

Environment, Food and Rural Affairs Committee

Defra's responsibilities for air quality

Background to CIWEM

1. CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector. The Institution provides independent comment on a wide range of issues related to water and environmental management, environmental resilience and sustainable development.
2. CIWEM welcomes the opportunity to respond to the EFRA Committee consultation on Defra's responsibilities for air quality. This response has been formulated with the expertise of our Members who work in air quality modelling and management and our Air Quality technical panel. To read more about CIWEM's work in this area and our recommendations for policies and practical action in the UK please see our report [Clearing the Air¹](#).

Summary

3. Defra's final Air Quality Plans need to be far more ambitious if the Government is to tackle the public health crisis from air pollution. The draft plans are limited to focussing on achieving compliance with the EU Directive limit values for a single pollutant rather than the wider protection of human and environmental health.
4. Defra needs to ensure that if Local Authorities are going to be responsible for delivering the plans, they are appropriately funded. These funds should be proportional to the cost of poor air quality.
5. Defra needs to work more effectively alongside other departments as there is a limit to what it can achieved on its own. Defra should work with the Treasury to consider fiscal drivers on diesel fuels, the Department for Transport's low emission vehicle programmes and DECC's energy and heat efficiency initiatives. DCLG should also be involved to reduce emissions through the planning system and Building Regulations.
6. Defra's own analysis shows that if emissions standards do not perform as modelled, it could result in up to 22 additional non-compliant zones, raising the total to 30 zones in 2020. The current emissions standards (Euro 6) for diesel cars do not meet the standards in the real world, most by some margin, which means it will be a number of years before diesel cars will comply.
7. A wider national framework of low emission zones needs to be adopted sooner than stated and the criteria updated regularly to influence and reflect the changing fleet.
8. A significant reduction in nitrogen pollution from the agricultural sector will be required to protect both habitats and human health.

¹ CIWEM. 2013. Clearing the Air. www.ciwem.org/clearingtheair

9. The current Air Quality Strategy should be updated and include new regulatory standards for ammonia. It should also set out a strategy to reduce air pollution impacts on human health and the natural environment as soon as possible.

General comments

10. This inquiry is very timely in light of the recent Defra draft plans on nitrogen dioxide (NO₂), the ClientEarth legal case and the recent Volkswagen emissions controversy. The impact of poor air quality in the UK is widely reported as being tens of billions of pounds and in the region of 50,000 deaths per year. It is therefore vital that Defra plays a pivotal and overarching role in helping reduce air pollution effects on human health.
11. Air pollution should be controlled not only to achieve compliance with the Directive, but to aim to protect human health, by being considerably below them. This is particularly important for pollutants such as NO₂ and PM_{2.5} for which there are no thresholds. Defra must recognise that the EU limit values for all pollutants are limits and not 'targets'. There is no minimum concentration below which exposure is considered safe, and every reduction in exposure will be beneficial in terms of health benefits.
12. Phenomenal success has been achieved in minimising sulphur impacts on human and ecosystem health. However, the main pollutant of concern to habitats, nitrogen has shown only modest reduction. This is because unlike sulphur most of the sources are diffuse and widely distributed, for example nitrogen emissions from transport and agriculture. It is therefore pleasing to see the EFRA Committee give prominence to the impacts of air pollution in causing wider environmental damage as well as human health by considering these two areas in its inquiry.
13. A number of recent reports have demonstrated that air pollution remains a major pressure on the natural environment of the UK². Over 60 per cent of the area of sensitive habitat in the UK exceeds 'critical loads' for the protection of ecosystems from nitrogen deposition. There is also widespread exceedance of the critical levels for ammonia particularly along parts of the Wales/England border, eastern England and Northern Ireland. In 2013, the UK reported air pollution impacting upon 34 out of the 77 habitats detailed under Annex 1 of the Habitats Directive³. A number of protected areas in the urban environment are at risk from high concentrations of NO_x, for example Epping Forest, near London.

Response to consultation questions

Defra's role

Do Defra's proposals for reducing emissions of key pollutants, including NO₂, go far enough and fast enough to meet EU standards?

14. Defra's consultation on its draft Air Quality plans did not include a supporting document with the technical information and detailed modelling required to scrutinise the draft plans. The

2 Defra. 2012. Review of Transboundary Air Pollution <http://www.rotap.ceh.ac.uk/>

3 Joint Nature Conservation Committee. 2013. 3rd UK Habitats Directive Reporting <http://jncc.gov.uk/page-6387>

uncertainties in emission reductions from vehicles mean it is extremely difficult to judge if the measures will be enough and achieve limit values as soon as possible to meet the EU Directive limit values.

15. Defra's final Air Quality Plans need to be far more ambitious if the Government is to tackle the public health crisis from air pollution. The draft plans are limited to focussing on achieving compliance with the EU Directive limit values for a single pollutant rather than the wider protection of human and environmental health. Defra must also consider other pollutants, in particular particulate matter (PM) and primary NO₂, when setting standards for clean air zones. Focusing on one pollutant to the exclusion of others, will increase costs and health impacts in the long term.
16. The draft plans contain only one new measure at the national level: a national framework for clean air zones, the details of which will not be published until early 2016. It is unfortunate that these are voluntary and it will be up to local authorities to decide whether to implement clean air zones with almost all responsibility passed on to them.
17. If the proposals were to achieve limit values as soon as possible then Defra should suggest the implementation of clean air zones more widely and earlier. The draft accepts that breaches will happen until the general emission control measures, largely relying on the Euro 6 standard, have transitioned sufficiently into the fleet. Defra indicates that the proposed Clean Air Zone emission limits are set at the Euro 6 emission limits (for diesel cars). Current Euro 6 diesel cars do not meet the emissions standards in the real world⁴, most by some margin, which means it will be a number of years before diesel cars will comply. If the future Euro 6c emission standard delivers under real world urban conditions, then it could be used as the basis for clean air zones.

[Do Defra and/or other central government departments need to intervene more directly, via regulatory or fiscal incentives to reduce emissions from transport or energy use for example?](#)

18. Yes, direct intervention is required. Defra must work with the Treasury to reverse fiscal measures that encourage the use of diesel vehicles such as Vehicle Excise Duty, fuel duty and company car tax.
19. The Department of Communities and Local Government (DCLG) should also be involved to reduce emissions through the planning system and Building Regulations. This could include air quality neutral zones where all new developments must comply with benchmarks for both building and transport emissions. A stronger emphasis is needed in the National Planning Policy Framework and the paragraphs that point to the importance of planning policies in helping to deliver cleaner air (paragraphs 124 and 35 on sustainable transport). Air quality needs to be more than a material consideration when limit values are or may be breached.
20. Clean air zones should also address dust and emissions from construction and demolition sites, including non-road mobile machinery (NRMM), as these can have a significant impact on air quality both within and around the site. The London supplementary planning guidance on the

4 Defra. 2015. Draft air quality plans consultation

Control of Dust and Emissions from Construction and Demolition⁵ includes best practice and emission standards for NRMM, and could be adopted as part of the network of clean air zones.

21. Building Regulations could also be more effectively used, for example by requiring all new boilers to be low NO_x boilers and controlling air pollution emissions from biomass and biofuel.

How effectively does Defra collaborate with and co-ordinate action with local authorities, devolved administrations, and other government departments to develop coherent strategies for reducing emissions of key air pollutants?

22. Defra should optimise existing and new programmes to benefit air quality and focus these in the non-compliant zones. There is little evidence in the draft plans of Defra working alongside other departments, such as the Department for Transport's low emission vehicle programmes, the Department for Energy and Climate Change's (DECC) energy and heat efficiency initiatives or DCLG on planning. Air quality needs to be a higher priority for transport and development planners in upper tier local authorities and Directors of Public Health.
23. Whilst CIWEM recognises that it is key that local factors are taken into account, an overall strategy is required to ensure that the necessary actions can be implemented in a timely manner. A framework for clean air zones will not work without the supporting national data and infrastructure, such as national databases on vehicles and emissions, an accredited retrofit process and associated vehicle database, an exempt vehicle list, and a standard system for local authorities to use to register (and if necessary charge) vehicles. Defra should work with the Department for Transport to provide this infrastructure.
24. Although air quality may be a devolved issue it is vital that Defra engages the Devolved Administrations and their Agencies in order to reflect an accurate UK picture. Scotland's low emissions strategies and the Wales active travel initiative should be exemplars to be adopted throughout the UK.

Do Defra's plans correctly identify and support the role of local authorities in reducing air pollution?

25. The draft plans do not contain provision for Local Authorities to finance the clean air zones and it is clear that this cost will be substantial, both to overcome local opposition and to facilitate the adoption of low-emission vehicles. There are costs associated with the required refuelling infrastructure and to install and operate a system to manage the clean air zone charging. Given the evident cost of poor air quality in the UK, it is clear that the current level of funding for such measures is severely lacking and Defra needs to provide proportionate funding to allow Local Authorities to implement the required measures in an acceptable timeframe.
26. As in the answer to the previous question, the government must provide supporting national data and infrastructure. This is necessary for a consistent approach.

5 [The Control of Dust and Emissions During Construction and Demolition](#)

Transport emissions

Are the correct incentives in place to support consumers and businesses in reducing transport emissions, for example to move away from diesel and petrol vehicles towards low emission options or to promote other forms of transport?

27. As previously noted Defra must work with the Treasury to reverse fiscal measures that encourage the use of diesel vehicles such as Vehicle Excise Duty, fuel duty and company car tax. Defra needs to consider whether diesel cars have any place within the clean air zones or indeed any of our urban centres prior to the introduction and adoption of robust real-world driving emissions in the Euro 6c standard by the EU (if these are proven).
28. Other measures that are highly effective in influencing driver behaviour should be included as part of the clean air zones. 'Car-free' days have been used in European capital cities in response to air quality issues and Oslo plans to ban private cars entirely from the city centre by 2019 to cut pollution. Defra should consider this level of ambition for clean air zones.

Do recently highlighted disparities between laboratory and real-world emissions from vehicles mean that Defra should remodel the assumptions behind its plans to meet EU requirements?

29. The disparities between real-world and laboratory emissions have been known for some time. CIWEM has previously called for the tests to become more representative of vehicles on the road over a range of driving conditions. The EU is trying to improve testing procedures. However in October this year, EU governments agreed to new limits for NO_x emissions from diesel cars⁶. If this proposal is passed it will allow car manufacturers to miss the Euro 6 NO_x limit by 210% (conformity factor of 2.1) between 2017 and 2020, resulting in a diesel car being allowed to emit 168mg/km of NO_x on the road instead of the Euro 6 limit of 80 mg/km. From 2021, new diesel cars sold will be allowed to still emit 120 mg/km open-endedly. If this happens then real world emissions will not fall in line with the expected assumptions of the Euro 6 standard within Defra's draft plans.
30. The 'emissions scandal' that has allegedly been caused by Volkswagen (and may potentially involve others) is in addition to the problems in replicating laboratory tests on the road, as the company allegedly used 'defeat devices' during test procedures. Correcting the emissions scandal will take years to have any real effect on NO₂ levels, so some additional actions will also be needed in the short term.
31. Defra has based its views on how emissions will reduce in the future on COPERT⁷ emission factors for Euro 6. Whilst COPERT data is the best available, basing a plan only on this data is

6 European Commission. 2015. Press release: Commission welcomes Member States' agreement on robust testing of air pollution emissions by cars. Brussels, 28 October 2015
http://europa.eu/rapid/press-release_IP-15-5945_en.htm

7 COPERT (COmputer Programme to calculate Emissions from Road Transport) is an MS Windows software program for the calculation of air pollutant emissions from road transport. COPERT is a tool used by all Member States and the recommended method for calculating vehicle emissions by the European Monitoring and Evaluation Programme and the European Environment Agency Emissions Inventory Guidebook.

not sensible as its predictions may still not be the most likely case. It was also the best available data in 2011 and 2014 but its predictions did not materialise. Defra's sensitivity analysis shows what would happen if the COPERT data is overly optimistic and the Euro 6 standard does not perform in the real world. In addition to the 22 extra zones, the scale of the problem in the eight zones already considered will be much greater too, requiring more ambitious solutions. The plan needs to be able to respond to a situation where COPERT data proves to be optimistic, and where the plan's actions could cope with a more polluted world.

32. CIWEM considers that Defra must rewrite the air quality plans if the portable emissions measuring systems (PEMS) testing programme that is being currently undertaken does not produce real world driving emissions data in-line with the COPERT result.

Industrial emissions

How robust is Defra's regulation, via the Environment Agency, for monitoring and reducing air pollution generated by industrial processes?

33. Across the UK the role and contribution to air pollution of industrial processes has been reviewed by respective environment agencies and statutory conservation bodies. New developments have to meet stringent environmental conditions and a shared process exists that allows new contributions to be assessed and mitigated if appropriate. However, no matter how "clean" a new process may be, in many areas it represents an additional pollution burden to an area that already exceeds its critical load.
34. Emissions of the main greenhouse gas carbon dioxide (CO₂), and NO_x and PM are linked, as they are all emitted from the same sources (during combustion of fuels). Many measures to reduce CO₂ emissions also reduce urban air pollutants, such as energy efficiency measures. The heating of commercial buildings is an important source of NO_x, so by reducing energy demand will also reduce air pollution emissions.

Farming emissions

Are Defra's policies for reducing emissions of key pollutants and greenhouse gases from the agricultural sector sufficiently ambitious and robust? What more needs to be done by Defra and/or the agricultural sector?

35. The impacts on ecosystems from pollutants and greenhouse gases from the agricultural sector remains largely unaddressed. Agricultural atmospheric nitrogen represents the major component of inputs to protected sites yet little has been done to reduce nitrogen emissions.
36. Evidence of background measurements indicates that regional (rural) background concentrations of ammonia may make a considerable contribution to the overall mass of PM_{2.5} in urban areas. These regional background concentrations are dominated by secondary PM_{2.5}, primarily as ammonium nitrate. Therefore measures to control rural emissions of ammonia will not only protect nearby wildlife site but will also have a direct effect on reducing urban PM_{2.5} which will have a significant benefit to human health⁸. Regional nuances also exist. At a UK level emissions of ammonia appear to have stabilised. However, a regional analysis shows a different picture. In both Northern Ireland and Wales emissions of ammonia have been steadily

8 Defra Air Quality Expert Group. 2012. Fine Particulate Matter in the UK

increasing in recent years⁹. This increase coincides with rapid expansion of unregulated poultry development in both Northern Ireland and in Wales.

37. The current Air Quality Strategy is very out of date (2007) and should be updated and include new regulatory standards for ammonia. It should also set out a strategy to reduce air pollution impacts on human health and the natural environment as soon as possible.