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Dear Professor ApSimon,

Thank you for providing oral evidence to the Committee on Monday 18th December. There are a couple of matters which the Committee is seeking more clarity, particularly regarding how air quality costs have been monetised as part of the Department for Transport’s economic appraisal of the Heathrow Northwest Runway Scheme.

The air quality damage costs were appraised initially by Jacobs, on behalf of the Airports Commission, in their May 2015 Local Assessment: Detailed Emissions Inventory and Dispersion Modelling. This was the same modelling that estimated a headline figure of 121,377 people being affected by higher NO2 concentrations, though during our evidence session you did not recognise this figure. This figure was only calculated for the Principal Study Area, defined as being the 2km radius around an expanded Heathrow. It is clear from evidence received during this inquiry that the traffic impacts, and thus air quality impacts, from an expanded Heathrow will extend beyond this 2km radius. The emissions modelling also seems to have been conducted over a much wider area (see ‘Traffic Simulation Area’ in the Jacobs May 2015 report). Is there a reason why the population impact hasn’t been extended beyond the 2km perimeter of the airport? If it is possible to broaden the population impact area, what would the likely impact be on the number of people impacted by worse air quality?

Jacobs used the damage cost approach to calculate the monetised costs of air quality in which the change in emissions were calculated and then a damage cost applied (in £/tonne) to those emissions. The air quality damage cost estimated by Jacobs was £958 million, with the damage cost from NOx emissions at £94.2 million. The damage cost per tonne applied by Jacobs in the central estimate was £1,037/tonne which was sourced from the February 2011 Defra guidance and were uplifted to 2014 prices using a GDP deflator. The damage cost approach was preferred over the impact pathway approach by Jacobs due to the level of detail available on future pollution concentrations and the difficulty predicting mortality rates of the relevant populations from 2030 to 2050 and beyond. Jacobs elaborated, in Appendix G of the local assessment, that monetisation of health impacts (discrete from those that dominate the damage cost assessment) was, therefore, limited to a 2030 snapshot of morbidity impacts through the increase in respiratory and cardiovascular related hospital admissions.
The Defra damage cost guidance was updated in September 2015. The damage costs appear to be considerably higher than in the previous guidance and are broken down by industry and location. In the previous guidance, the damage cost for NOx emissions was £875/tonne (in 2008 prices). You acknowledged in our evidence session that this was “optimistic and would have underestimated the health costs.” In the latest guidance, the damage cost for NOx emissions relevant to the Heathrow expansion scheme (i.e. Transport outer London) are £64,605/tonne (in 2015 prices). Adjusting for inflation, this damage cost is around 63 times higher than that used by the Airports Commission.

On this basis, it would be reasonable to assume that the aggregate damage costs would rise proportionately in the Department for Transport’s updated appraisal, particularly given the local modelling conducted by the Airports Commission has not been updated. If we were to apply the updated damage cost, the total damage costs from NOx emissions rises to £5.9 billion, taking the total damage costs to £6.8 billion (including PM10 costs).

However, in the Department for Transport’s updated October 2017 appraisal, the aggregate damage costs of air quality are now 90 per cent lower at £30 million for NOx. The Committee is struggling to see how this can possibly be the case given the substantial rise in unit damage costs for NOx. The Department states that the updated aggregate costs “reflects the use of the dispersion modelling in the revised approach, which better maps the relationship between emissions and concentrations, and so provides an improved approach to identifying impacts on affected populations.” The local modelling doesn’t appear to have been updated since that produced by Jacobs in May 2015, with those results still directly referenced in the latest iteration of the Appraisal of Sustainability to support the NPS.

With this background information in mind, I am seeking further clarity on the following points:

- What is the difference between using a damage cost approach and using an impact pathway approach? Are they calculating different costs?
- What has fundamentally changed between now and when Jacobs completed their assessment to make the impact pathway approach more reliable than the damage costs approach?
- Given the detailed emissions inventory and dispersion modelling hasn’t changed since Jacobs completed their work in May 2015, how is it possible to have updated the damage costs using the impact pathway approach?
- Even if the local modelling were to be updated, would it be reasonable to assume that the air quality impacts would be higher and brought forward because of the significant growth in passenger demand predicted by the Department for Heathrow between 2026 and 2028 compared with the previous estimates by the Airports Commission?
- The damage costs have been updated and are now 63 times higher than those used by the Airports Commission. You acknowledged during oral evidence that the updated estimates are likely to be an overestimate and should only be four or five times higher for NOx than for the Airports Commission estimate. Are you able to provide a specific estimate of how much higher the damage costs should be and the reasoning behind your judgement?
Yours sincerely

Lilian Greenwood MP
Chair of the Transport Committee