PE2123: Update air quality standards in Scotland to align with 2021 World Health Organisation guidelines

Submission from Prof. Campbell Gemmell, 15 June 2025

1. Do you support amending the Air Quality Standards (Scotland) Regulations 2010 to align with the 2021 WHO air quality guidelines? Please explain your reasoning.

Yes. I agree with ESS that further delay in reviewing and applying statutory standards is “potentially harmful” and compounds the 4 year delay in explicitly considering and potentially implementing the good practice guidelines from WHO or at least considering if and how to progress towards these, as appropriate to our circumstances. This is both disappointing and unfortunate as it ensures continued harm from higher levels of exposure than desirable, resulting in likely negative health impacts. The health evidence in relation to NO2 and particulates was already compelling in likely causative, preventative and precautionary terms prior to any more recent review being proposed. Delay is dangerous. Careful consideration is required however given the costs of incremental and, in some cases, marginal, improvements, especially where, for example, some pollutant guidelines may be close to background and, further, imported pollution from North Sea basin countries, including England, is both likely under certain conditions and impossible to avoid. Nonetheless, consideration of where to tighten limits is essential in my view.

2. What progress has been made in reducing nitrogen dioxide and fine particulate matter in Scotland since 2022/23, when we last sought views on this?

Even low levels of these pollutants cause harm. Hence we start from that point. As to progress, my answer is very little as far as I can tell. Implementation of traffic access restrictions and the LEZs appears very likely to be beneficial. However, any emissions reductions per unit needs to be seen against actual vehicle numbers and exceedances which have gone unpriced where higher polluting vehicles have continued to access populated areas. Confusing messages have also been sent to the public in relation to the schedule for switching to electric vehicles and the classification and pricing for hybrid and other vehicles, for example, suggesting a lessening of urgency in transformation. Also, although reductions from emissions at Grangemouth may be significant and the transport sector has shown a continued increase in LEVs and ULEVs, vehicle number growth overall and challenges in transport policy as well as some industrial and agricultural emissions suggest there is no prospect of significant decline in overall emissions at present. In relation to transport in particular, the challenges remain of consumer and user behaviours, especially in relation to school access and shopping. Public transport remains sketchy and inconvenient or impractical for many, not least in rural or badly served urban/peripheral housing locations. These issues in turn affect the ability to achieve step-reductions in emissions.

3. To what extent has scientific and public health evidence about air quality evolved since the current standards were adopted? In your answer you could refer, for instance, to impacts on nitrogen dioxide or fine particulate matter on particular groups of people, the effect of Low Emission Zones (or other interventions of a similar nature) on air quality, or any new information or data about the effect of burning particular types of fuel.

The 2025 WHO Air Quality Conference Discussion Paper set (https://cdn.who.int/media/docs/default-source/air-pollution-documents/air-quality-and-health/who_sps_draft_27_3.pdf?sfvrsn=bb5924ba_5&download=true) continues to expand the available literature on health impacts and notes also the costs of morbidity related to particulates and other pollutants in adults and especially in children. My understanding is that COMEAP has continued to assess the available evidence. This evidence is readily available for consideration but in fact only reinforces everything we already know, making continued inaction or delay clearly unsupportable. The document attached here, provided to me by Prof Duncan Lee

also looks at a larger combined data assessment. If the question is seeking insights around specific Scottish research or LEZ investigations or fuel-specific impacts, such evidence is very limited and I suggest that might be for PHS, SEPA or other health researchers connected to AQ efforts to provide.

4. The Scottish Government is currently reviewing the CAFS2 strategy with the goal of establishing a long-term policy framework to replace the strategy once it expires. What practical steps can the Scottish Government set out in its new strategy to reduce nitrogen dioxide and fine particulate matter levels?

I am unclear on how this current review is being undertaken, and with what expert input. As ever, credible, suitably specific and granular data with a clear and consistent longitudinal profile for relevant locations will be key to answering this and the other questions under consideration. An initial reaction would be that serious consideration needs to be given to reducing exposure - especially of at greater risk groups - not just emissions. I mean of course, babies and children, pregnant women, the elderly and those with chronic pulmonary and related conditions. In the continuing challenging public spending context, the likely high costs of marginal improvements in tackling emissions per se could be questionable. However, targeted effort around exposure reduction and longer term housing, shopping, streetscape, green barrier etc land use planning would perhaps give better long term and societal "bang for the buck". In addition, regulatory effort needs to be strengthened. Scotland still needs real policing of AQMAs and existing LEZ and also idling requirements for example, as well as efforts in relation to policies for reducing muirburn, agricultural guidance on bare earth, management of domestic woodburners and clearer ambition on transport progress generally - these would all help. Previously, ambition itself, in setting WHO guidance as the standard etc, proved valuable. This, even if carefully moderated again for Scottish specific circumstances, is clearly needed once more.

One small but significant additional point relates to wildfires. I mentioned previously muirburn and some impacts of course will be similar. OECD, various EP Agencies' and UNEP work has highlighted wildfire risks. An ongoing OECD/EU project (in which I am involved; likely to become public around October) looking at the relationships between climate change, land management and wildfires in Portugal, has incorporated an international assessment of case studies in Australia, France, Spain, California and Canada.

https://www.epa.gov/wildfire-smoke-course/why-wildfire-smoke-health-concern

https://shunwaste.com/article/how-do-wildfires-pollute-the-air

The increasing frequency, scale and impact of these wildfires highlights the raw hazard, the resultant risks after our management interventions, and health and environmental consequences. It is likely that these impacts will increase over the next decade. This highlights the need to address the threat, through planning, management, prevention and aftercare to deal with particulates, pyrobenzenes, PAHs, and a range of other deleterious pressures.

How governments deliver fuel management, preparatory public information, fire warning, weather forecasting, suppression, intervention, healthcare (again especially for vulnerable groups) etc will become increasingly important. Wildfires as a source of fine particulates and a range of toxic pollutants will increase.

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