Committee on the Medical Effects of Air Pollutants (2010 b) Statement on “Does Outdoor Air Pollution Cause Asthma?” Statement and supporting papers available at (accessed May 2011): <http://www.comeap.org.uk/component/content/article/28-page-linking/118-asthma-statement.html>

provide final figures, it will give us a defined methodology and will highlight key evidence gaps. Defra is already funding research projects to help address some of these evidence gaps.

9. An independent report to Defra, “the Review of Transboundary Air Pollution”, has synthesised the state of current knowledge on the impacts of atmospheric pollution on ecosystems and the natural environment and is due to be published this year. The report will highlight that the most significant impact of air pollutants is eutrophication arising from nitrogen deposition to semi-natural ecosystems, with a recommendation to explore reducing ammonia emissions from agriculture. The impact of rising background ozone concentrations is also demonstrated to be causing significant damage to sensitive ecosystems in the UK. However reductions in emissions of sulphur dioxide and oxidised nitrogen compounds have greatly reduced the impact on ecosystems of acidification.

CAUSES OF PM₁₀ AND NO₂ POLLUTION AND MEASURES TO REDUCE CONCENTRATIONS

10. The European Commission has accepted the UK case for additional time to meet the 24 hour limit value for PM₁₀ in London (until June 2011). The Government has committed £5 million to fund a GLA/TfL programme of localised measures to further reduce concentrations of PM in central London. The programme includes targeted interventions at priority locations including reducing vehicle idling, applying dust suppressants and deep cleaning, fitting pollution abatement equipment to buses, planting additional trees and green walls and working with businesses to help them reduce their air quality footprint. Details have been published as an update to the London air quality plan and sent to the European Commission.

11. Whilst these and other measures such as Euro emission standards have helped to significantly reduce levels of particulate matter, this is a pollutant for which there is no safe level of exposure and it is important to continue to drive down on levels from all sources—especially with respect to very fine particles or PM_{2.5}.

12. Government continues to keep under review emerging evidence on the health impacts of coarse particulate from brake, tyre and road wear to determine whether these sources are of significant concern and what mitigating measures might exist. Mechanical wear is an inevitable result of frictional gripping processes. Consequently it may not be technically feasible to reduce emissions of these particles without compromising vehicle safety. Increasing uptake of hybrid vehicles and measures to reduce congestion and improve traffic flow will help to reduce particles from brake and tyre wear. Part of the recent grant awarded to the London Mayor will fund measures to clean or suppress dust from these sources.

13. Biomass as an alternative heating source represents a significant opportunity for reducing carbon emissions in the short term and is being supported by the introduction of the Renewable Heat Incentive. However, it also represents a potential new source of PM and NO_x emissions which could impact on local air quality and national emission ceilings. In light of this the Government recently announced that Regulations would be brought forward in 2012 requiring that anyone seeking funding under the Renewable Heat Incentive for a biomass boiler would have to show that the appliance could meet specified emission limits for particulate matter and nitrogen oxides. DECC and Defra are well advanced in their discussions with sector representatives over the mechanics for bringing this into effect.

14. On 9 June Defra published draft air quality plans setting out how the annual and hourly NO₂ limit values will be met in the shortest possible time. Together with plans from Devolved Administrations, these will form the basis of a UK notification to the European Commission by the end of September to postpone the attainment date until 2015. Air quality limits for NO₂ are already met across the vast majority of the UK land area and population and further improvements are expected in coming years. However about a fifth of roadside sites are assessed as non-compliant and additional time is needed to meet the limits in these areas.

15. The draft air quality plans set out national and local measures that have been taken or are planned which will help to reduce emissions of oxides of nitrogen (NO_x) and therefore NO₂. The plans include measures aimed at reducing carbon and which will also help to improve air quality such as:

- a £560 million Local Sustainable Transport Fund for local authorities funding local projects from 2011 to 2015. Bids are focusing on local authorities with poor air quality and those that provide strong evidence that they will improve air quality will score higher in assessment.
- support for the development and introduction of new vehicle and fuel technologies such as electric and other Ultra-Low Emission Vehicles. This includes a Plug-In Car Grant, which gives buyers 25% of the vehicle price up to a value of £5,000. This was launched on 1 January 2011 and also support for the “Plugged-In Places” programme offering match-funding to local consortia to support the installation of a critical mass of electric vehicle recharging infrastructure.
- as announced in the 2011 Budget, the availability of Reduced Pollution Certificates (RPCs) for Euro VI standard vehicles from 1 January 2012 until 31 December 2016, applying to vehicles purchased before the standard becomes mandatory (1 January 2014).
- The Government’s current work to support sustainable travel choices and alternatives to travel, and to promote sustainable distribution of goods and sustainable low carbon approaches to other forms of transport, including rail, aviation and shipping.

16. All these measures together with those of local authorities will help to hasten progress towards the NO₂ limit value and further reduce PM emissions.

17. Defra and DfT are also investigating (in consultation with operators, local authorities and manufacturers of NO_x abatement equipment) the feasibility and effectiveness of providing further support for low emission zones to support local authorities interested in pursuing these measures to reduce emissions especially from heavy duty vehicles.. This work is ongoing and there are a number of concerns to address before decisions can be made on whether or not to go further and propose a national framework or a certification scheme for abatement equipment.

18. These concerns relate to the NO_x performance of newer vehicles, the appropriateness of this approach in the areas modeled to exceed the limit value, the reliability of available NO_x reduction technology (mainly selective catalytic reduction) the likely costs to operators, and the feasibility and costs of putting in place administrative and enforcement arrangements for such a scheme to support local decisions. A report to address evidence gaps will be published for technical comment in July and next steps will be considered following that report.

19. The availability of effective measures to reduce transport emission of NO_x needs to be set against recent evidence that NO_x emissions from vehicles of a variety of types has not decreased by the amounts expected in type approval tests. This is an EU wide problem and has been further compounded by an increase in the fraction of NO_x directly emitted as NO₂ from diesel vehicles due to fitting of oxidation catalysts (fitted to reduce PM emissions) leading to higher concentrations of NO₂ close to urban road emission sources. Defra recently published research into trends in NO_x emissions and NO₂ concentrations, and the underperformance of some Euro-standards for some vehicles is now widely recognised (including by the European Commission).

20. These and other unanticipated changes in the road transport fleet over the last 10 years have meant that reductions in NO_x have not been as expected and have also made it difficult to identify reliable and cost effective measures. We will however continue to investigate all feasible measures to achieve compliance as quickly as possible. These investigations will take into account the costs to operators and the balance with action to reduce carbon emissions in the long term.

21. Given the continued challenge of meeting NO₂ limits and the health impacts of particulate matter, it is important that regulation is used proportionately and in a focused way. Better regulation will provide opportunities to sharpen our focus on key air quality concerns. Our intention to review and simplify local air quality management requirements is an example of this. Similarly simplification of local authority-regulated industrial pollution controls identified by a Better Regulation Review of Part B Activities⁴⁹ has allowed a potential saving of £2 million per annum. Defra is also considering the possible simplification of Clean Air Act provisions for authorisation of exempt fireplaces and fuels to avoid delays caused by six-monthly exemption orders. This may be replaced by self-certification to specified standards if means can be devised to do so.

22. Transboundary pollution continues to be a significant influence on UK air quality especially for ozone and secondary particulates. Formation can take place over several hours or days and may have arisen from emissions many hundreds, or even thousands of kilometres away. The combination of air masses being transported from Continental Europe and warm weather with prolonged sunshine can lead to elevated ozone levels and may require the UK to issue a press notice to alert the public and vulnerable groups to high pollution and drawing attention to our internet and phone services which provide information on air quality on a daily basis. The most recent alert was in April and before that in 2009. Work at EU and International level continues to reduce transboundary pollution with a key aim for the EU being to increase participation of Eastern European countries in these discussions and through this additional environmental benefits to the EU can be delivered.

23. During the London 2012 Olympics the HPA will provide regular reports to the International Olympics Committee (via the London Organising Committee for the Olympic Games (LOCOG)) on the main public health threats including air quality. This information has been routinely requested for the last few Olympic Games and HPA will use Defra monitoring networks supplemented by local information as necessary. Government and the GLA are working together to ensure a safe and healthy games with the ambition that all spectators should travel to London venues by public transport, cycling or on foot. These and other measures should help minimise air quality risks during the Games.

24. Government is also taking steps to improve communications on air quality speaking to charities and transport operators especially. Officials have begun discussions with health based charities and with EPUK to develop this and are taking a close interest in EPUK's forthcoming Healthy Air Campaign. Lord Henley gave a key note address at the EPUK Spring Conference in April 2011 highlighting the significant health impacts of poor air quality and the importance of local authorities, Government and others working together to promote improvements. This work will be taken forward over this year alongside other communications measures.

ROLE OF LOCAL AUTHORITIES AND LOCALISM

25. Local authorities continue to be key to achieving improvements in air quality and combine these with practical actions to reduce carbon emissions through low emission strategies, air quality action plans and planning decisions. We expect to consult by the end of this year on proposals to improve local air quality management arrangements to ensure better alignment between local action and EU limit values and to reduce

⁴⁹ at <http://www.defra.gov.uk/environment/quality/industrial/las-regulations/reports-surveys-reviews-newsletters/>

reporting burdens for local authorities. These changes will help to simplify what is required of local authorities and ensure that nationally and locally we are working towards the same ends.

26. Many local authorities have also asked for practical advice on what works to improve air quality. We are therefore exploring ways of helping them share best practice and knowledge of measures. We will make sure that all local authorities have the opportunity to input into this work. A £2 million air quality grant was announced in April to assist local authorities in developing tools and actions to improve air quality, including communications. Bids have been specifically invited from local authorities with current air quality problems.

27. DH and DfT have also published a resource to aid in the delivery of healthy Local Transport Plans highlighting the impacts of transport on air quality and the co benefits for health from transport policies to promote cycling and walking. The NHS Sustainable Development Unit has also published guidance on NHS Active Travel Plans for NHS staff as well as patients and the public.

28. The Government is committed to the radical decentralisation of power and control to individuals and local communities. The reform to the planning system under the Localism Bill will restore democratic and local control to decision-making, and a simpler, more effective planning system. However, the Government does not want a decentralised planning system to come at the cost of development, which is why it is looking to rebalance the system in favour of sustainable development.

29. Local authorities play a key role in determining the location of development which may give rise to pollution, either directly or indirectly, and in ensuring that other uses and developments are not, as far as possible, affected by major or existing or potential sources of pollution. Provisions in the Localism Bill for reserve powers to pass on the consequences of EU infringement provide a strong incentive for local and public authorities to comply with their EU obligations, including on air quality. Defra is also working closely with CLG to ensure air quality is reflected in national planning statements for infrastructure developments and also in the National Planning Policy Framework under development.

PROPOSED REFORMS OF PUBLIC HEALTH PROVISION

30. The Government has set out its proposals for a radical new approach to public health in the White paper, *Healthy Lives, Healthy People*. This White Paper sets out the Government's long-term vision for the future of public health in England and outlines the Government's commitment to protecting the population from serious health threats; helping people live longer, healthier and more fulfilling lives; and improving the health of the poorest, fastest. Subject to passage of the Health and Social Care Bill, it is proposed that a new dedicated public health service (Public Health England) will be set up as part of the Department of Health (incorporating the Health Protection Agency).

31. Local authorities will take on new public health functions, responsibility for which will sit with their Directors of Public Health, who will be jointly appointed with Public Health England. Health and Wellbeing Boards will determine local priorities and to set out strategies for which they will be held locally accountable to deliver. As the strategic leaders for public health in local communities Directors of Public Health will be able to galvanise action on air quality as appropriate in their area.

32. Proposals for establishing a Public Health Outcomes Framework have been outlined in *Healthy Lives, Healthy People: Transparency in Outcomes*. This sets out a new strategic outcomes framework for public health at national and local levels, based on the evidence of where the biggest challenges are. On the basis of the significant public health impact from particulate air pollution it has been proposed that life years lost from particulate air pollution, as measured by fine particulate matter, be included as an outcome indicator. Further development of the framework will be undertaken over the next few months, incorporating the feedback to the consultation where possible, and a final framework published in the autumn.

16 June 2011

Supplementary written evidence submitted by the Department for Environment, Food and Rural Affairs

Thank you for your letter dated 13 July and including outstanding questions following the evidence session attended by Lord Henley on 6 July 2011. I have responded below to each of the questions you asked. At the time of the evidence session there was also some media interest and discussion comparing air quality now with the 1950s. I think it is important to understand the improvements there have been in air quality since then and also the better understanding we have now particularly of the significant long term health impacts of air quality. I have therefore taken the opportunity to comment on this as well.

COSTS AND BENEFITS OF A PUBLIC AWARENESS CAMPAIGN

1. *Has any assessment been made of the costs and benefits of a public awareness campaign about the risks of poor air quality? If so, what scale of campaign was considered, what benefits were expected and how were they costed?*

We have given some preliminary consideration to such a campaign and will continue to keep it under review. However we have to factor in not only the public expenditure that could be involved but also how it would relate both to our existing activity here and to the currently developing plans on awareness-raising by other organisations. We agree that nature of air pollution impacts needs to be more widely understood.

In March this year the Government announced that only essential expenditure on new advertising and marketing would be allowed and that central approval would be required for government campaign spending over £100,000. This announcement raises the bar on proposing significant awareness raising campaigns funded by the public purse. All Departments are required to scrutinise carefully any proposals for awareness raising and consider what opportunities might exist for awareness raising through other means.

The Government already supports significant communications expenditure which helps to raise awareness about air quality and protection of public health. These include systems to inform members of the public including sensitive groups such as children and elderly of air quality risks. This year we have updated our internet presence on air quality and launched The UK Air Information Resource (UK-AIR). This website provides information on air quality in the UK, including current levels of air pollutants, daily and historical air pollution data, air pollution forecasts, and information on Defra's air quality monitoring networks. Users can subscribe to email bulletins and alerts for regular updates on air quality in their local area. UK-AIR also gives information on the effects of air pollution.

In addition to UK-AIR, many local authorities provide advice on air quality through their own websites. These include information on protecting health and on what measures individuals can take to reduce the impacts of air pollution. Many local authorities have produced teaching and information packs on air quality for schools and the businesses. Many of these projects have been funded by Air Quality Grant monies made available through Defra.

We are very interested in the Healthy Air Campaign sponsored by Environmental Protection UK and launched in July 2011, and are keen to explore ways of working with them to support their campaign and to promote awareness through their activities. These campaigns, led by independent bodies and alliances of organisations can often be more effective in driving home messages for personal behaviour change and action than Government driven campaigns. We will continue actively to review our communications strategy for air quality and will work with other stakeholders to develop this.

IMPACTS OF POLICY MEASURES TO IMPROVE AIR QUALITY

2. *Mr Instone said that your Department had been in contact with the Treasury about the impacts of certain policy measures to improve air quality. He said (Q77):*

What you would be then measuring would be the marginal impact, marginal benefits one would hope, of those measures. We would be aiming to calculate some numbers there and set those against the other direct costs, for example, to business, assuming there were any. We are and would be feeding those calculations in very explicitly.

What policy options have been costed in this way? What were the financial impacts of these policies? How has the Treasury responded to this information and what new fiscal policies is it considering implementing to improve air quality?

A range of policy options have been investigated to improve air quality. The Air Quality Strategy 2007 costs several options including incentivising cleaner vehicles, promoting low emission vehicles and low emission zones and reducing emissions from shipping (<http://archive.defra.gov.uk/environment/quality/air/airquality/strategy/documents/air-qualitystrategy-vol2.pdf>). Defra and DfT are also jointly investigating the feasibility of low emission zones to reduce emissions from heavy duty vehicles and an initial impact assessment on this was published in June (<http://www.archive.defra.gov.uk/environment/quality/air/airquality/docs/ia-no2.pdf>).

The Government will continue to explore opportunities to further green the tax system over the Parliament. Any options considered will be done so within the context of the fundamental priority of deficit reduction and strategic aim of simplification. Budget 2011 announced that a time limited Reduced Pollution Certificate (RPC) would be available for Euro VI vehicles bought before the standard becomes mandatory, thereby providing an incentive to purchase an HGV with a high standard of air quality. The RPC will run from 1 January 2012 and close on 31 December 2016. The discount rate will remain the same as for previous standards. If vehicles are available and bought before 1 January 2012 they will be able to receive an RPC from 1 January 2012. After the closure date when vehicles tax discs naturally expire they will return to standard VED rates.

COST BENEFIT ANALYSIS OF RETROFIT PROGRAMME FOR PM₁₀ TIME EXTENSION

Mr Vaughan told the Committee (Q105) that a cost benefit analysis of a retrofit programme had been undertaken. How did that analysis include a monetised quantification of the benefits that such a programme would provide and what scale of programme was considered?

The Ambient Air Quality Directive 2008/50/EC allows Member States to seek additional time to meet limits for PM₁₀. To inform the decision to apply for a time extension a national retrofitment scheme was considered. This scheme assumed a mass retrofitment of diesel particulate filters (DPFs) across the UK fleet. Uptake was assumed to be 100% of all the available LGVs and HGVs and 45% of diesel cars. This analysis suggested that the health benefits from such an action would be less than half the associated technology and operating costs of the scheme. This was one of the factors informing the UK decision to apply for a time extension in relation to this objective.

INCLUSION OF AIR QUALITY IN THE DEFRA BUSINESS PLAN

You said (Q83) that you could not recall the exact reasons why improving air quality had not been included in the Defra Business Plan. Could you provide further details on why the decision was taken to leave it out? Will it be included in future business plans?

The Defra Business Plan was drafted to describe the Department's strategic vision for how it would operate over the four years of the Spending Review and its priorities for this as set out in the Spending Review 2011–12. In particular it set out how the Department will contribute to the two central purposes of the Government: equipping Britain for long-term success and putting power in the hands of communities and individuals. The Business Plan also includes our Structural Reform Plan which sets out the actions the Department will take, and when, to meet its priorities along with our expenditure plans for 2011–12. We shall be reviewing the range of our business plan targets in next year's and subsequent years' updates of the plan.

The fact that air quality is not explicitly mentioned in the current Business Plan, published in May 2011 does not in any way reflect a lack of importance we attach to this area, especially since it is a cross government, Coalition commitment to work towards full compliance with EU air quality standards; this remains a major driver for action which would not be increased if air quality were covered in the Defra business plan itself. In addition our Natural Environment White Paper sets out more specific commitments on air quality including our consultation on plans for the achievement of NO₂ limit values, investigation of low emission zones and improving arrangements for local air quality management and delivery. This with the coalition commitment will continue to ensure that air quality is given priority across government policies.

TRANSBOUNDARY AIR POLLUTION

Dr Honour told the Committee about the influence of different trans-boundary air pollutants on meeting air pollution targets. It would be useful to have your quantification of these effects

The influence of transboundary emissions of air pollutants on UK concentrations depends on the pollutant, prevailing conditions and location (eg rural or urban). The apportionment of nitrogen dioxide (NO₂) concentrations to different emission sources is uncertain, however, it is very similar to that of nitrogen oxides (NO_x) for which we have more reliable data. For annual average concentrations of nitrogen oxides (NO_x), on average 2% of concentrations at roadside sites result from transboundary emissions. This rises to 47% of concentrations at remote rural sites. For annual average concentrations of PM₁₀, on average 11% of concentrations at roadside sites result from transboundary emissions and 23% of concentrations at remote rural sites. The proportion of PM_{2.5} concentrations related to transboundary emissions is generally greater than for PM₁₀ and for both PM₁₀ and PM_{2.5} the proportions can, during high pollution episodes, be significantly higher than the annual average figures above.

Due to the time taken for ozone to form in the atmosphere following emission of precursor pollutants and the long lived nature of some of these precursors, the influence of emissions from outside the UK are greater for ozone than other pollutants. The exact contribution of non-UK emissions can vary greatly and depends on meteorological conditions but is generally in the range of 90–96%.

Although on average the UK is currently a net exporter of pollutants that contribute to acidification and eutrophication (nitrogen enrichment) in other European countries, a significant proportion of these pollutants deposited in the UK originate from elsewhere. We estimate that 43% of oxidised sulphur deposition (mainly related to sulphur dioxide emissions) arises from non-UK sources, 56% of oxidised nitrogen (mainly NO_x emissions) and 26% of reduced nitrogen (mainly from ammonia). However when the air over the UK is derived from continental rather than Atlantic sources, transboundary pollution from other countries is more significant than is apparent from their annual average contribution. Shipping is an important contributor to oxidised sulphur and oxidised nitrogen deposition in the UK: 24% and 25% of the total respectively.

COMPARISON BETWEEN 1950S AND PRESENT DAY HEALTH IMPACTS OF AIR QUALITY

As stated at the oral evidence session Government takes air quality very seriously and is very concerned about the significant health burden. However it is also important to recognise that there have been significant

improvements in air quality since the periods of the Great Smog in the 1950s and recent comparisons between air quality during the smogs of the early 1950s and today have not been helpful in highlighting the improvements made nor the change in our understanding of the impacts of air quality.

The levels of pollution in the 1950s and 1960s were many times higher than they are now; levels of sulphur dioxide and black smoke, which have serious health effects, were significantly higher. It is not possible to make direct numerical comparisons, but it is likely that effects on morbidity and the numbers of equivalent deaths from long term exposure to air pollution would have been significantly higher than they are now.

In terms of specific pollution events the numbers of deaths attributable to pollution incidents in the 1950s were orders of magnitude higher than those that occurred due to increases in air pollution during the heat wave in 2003, which was the most significant pollution event of the last 10 years. For example during the “Great London Smog” of December 1952 there were an estimated 3,500 to 4,000 deaths brought forward due to increased air pollution in one week in London alone compared to between 423 and 769 excess deaths in England and Wales across a two week period in August 2003 (associated with the elevated ambient ozone and PM₁₀ concentrations).⁵⁰

More significantly our understanding of the long term health effects of air pollution both on cardiovascular and respiratory health conditions has moved on significantly such that we recognise that long term exposure to air pollution plays a far more significant role on both morbidity and mortality than was previously thought. It is now accepted that levels of air pollution which would have been regarded as harmless in the 1960s are capable of significant damage to health.

As was stated by COMEAP in December last year and re-stated in the evidence session, levels of PM_{2.5} in 2008 were estimated to have an effect equivalent to 29,000 deaths in that year. Given that much of the effect on mortality is linked with cardiovascular deaths, COMEAP has suggested that it is reasonable to consider that air pollution, acting together with other factors, made some smaller contribution to the earlier deaths of up to 200,000 people in 2008. If this number of people were affected, the average loss of life due to air pollution would have been about two years per death affected, though the actual amount would vary between individuals. However, this assumption remains speculative.

Whilst we do not have comparable data for the 1950s it is almost certain that the long term health effects of air pollution were significantly higher than they are now given the higher ambient concentrations present during the 1950s and 1960s. It is important therefore to appreciate that there have been significant improvements in air quality since the 1950s. However there remain significant challenges and we must all focus efforts on further improving air quality.

30 August 2011

⁵⁰ Stedman (2004) “The predicted number of air pollution related deaths in the UK during the 2003 heat wave”. *Atmospheric Environment* 38(8)1087–1090.