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The Institute of Air Quality Management (IAQM) Response to Defra's Consultation on its draft Clean Air Strategy 2018

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About IAQM

The Institute for Air Quality Management promotes air quality management. Air quality management is an approach, which considers the effect of air quality reduction measures on concentrations, and thus human exposure, and not just the effect on emissions. To apply air quality management to air quality in the UK, one needs to consider national and local policy commitments and quantify them in terms of future concentrations and the future health benefit.

Overall comments

A new Clean Air Strategy has been called for by the IAQM for several years and so the appearance of this draft version is welcome. The IAQM recognises that the document is a requirement of the National Emissions Ceilings Directive and therefore the emphasis is on the pollutants encompassed by this Directive. The Strategy could have been limited to a consideration of national emissions of these pollutants, but instead the opportunity has been taken to show greater ambition and consider air quality more widely. The time horizon for the NECD is 2030 and the draft Strategy is therefore obliged to address problems over this timescale. At present, there is much focus on nitrogen dioxide (NO_2), because of the widespread non-compliance with EU limit value. Over the next 12 years, the greater problems are likely to be posed by the need to reduce emissions of ammonia (NH_3) and $\text{PM}_{2.5}$. The Strategy's attention to these important pollutants is very sensible in this context.

The breadth of the Strategy is encouraging, including as it does, most of the emission sources for the key pollutants. The highlighting of contributions from agriculture and wood burning is appropriate and the Strategy is right to show consideration for exposure to pollutants in the home. This will develop as a concern as improvements are made in outdoor air quality.

Where the Strategy is less convincing is in its tendency to express aspirations for achieving certain outcomes, but without setting out a pathway for meeting these aspirations. The ambition to reduce by half the numbers of people exposed to concentrations of $\text{PM}_{2.5}$ above $10 \mu\text{g m}^{-3}$ by 2025 is a case in point.

The draft strategy lacks sufficient detail for the actions required to meet the stated aims. Additionally, many of the "actions" that are described are intentions to consult or to develop further strategies and therefore there is little or no detail on proposed responsibilities, mechanisms, enforcement and funding. Once the further work is done a further consultation on the Clean Air Strategy would be useful.

Our responses to the set questions supplied in the following sections expand on this theme. Four major points are highlighted below and are discussed here in brief:

- There is no over-arching vision of what needs to be done to improve air quality;
- The draft strategy does not show in quantitative terms how the strategy relates to other Government policies;
- The draft strategy is weak on regional and cross-boundary effects; and



- The draft strategy needs to give more consideration to the relationship between outdoor and indoor air quality.

In tackling air quality, location matters, that is, where the emissions occur matters, in contrast to carbon emissions, for which all emissions are essentially as harmful. There is therefore a rationale for applying different standards in areas with different levels of air quality and some of our responses to the set questions distinguish measures for urban areas. To tackle both air quality and climate change, however, emissions reductions would apply everywhere.

1. An over-arching vision

The overarching vision should seek to:

- *avoid* emissions of local air quality pollutants by reducing energy usage,
- *shift* to a lower emission mode,
- and *improve* technology.

'Avoid'

Urban transport related emissions remain a key source of emissions. There is a focus on reducing emissions from vehicles, but the more fundamental issue of reducing traffic on urban roads is somewhat lost in the detail. Can transport emissions be avoided by reducing work-related transport (facilitating remote working by superfast broadband), consolidating freight delivery and reducing home deliveries?

Can building emissions be reduced by better quality of building and passive means to heat and cool buildings?

'Shift'

One of the most effective ways of reducing air pollution in the UK is to get more people choosing to walk and cycle instead of use a car, or using zero/low-emission mass transport. One person driving a large electric vehicle (such as a Tesla S) still requires around 40% more energy than an almost empty 400 ton electric train. 500 people driving a large electric car requires 35 times the energy of 500 people sitting on an electric train.

'Improve'

Small scale space heating is an important urban source of emissions, yet there is no mention of district heating or electrical heating based on zero and low carbon sources. With regards to domestic heating, solar thermal is one of the strongest contenders for supplying our year round space heating and domestic hot water needs.

2. How does the strategy relate to other government policies?

The implementation of the Government policy to end petrol and diesel only cars from 2040 is explained in the Road to Zero strategy, but what effect will this have

on concentrations and exposure? The measure alone would not eliminate air pollution.

Improvement in local air quality in towns and cities and compliance with the limit value for NO₂ is being actively pursued through local Clean Air Zones. These are local and short term measures, the effectiveness of which will be assessed on a local basis by individual local authorities. The process is complicated, as locally, the change in roadside NOx emissions is not proportional to the consequent change in NO₂ concentrations and may also, in the longer term, depend on changes in atmospheric ozone levels. However, NO₂ also has a regional effect on human exposure, which is more sensitive to changes in NOx emissions than concentrations near roads (see point 3).

A third runway at Heathrow is to be built by the mid-2020s, by which time existing EU limit values should be met according to the 2017 national Air Quality Plan. The Strategy contains a number of anecdotal examples to illustrate points. Heathrow would be a good example to include in the Strategy to demonstrate how future air quality concentration goals, not just existing EU limit values, can be achieved.

3. Regional and cross-boundary effects

The Strategy does not give specific indications as to how PM_{2.5} exposure will be reduced. The Strategy talks about the goal of achieving WHO guideline concentrations, but does not quantify or explain the actions needed to achieve the goal. The problem is rather intractable, given that half the PM_{2.5} is imported from abroad, and the difficulty in reducing ammonia emissions. This point is strongly linked with the requirement to meet the national emission ceilings for PM_{2.5} and ammonia.

NO₂ is converted to PM_{2.5} at longer distances with its associated health disbenefit. Thus a national assessment of the local air quality management policies should be made, as part of the Strategy, to establish whether combined short-term, local air quality management actions will be effective and proportionate, in terms of the human health benefit over the longer term.

4. The relationship between outdoor and indoor air quality

The calculated health disbenefit from exposure to PM_{2.5} and NO₂ depends on assuming that indoor exposure, where most people spend their time, is proportional to the outdoor exposure. The implied goal of the Strategy and other Government environmental strategies is "cleansing the air of pollutants". The Strategy promotes improved awareness of indoor pollution, but it does not state in the Strategy what the future goal is in terms of "safe" indoor NO₂, PM_{2.5} and non-methane volatile organic compound concentrations.

A large reduction in outdoor concentrations may mean that the assumptions about the effect of future indoor human health exposure are no longer correct. The main health disbenefit from air pollution in the future could be uncertain and unquantified, possibly mainly associated with indoor sources, such as cooking, heating and cleaning.

1. Understanding the problem

Q1. What do you think about the actions put forward in the understanding the problem chapter? Please provide evidence in support of your answer if possible.

This section is a useful sketch of the problems associated with the five main pollutants. On a point of detail, we are curious as to why there is no commentary on the long term exposure effects of NO₂? (This has been a prominent feature of recent Defra documents on air quality - has Defra's view on this changed?)

Only two actions are described. The first of these is investment in analysis of the problem and solutions. This is a vital activity and supported by IAQM, although we would like to know over what time period the £10 investment would be made.

It is not clear how the £10m is to be invested but the Strategy acknowledges the wealth of existing information. A large proportion of this money should be used to capitalise on work undertaken by local authorities, rather than further development of the current national compliance model, PCM. If funding is put into modelling it should produce a model that is fit for its stated purpose e.g. national compliance testing only, and avoid the current situation in which PCM is not felt to be suitable for local modelling yet is often used as the basis for local modelling, for instance by Highways England.

Q2. How can we improve the accessibility of evidence on air quality, so that it meets the wide-ranging needs of the public, the science community, and other interested parties?

A single accessible portal providing the results of national and local monitoring would be an extremely valuable resource. The draft Strategy acknowledges that different data sources require careful interpretation due to variability in data quality, location and technology type and so a minimum set of standards would need to be developed and published so that any limitations and/or uncertainty in data can be taken into account by users of the portal. National and local scale modelling would be a useful resource, for instance for cumulative assessments, but would also require quality control and guidance on interpretation.

Open data releases should meet impartial, independent and universal statistical standards, which include releasing data in forms that enable analysis and re-use. The UK Statistics Authority's Code of Practice could be used to uphold data quality and meet a minimum standard.

The diagrams on sources of pollution and their effects are very informative and easily digested by a wide audience. Many people (teachers, health professionals, non-science professionals) will not be aware of UK-Air so the material contained there should be disseminated via additional channels e.g. an air quality bulletin at the end of the news and weather report. Local news channels can issue warnings of areas of high pollution so that commuters can plan their journeys to reduce exposure or change their choice of travel mode. We would encourage their use of a schools education pack drawing out some of these key diagrams for inclusion in national curriculum topics.

Citizen science

We support the desire to catalyse public engagement through citizen science but there needs to be some guidance on the applicability of low-cost sensors. These sensors

can prove useful in determining the relative differences in air pollution levels but most practitioners are in agreement that not all can be relied upon to provide information in absolute terms.¹ Any measurements made with low-cost sensors therefore require careful handling. Ideally, low-cost sensors would need to meet the minimum standards, referred to above, if measurements are to be included within the portal's data store.

It is not entirely clear whether this portal is limited to providing access to monitoring data or whether it will also store the results of modelling for users to access, and even local atmospheric emissions inventories. (Page 18 states that “*We will, therefore, increase transparency by bringing local and national monitoring data together into a single accessible portal for information on air quality monitoring and modelling, catalysing public engagement and encouraging citizen science initiatives.*”.) If the portal is to provide access to the results of modelling, then the Strategy should also acknowledge the variability in modelling results. Local air quality models are designed for different situations and, therefore, have differing levels of complexity and performance. Similar to the monitoring data, the Government would need to establish certain minimum standards in terms of: the model selected, the quality of the input data used in the model, the modelling techniques used and the process of verifying the model verification output. There is also the question as to how the results of the Government’s national air quality model, designed to demonstrate compliance with the EU Limit Values, can be stored alongside the results of local air quality modelling studies used within the Local Air Quality Review and Assessment process if that is the intention.

¹ uk-air.defra.gov.uk/library/aqeg/pollution-sensors.php

2. Protecting the nation's health

Q3. What do you think of the package of actions put forward in the health chapter? Please provide evidence in support of your answer if possible.

The key action in health chapter (Chapter 2) is reducing PM_{2.5} levels to halve the number of people living in locations where concentrations of particulate matter are above 10 µg.m⁻³ by 2025. Recognition of the World Health Organization (WHO) guideline value, which is stricter than the EU limit value, is welcome. The WHO recognises that there are no known safe limits for particulate matter, so reducing the public's exposure as much as possible is crucial. The Strategy also refers to setting interim goals and reporting publicly on progress. Clearly, it is good practice to set interim goals and, given the previous failure of the UK Government to meet the EU Limit Value for NO₂, it goes without saying that the Government should expect to report regularly on progress, if such a goal is established.

In terms of meeting this goal, the key actions presented in Chapter 2 tend towards improving air quality at the point of exposure (i.e. alerting the public to potentially high levels of PM_{2.5} to allow them to take action to reduce and minimise their exposure and providing guidance to health practitioners). Meeting this challenging goal will require action that prevents or avoids exposure in the first place. The Strategy should seek to set out actions that replace sources or activities with alternatives. There is little evidence of any such actions in the health chapter of the draft Strategy.

The IAQM notes that the health chapter refers to building on Defra's UK Plan for Tackling Roadside NO₂ Concentrations and the NICE air quality and health guidelines. The objective of Defra's UK plan is to set out the action that the Government intends to take to reduce NO₂ concentrations, rather than PM_{2.5} concentrations. Although some of the sources are the same, reducing PM_{2.5} concentrations is likely to require a very different approach. For instance, the transboundary nature of particulate matter pollution (recognised in the draft Strategy on pages 25 and 26) indicate that the most effective actions for PM_{2.5} are likely to require a national or at least regional approach, rather than a local approach.

Section 2.3 of the draft Strategy advises that the government is reviewing current evidence to provide recommendations for practical interventions to reduce harm significantly from air pollution from the wide range of sectors. That review needs to be completed now so that the recommendations can be translated into actions and included within the Strategy. The Strategy would then provide a tangible set of actions for achieving the goal and would achieve the Government's stated aim in Section 2.4 to "be bold in our ambition but practical in our approach". Currently, the stated goal is a bold ambition, but the practicalities have not been considered.

Q4. How can we improve the way we communicate with the public about poor air quality and what people can do?

Alerting services

Alerting services (TV, radio, SMS, apps, websites) allow people to change their behaviour to reduce their exposure when air quality is poorest. It would be helpful to link the air quality forecast to wider information such as route planning and air quality events, so that they have a wider appeal than simply an alert. An app that is free of

charge and free from advertising, could give location-specific information, "my exposure risk", and calculate the exposure by different modes of travel.

Education of health professionals and the public

Communicating the link between air pollution, road accidents and sedentary living (obesity and other health problems) is vital to persuading people to engage and contribute to the solutions. Health problems due to sedentary living are estimated to cost the country [£6 billion per year](#). In addition the burden to society from deaths and injuries associated with road transport is huge and has been estimated at [£35 billion in 2016](#).

Engaging the health sector, and embedding air pollution in health professional's services, is therefore an important aspect of providing the right information to members of the public, especially those who are vulnerable and most at risk. IAQM believes that encouraging the medical profession, and GPs in particular, to change behaviours of the public in respect of emissions is a vital part of improving air quality. GPs can be major influencers of opinion, as trusted members of the community. This dissemination can be done in a variety of ways. One might be by packaging the health effects and preventative actions into a pamphlet/booklet for health professionals to distribute to patients with chronic conditions/expectant mothers and parents with young children, health visitors to elderly patients, etc.

Research by the Health Foundation (www.health.org.uk) has highlighted some communications approaches for successful outcomes.



3. Protecting the environment

Q5. What do you think of the actions put forward in the environment chapter? Please provide evidence in support of your answer if possible.

The key actions for ammonia emissions from agriculture are provided in Chapter 7 and it is not clear that there are any other actions being put forward in the Environment Chapter (Chapter 3): The second bullet point listed in Section 3.7 states that the impacts of air pollution on natural habitats will be monitored. If this is additional monitoring to that undertaken currently, it is not clear how that will be funded. Monitoring the impacts of air pollution (such as a change in nitrogen or acid deposition) on natural habitats is extremely challenging and it is not clear how this will be undertaken. (The only other mention of monitoring within Chapter 3 is a reference to a modelling and mapping programme.) Nevertheless, monitoring and reporting will not, in themselves, improve air quality so neither can claim to be actions to reduce environmental damage from air quality.

In relation to the third bullet point, given the uncertainty arising from the Wealden judgement, Government guidance on assessing and mitigating cumulative impacts of nitrogen deposition on natural habitats is long-awaited and will be very helpful and will allow meaningful consultations with decision-makers on planning applications to progress.

Q6. What further action do you think can be taken to reduce the impact of air pollution on the natural environment? Where possible, please include evidence of the potential effectiveness of suggestions.

The outstanding problem at present is the widespread exceedance of the critical load for nitrogen deposition at sensitive sites. Since most of this deposition occurs through the wet deposition pathway and long range transport of nitrogen compounds, the solution ultimately lies in a national reduction of NO_x emissions, which will come about partly through decarbonisation.

Stronger planning controls could be introduced to ensure air quality is a material consideration in all development proposals, not just in an AQMA.

Consideration should be given to the effectiveness of mitigation such as selective catalytic reduction (SCR) and filtration. Such mitigations only work if the equipment is maintained.



4. Securing clean growth and innovation

Q.7. What do you think of the package of actions put forward in the clean growth and innovation chapter? Please provide evidence in support of your answer if possible.

Aside from restating some existing actions (e.g. phasing out coal-fired power stations; in 2017 coal accounts for just 2% of power generation), Chapter 4 does not set out any practical actions, timescales, financial implications nor statement of responsibilities, although the initiatives suggested may lead to actions in the longer term.

If installed in urban areas which are on the gas grid, biomass should be excluded from the RHI. Low NOx boilers should be made compulsory for all households in urban areas in the UK.

With regards to domestic heating, solar thermal is one of the strongest contenders for supplying our year round space heating and domestic hot water needs. There are examples of this in Canada <https://www.dlsc.ca/> and Denmark. If the costs of energy security, energy poverty, air pollution and climate change are considered these schemes are seen to be cost effective.

Q8. In what areas of the air quality industry is there potential for UK leadership?

There is potential for UK leadership in modelling emissions and dispersion at a variety of scales, from street scale through neighbourhood and urban to regional scale.

Q9. In your view, what are the barriers to the take-up of existing technologies which can help tackle air pollution? How can these barriers be overcome?

The barriers to the take-up of new technologies, for instance, electric vehicles, are well known: upfront costs; operational costs; lack of knowledge of the technologies available; lack of information on the technologies available; lack of reliable advice on the technologies available; lack of track record for the technologies available; familiarity with existing technology. As long as cost is a major consideration and barrier, there is no incentive to change and that is why improvements that have been seen in the past have had an element of compulsion/legislation. For instance, vehicle emissions controls, the Industrial Emissions Directive, and the legislation has been at a multi-national level to reduce the economic disbenefit of investing in cleaner technology.

Q10. In your view, are the priorities identified for innovation funding the right ones?

5. Action to reduce emissions from transport

Q11. What do you think of the package of actions put forward in the transport chapter? Please provide evidence in support of your answer if possible.

Section 5.2 states that the Government's considers its plans to drive down emissions in each major transport sector as ambitious; however, all the 'actions' specified in Chapter 5 appear to involve calls for evidence, additional regulation, developing/consulting on options and the preparing further strategies. There are therefore again no tangible actions to comment on at this stage.

Without understanding how the Government intends to reduce emissions from tyre and brakes, new regulations could simply mean a new emission limit is introduced that is destined to be exceeded. Research should focus on options for materials for tyres and types of road surfaces in order to prevent release of microparticles/microplastics as well as looking at the pathways into our environment, air and marine, and how to prevent the transfer. The IAQM considers that the release of metals from tyres and brakes is more important than microplastics.

Defra's strategy makes reference to the DfT's cycling and walking investment strategy. Behaviour change as a key way to reduce air pollution and improve health, but for a mode shift there needs to be more investment in public transport nationally, particularly rural areas.

Q12. Do you feel that the approaches proposed for reducing emissions from Non-Road Mobile Machinery are appropriate or not? Why?

For NRMM, there are two specific actions and a number of actions that may or may not be adopted depending on the outcome of the call for evidence. The proposed actions seem reasonable at this stage and should apply to all NRMM, not just construction NRMM. If local authorities are given tough new powers to tackle NRMM, this should be accompanied by adequate funding for enforcement.



6. Action to reduce emissions at home

Q13. What do you think of the package of actions put forward to reduce the impact of domestic combustion? Please provide evidence in support of your answer if possible.

Prohibiting the sale of polluting fuels and inefficient stoves for domestic use will reduce emissions at source and this is likely to be most effective way of reducing the impact of domestic combustion.

There is little detail on what will be delivered in the updates to legislation relating to Smoke Control Areas apart from an indication in Chapter 9 that AQMAs, CAZs and Smoke Control Areas would be brought together under a new statutory framework. Without greater detail, it is not possible to comment on the efficacy of this proposed action.

The public need to be better informed on the environmental costs associated with domestic combustion, for instance using the Defra UK-Air website.

Wood-burning stoves should not be allowed in urban areas unless there is no grid supply of gas. Registration should be mandatory, for those that are installed and for domestic biomass boilers, prior to installation in order that an inventory can be kept by the local authority or a national body.

Q14. Which of the following measures to provide information on a product's non-methane volatile organic compound content would you find most helpful for informing your choice of household and personal care products, and please would you briefly explain your answer?

- “A B C” label on product packaging (a categorised product rating for relevant domestic products, similar to other labels such as food traffic light labels)
- information on manufacturer website
- leaflet at the point of sale
- inclusion in advertising campaigns
- other option

In relation to reducing NMVOCs the actions appear to be working with groups, improving communication, and exploring options. In terms of labelling, the traditional red-amber-green traffic light label (rather than an A, B, C label, which requires a certain level of decoding) on the product packaging would seem the most sensible as it avoids the reliance on consumers reading a separate website, leaflet or advert. The label scheme would have to be mandatory to ensure it is the same for all products and should be encouraged in product advertising and as a factor in consumer rating surveys, as already seen for cars and domestic boilers.

Q15. What further actions do you think can be taken to reduce human exposure from indoor air pollution?

The first priority should be the reduction of sources of pollution, both outdoor and indoor. The second, proper ventilation and maintenance of gas cooking, heating and

cooling systems. Air cleaning is the least effective, and most expensive. Air fresheners, which contain untested potentially harmful volatile organic compounds (VOCs), should not be used to cover up stale air or unpleasant smells.

7. Action to reduce emissions from farming

Q16. What do you think of the package of actions put forward in the farming chapter? Please provide evidence in support of your answer if possible.

Q17. What are your preferences in relation to the 3 regulatory approaches outlined and the timeframe for their implementation: (1) introduction of nitrogen (or fertiliser) limits; (2) extension of permitting to large dairy farms; (3) rules on specific emissions-reducing practices? Please provide evidence in support of your views if possible.

Q18. Should future anaerobic digestion (AD) supported by government schemes be required to use best practice low emissions spreading techniques through certification? If not, what other short-term strategies to reduce ammonia emissions from AD should be implemented? Please provide any evidence you have to support your suggestions.

Rules on specific emission-reducing farming practices could be implemented quickly, as recently happened in the dry cleaning industries, but ultimate target should be source reduction.

Based on the information provided in the draft Strategy, introducing a permit or certification would appear to be the most appropriate way to ensure the continued application of good practices.

8. Action to reduce emissions from industry

Q19. What do you think of the package of actions put forward in the industry chapter? Please provide evidence in support of your answer if possible.

Most of the actions which would reduce carbon emissions would benefit local air quality:

- development of green finance deals for developments that reduce carbon and local pollutant emissions;
- supporting businesses to improve their energy productivity; and
- shift to low carbon transport.

Q20. We have committed to applying Best Available Techniques to drive continuous improvement in reducing emissions from industrial sites. What other actions would be effective in promoting industrial emission reductions?

Q21. Is there scope to strengthen the current regulatory framework in a proportionate manner for smaller industrial sites to further reduce emissions? If so, how?

There is scope for strengthening the current regulatory framework. As an example, the vehicle re-spraying sector currently does not report solvent emission if they use below 1tonne of solvent per year. This threshold should be reduced in order to control VOC emission at the source.

Q22. What further action, if any, should government take to tackle emissions from medium plants and generators? Please provide evidence in support of your suggestions where possible.

Lower Emission Limit Values than those proposed in the MCPD are already in effect, for certain classes of combustion plant, in the Netherlands.

Technological advances are available, without entailing excessive cost, which would enable gas engine CHP NOx ELVs to be reduced to less than 10mg.Nm⁻³ (15%O₂), and generally applicable to both new and existing plant.

It might also be noted, in relation to combustion, that the Strategy focuses on industrial sources and domestic sources, whilst ignoring the commercial sector. The use of combustion plant to provide space heating and power in urban areas is an important source of NO_x and requires emission control.

Q23. How should we tackle emissions from combustion plants in the 500kW-1MW thermal input range? Please provide evidence you might have to support your proposals if possible.

Banks of boilers can fall outside the scope of the Medium Combustion Plant Directive (MCPD) if the individual boiler is below 1MWth input. Large arrays of boilers can be therefore be exempt from the emission limit value (ELV) requirements.



Q24. Do you agree or disagree with the proposal to exempt generators used for research and development from emission controls? Please provide evidence where possible.

There should not be a blanket exemption for generators, rather it should be based on the generator output and uses. We have seen generators in cities used to supply electricity to the national grid which is a lose-lose-lose situation, of high emissions, in an urban area with high ambient concentrations, probably during the winter when conditions for dispersion are unfavourable.

There are currently no emission limits for back-up generators and none are proposed in the Medium Combustion Plant Directive and Specified Generator Regulations. National or local government could be encouraged to require new installations of generators to have emissions at least as good as EU stage IV emissions standards.

9. Leadership at all levels (local to international)

Q25. What do you think of the package of actions put forward in the leadership chapter? Please provide evidence in support of your answer if possible.

In section 9.2, the Strategy purports to set out next steps to achieve national emissions reduction targets. However, it continues by stating that the National Air Pollution Control Programme will set out a detailed pathway to achieving the required emissions reductions. A large proportion of the actions in the draft Strategy relate to improvements in communicating air quality problems to reduce exposure. While reducing exposure is highly desirable, aside from regulating fuels and appliances used for domestic heating, it is not clear that the actions in the Strategy will reduce emissions.

There is no question that the Government should expect to be held to account on environmental commitments following EU exit. Over recent years, the Government has continually failed to devise an action plan to meet the EU Limit Values for NO₂, despite the threat of fines by the European Court of Justice. Defra's action plan has only reached its current stage following the intervention of ClientEarth, bringing the issue before domestic courts. If it is to be more successful than the EU in holding the UK Government to account, this raises the question as to how much authority an independent statutory body would have. Imposing fines is surely not a viable option as this would simply involve passing public money from one department to another.

Q26. What are your views on the England-wide legislative package set out in section 9.2.2? Please explain, with evidence where possible.

Allowing the Transport Secretary to compel manufacturers to recall vehicles and machinery for any failures in their emissions control system, and make tampering with emissions control systems a legal offence, is vital.

Section 9.2.2 continues by stating that the Government "... will also replace the existing patchwork with single coherent legislative framework for local authorities to tackle air quality and bring the law up to date with the evolution of structures at sub-national level so that accountability for air quality sits in the right place. It will update outmoded legislation on 'dark smoke' from chimneys and underused provisions on Smoke Control Areas to bring them into the 21st century with more flexible, proportionate enforcement powers." This sounds positive but no detail has been provided and so it is not possible to comment on this action.

Section 9.2.2 continues "Finally, it will create a new statutory framework for Clean Air Zones (CAZ) to simplify current overlapping frameworks of CAZ, AQMA and Smoke Control Areas to create a single approach covering all sources of air pollution." No detail has been provided so it is not possible to comment on this action. We would also point out there is no such thing as an AQMA framework; local authorities are required to Review and Assess air quality, where exceedances of objectives in the UK Air Quality Strategy are identified, AQMAs are designated. The wording suggests that this framework is different from the framework referred to in the preceding sentence but they could, in fact, be the same. Again, this sounds positive but no detail has been provided so it is not possible to comment on this action.

It is not clear what action is being proposed by “*close regulatory gap to apply limits to medium combustion plants between 500kw - 1MW*”. If anything, it seems that the draft Strategy is an attempt for consultees to identify a solution. If the suggestion is that the Environmental Permitting Regime 2018 would be extended to include the smaller plant in all areas of the UK, then the effort may be disproportionate to the effect. As discussed in the introduction, for air quality, location matters. In some area there are no nearby receptors being exposed to the emissions, whereas in urban areas the impact of multiple small sources is a significant issue. It may be preferable to consider including a specific requirement within the national Planning Practice Guidance to assess plant of a certain size. This would allow local authorities an opportunity to grant planning permission where it can be demonstrated that effects from these small plant are unlikely to be significant.

The England-wide actions in the remainder of section 9.2.2 are reasonable actions but no detail is provided. It is not clear what is meant by “*drive-up emissions standards for diesel-powered non-road mobile machinery before and after sale*”. Presumably, the Strategy intends to make emissions standards more stringent, i.e. driving them down to a lower value, not up. This action implies that there would need to be some retrofitting to allow a more stringent emissions standard to be met after sale.

Q27. Are there gaps in the powers available to local government for tackling local air problems? Options: yes; no; don't know. If yes, what are they?

Q28. What are the benefits of making changes to the balance of responsibility for clean local air between lower and upper tier authorities? What are the risks?

For two-tier authorities, with Highways falling under the auspice of upper tier authorities and air quality being the responsibility of lower tier authorities, there is the potential for a conflict of interest between the two. There may be a similar conflict of interest between the needs of Environmental Health Officers in different local authorities under the same upper tier authority. If air quality was the responsibility of the upper tier authority, this may help with resourcing issues and also allow holistic air quality action planning across counties, or, conversely, the responsibility may receive less attention in upper tier authorities compared to their large budget items such as adult social care and indeed transport. Since the introduction of the local air quality management regime, many districts and counties have collaborated well, setting up county-wide steering groups, and a transfer of responsibility at this point would put that good work and the expertise that resides in districts at risk.

Q29. What improvements should be made to the Local Air Quality Management (LAQM) system? How can we minimise the bureaucracy and reporting burdens associated with LAQM? Suggestions to minimise bureaucracy and reporting? Suggestions for other improvements?

The LAQM system was recently rationalised with the intention of minimising bureaucracy and reporting burdens. No further rationalisation of the system is required.

If local authorities provided their data in a GIS format for inclusion in an online database it would make the data more readily available, but we recognise this as an additional burden for local authorities.

10. Progress against targets

Q30. What do you think of the package of actions in the strategy as a whole?

The Strategy largely comprises calls for evidence, monitoring, reporting, developing/consulting on options and the preparation of further documents. The Strategy purports to set out next steps to achieve our challenging national emissions reduction targets; however, a large proportion of the actions in the Strategy relate to improvements in communicating air quality problems with a view to reducing exposure. While reducing exposure is highly desirable, it is not clear what actions will be taken to reduce emissions. We would like to see further information on responsibilities, timelines, defined enforcement roles and funding.

Q31. Do you have any specific suggestions for additional or alternative actions that you think should be considered to achieve our objectives? Please outline briefly, providing evidence of potential effectiveness where possible.

The PM_{2.5} targets in England are not ambitious enough. Significant PM reduction has already been achieved in Scotland for compliance with an annual mean target of 10ug.m⁻³, which demonstrates that more can be done at a faster pace.

The implementation of CAZs must not result in the relocation of polluting sources to outer urban or rural areas e.g, there should be evidence of retrofit/decommissioning of non-compliant vehicles/equipment/industry.

Q32. If you have any further comments not covered elsewhere, please provide them here.

The Strategy apparently comprises a small number of non-specific actions that are repeated frequently. At this stage, there is insufficient detail to understand what actions are being proposed.

End