

Letter to Co-chairs of CAFE Particulate Matter Working Group from Chair of EPAQS, expressing the views of the Panel.

Comments of the draft CAFE Position Paper on Particulate Matter

1. I am writing as Chair of the Expert Panel on Air Quality Standards (EPAQS) to provide the Panel's comments on the CAFE draft Position Paper on Particulate Matter. EPAQS is the UK government's independent advisory group on air quality standards. The Department for Environment, Food and Rural Affairs (Defra) requested that we comment on the Position Paper. My comments are those of the Panel and do not necessarily represent the views of Defra.
2. The main focus of EPAQS is to advise the UK government on the setting of air quality standards. Consequently my comments relate mainly to the key conclusions of the Position Paper relating to the particulate matter metric.
3. I would like to express the Panel's appreciation for the hard work and thoroughness of the report's authors. The Position Paper is a very useful review and analysis of the particulate matter climate and trends in Europe.
4. Firstly I would like to provide some context to the Panel's discussions. The Panel published a report in 2001¹ titled "Airborne Particles: what is the appropriate measurement on which to base a standard". The report covered some of the same ground as the Position Paper and concluded that:

.....on the present evidence, measurement of particulate air pollution as the metric PM₁₀, which includes essentially all respirable particles, provides the most appropriate basis for an Air Quality Standard in the United Kingdom. It may be that further research will lead us to additional or alternative metrics, for example, PM_{2.5} or counts of ultrafine particles, but the currently available data do not allow satisfactory derivation of a Standard based on these. In view of the likelihood of important advances in understanding of this area of science over the next few years, we recommend that this issue should be kept under active review.

5. When discussing the Position Paper, the Panel recognised that the recent WHO systematic review had found that there is strong evidence to conclude that fine particles (< 2.5 µm, PM_{2.5}) are more hazardous to human health than coarse particles and that this does not imply that the coarse fraction of PM₁₀ is innocuous.
6. However, given that the two size fractions, are very highly correlated, the Panel questioned whether there would be any additional benefit from changing the metric when PM₁₀ continues to serve as a very good surrogate for PM_{2.5}.

¹ www.defra.gov.uk/environment/airquality/aqs/air_measure/index.htm

7. The Panel considers that if a PM_{2.5} limit value were simply obtained by scaling down from the PM₁₀ limit value, assuming a PM_{2.5}/PM₁₀ ratio of 0.6, then this extrapolation would bring no extra targeting of health benefits. The procedure assumes that the two size fractions have the same toxicity.
8. The Panel also noted that the WHO conclusions were based mainly on studies from the USA. There are a limited number of European studies on the health impacts of PM_{2.5}. The Panel considers that there may not be enough European studies on which to base a European standard for PM_{2.5}.
9. The Panel also considered that:
 - a. PM_{2.5} may be more relevant for acute end points, but for the less serious end points such as respiratory symptoms, which affect a greater number of people, there is much less information on the relative importance of PM₁₀ or PM_{2.5};
 - b. if a health-based target for PM_{2.5} was to be proposed it should be based on PM_{2.5} epidemiological and toxicological data utilising direct measurement of PM_{2.5} rather than on a relationship between the ratios of PM_{2.5} to PM₁₀ in ambient air samples, as was presented in the CAFE draft Position Paper. To this end there is a need for more PM_{2.5} monitoring and assessment in Europe;
 - c. even if a limit value for PM_{2.5} were to be set there would still be a need for separate targets and monitoring of the coarse fraction of PM₁₀ (PM_{2.5-10}). This might lead to considerable additional expense with no additional public health benefits;
 - d. the proposed 24 hour limit value for PM_{2.5} in the Position Paper represented a relaxing of the Stage 2 indicative 24 hour limit value for PM₁₀; and
 - e. if PM_{2.5} were to become the main metric this may have implications for abatement strategies.

10. I trust you find our comments helpful and that you will be able to consider them when finalising the Position Paper.

Yours sincerely

Professor Stephen Holgate
Chair, Expert Panel on Air Quality Standards