SoNA vs WHO

Further research following DfT comments at last HCNF & Financial Impact Analysis

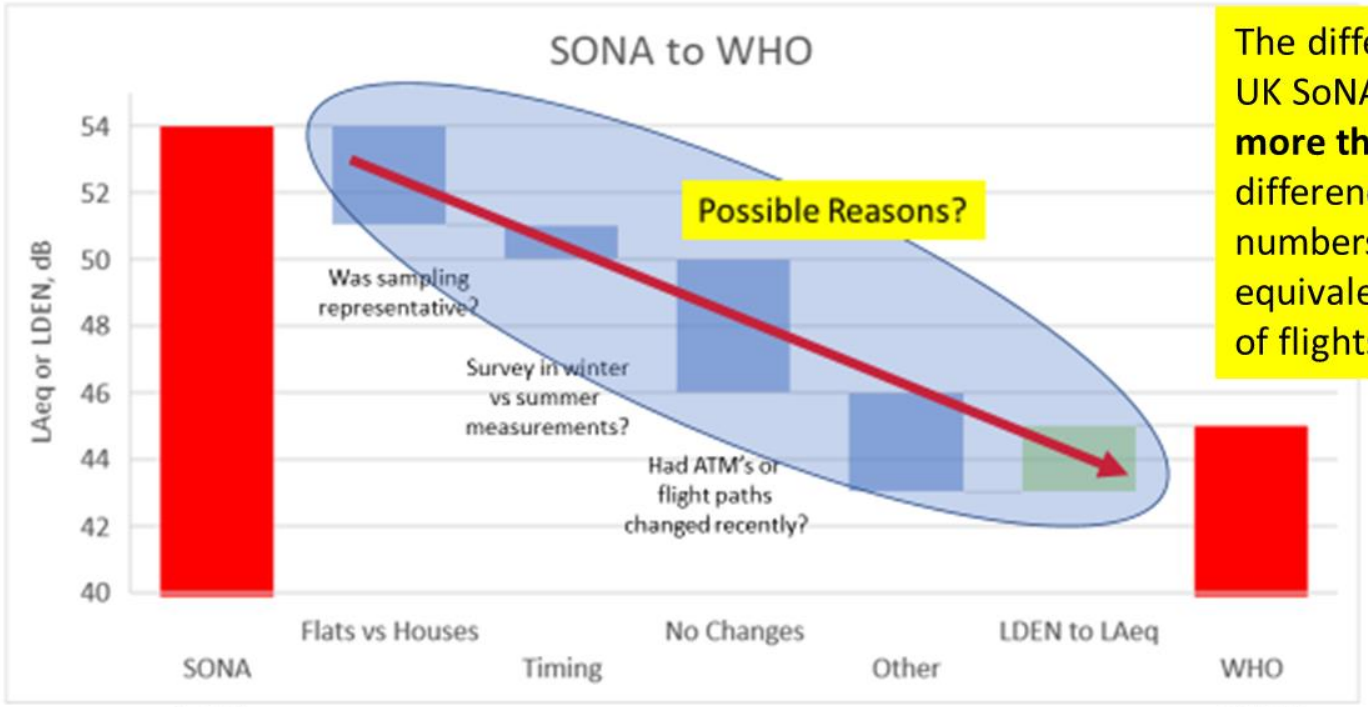
HCNF Communities Presentation 30th Jan

Presented by Dave Gilbert

CNG Jan 2019

Recap - slide presented at last HCNF meeting

Proposed Project – Part 1. Independent Consultant to advise most likely reasons for differences



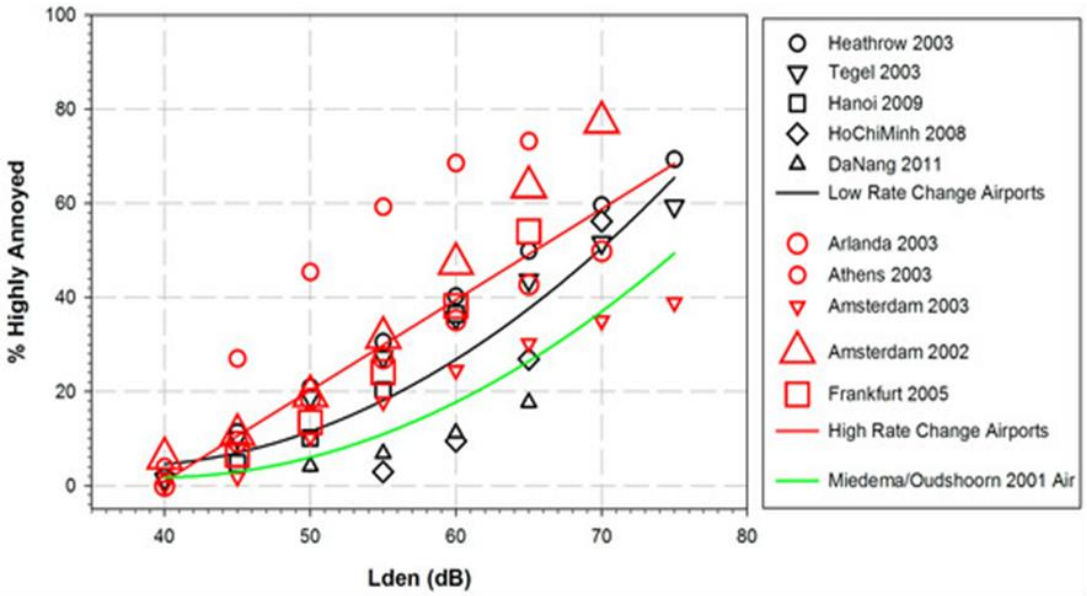
The difference between UK SoNA and WHO is **more than a 500%** difference in flight numbers (each 3dB is equivalent to a doubling of flights)

SoNA
<2,000 Respondents
1 study run by CAA
2 reviewers (one noise, one social science)

WHO
17,094 Participants in 12 studies
International Panels of Expert Reviewers
Full WHO conflict of interest process

CNG Nov 2018

Reviews of noise studies show that CHANGE increases noise sensitivity



From; Int. J. Environ. Res. Public Health 2017, 14(12), 1539 Rainer Guski, Dirk Schreckenberg and Rudolf Schuemer WHO Environmental Noise Guidelines for the European Region: A Systematic Review on Environmental Noise and Annoyance

The **red symbols** indicate the airports where change has taken place, the 'high-rate change' airports.

The **black symbols** indicate 'low-rate change' airports.

At the time of the SoNA survey Heathrow & other UK airports were low change airports.

The use of a 'low/no change' UK SoNA position in 2014 is likely to massively underestimate the impact of a new runway at Heathrow by anywhere between 3-6dB L_{Aeq}.

Even other 'low rate change' studies suggest SoNA may have underestimated noise sensitivity by 3dB L_{Aeq}. (See Int. J. Environ. Res. Public Health 2018, 15(12), Truls Gjestland, A Systematic Review of the Basis for WHO's New Recommendation for Limiting Aircraft Noise Annoyance)

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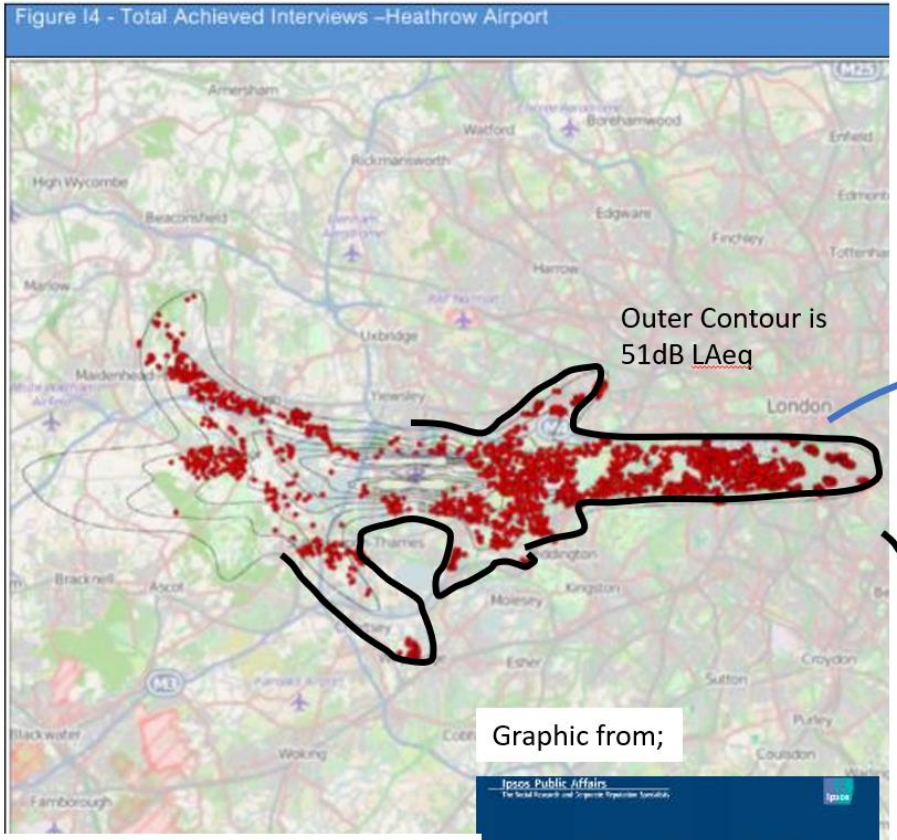
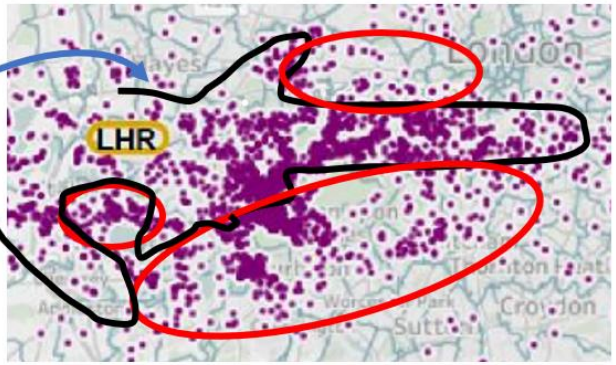
SoNA has not even sampled all people clearly affected by Noise



SoNA does not look to have covered many areas where there is noise sensitivity below 51dB?

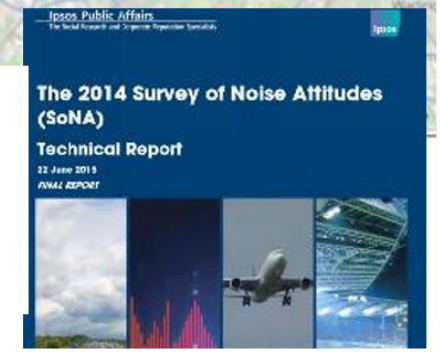
Extract from Complaints (purple spots) mapping
(to support feedback we request LHR provide contours on these complaints maps – black line is indicative)

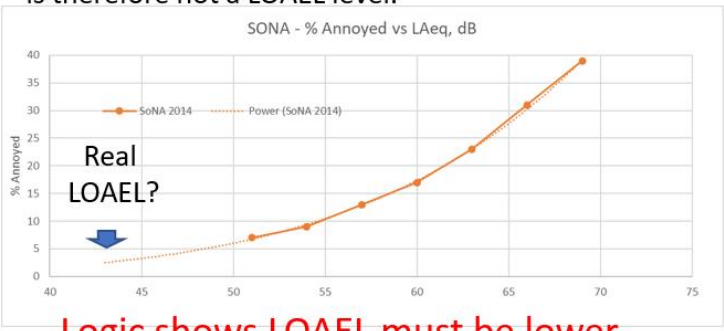


SoNA has not considered any sampling below 51dB
Even at 51dB it found 7% annoyance levels which is therefore not a LOAEL level.

This level is important as the DCO judges adverse effect on numbers impacted between SOAEL (Significant Observable Adverse Effect Level) and LOAEL (Lowest Observable Adverse Effect level)

Graphic from;





Logic shows LOAEL must be lower

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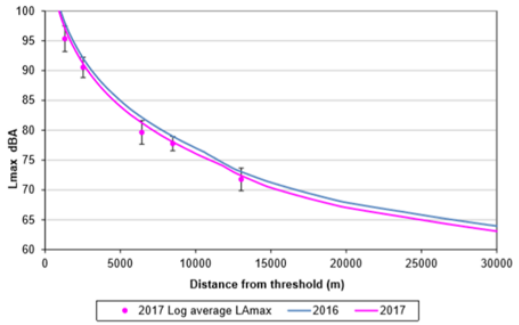
Context - What is a 51dB L_{Aeq} level of noise?

Event Types	Single events All 65dB L_{AMax} / SEL of 75dB	Indicative Mix 65dB (75%) & 70dB (25%) SELs of 75 & 80dB
Planes an hour	*14*	*9*
Minutes between planes	*4.3*	*6.5*
Planes in a 16hr day	*224*	*149*
Planes only 70% of the time (e.g. arrivals scenario)		
Planes an hour	*20*	*13*
Minutes between planes	*3*	*4.6*
Planes in a 16hr day	*320*	*208*
With 50% respite, during time with planes (e.g. arrivals scenario)		
Planes an hour	*40*	*26*
Minutes between planes	*1.5*	*2.3*
planes in 8hr period	*320*	*208*

According to CAA modelling a 777 (twin engine wide bodied long haul plane) on arrival creates a loudness (L_{Amax}) event of 65dB even at 25km from touchdown and 70dB 16km from touchdown

Figure E8 Boeing 777-300ER/GE engines arrival L_{max}



Common Sense suggests that a LOAEL should be set well below this level?

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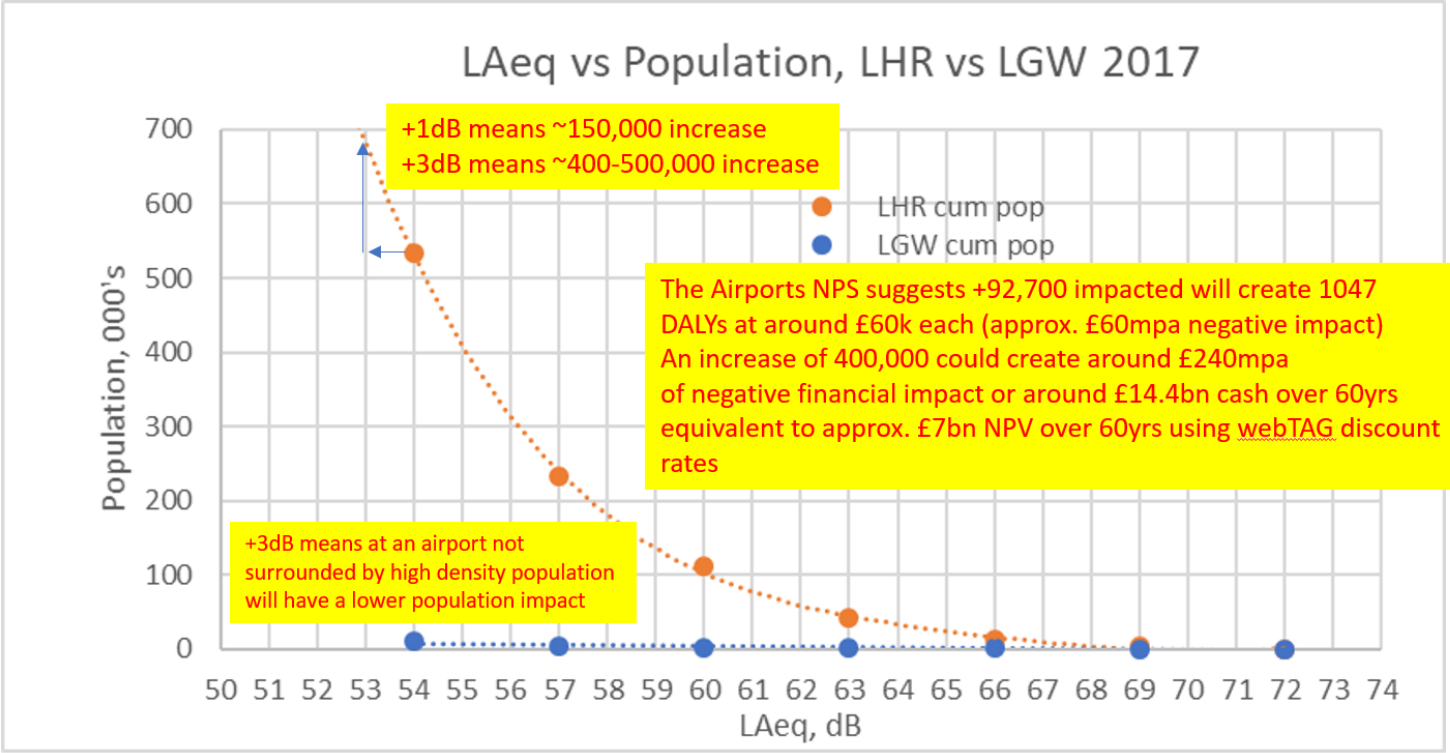
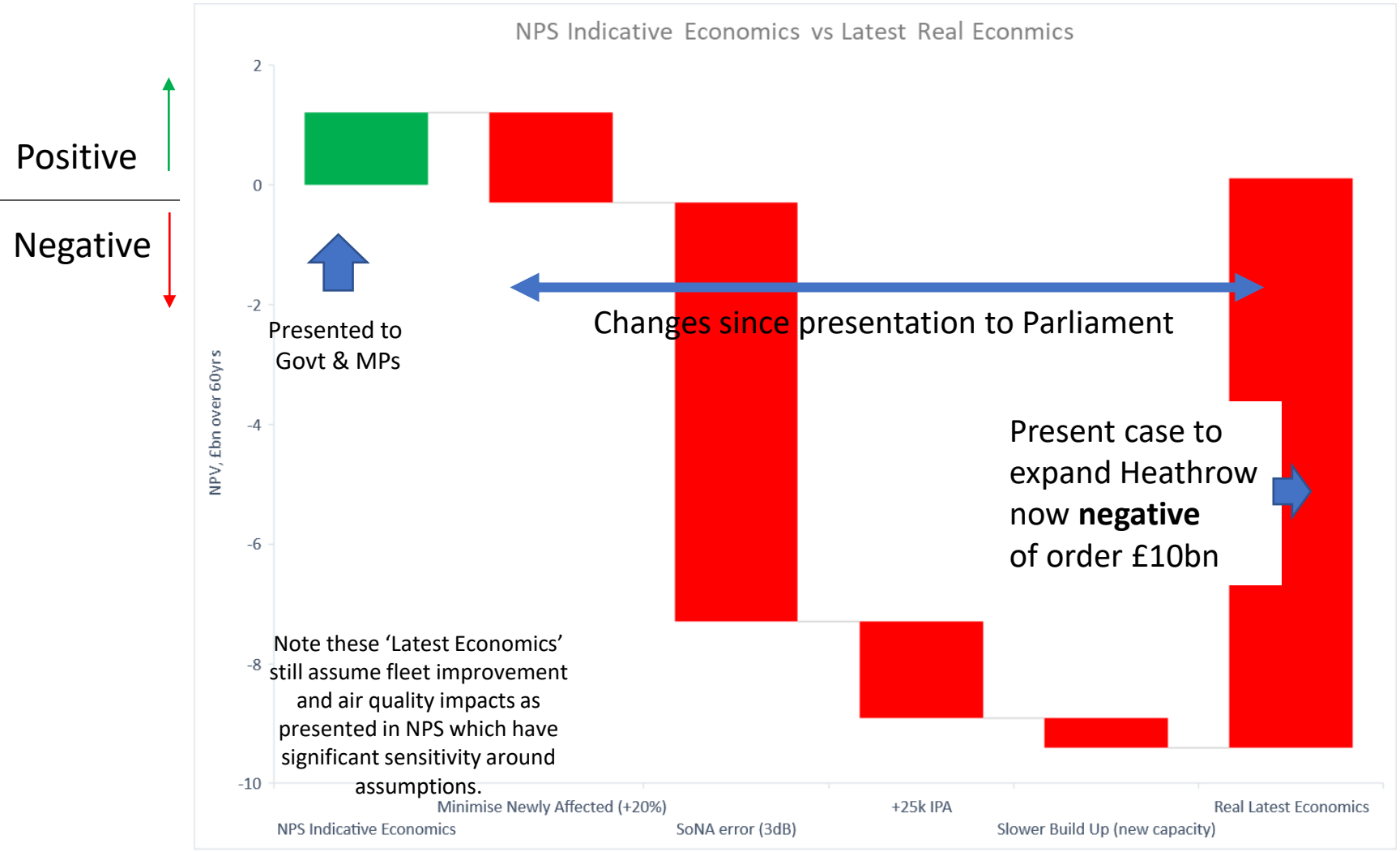
Context – Consider what an error in SoNA of 3dB L_{Aeq} increased noise sensitivity will do to population impacted around Heathrow & its financial impact (noting WHO is around 9dB different to SoNA)?



Data Sources: CAA/ERCD 1801 Heathrow Airport 2017 Summer Noise Contours and Noise Action Plan Contours
CAA/ERCD 1802 Noise Exposure Contours for Gatwick Airport 2017

Impact on Economics of LHR Expansion, NPVs 60yr £bn



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Conclusions

- WHO has exposed major deficiencies in UK SoNA position
- Change creates noise sensitivity. This is 'The elephant in the room' - not properly integrated into decision making
- Noise sensitivity has major financial implications
- The DfT must review LOAEL immediately – the present value is wrong - a 'common sense' lower position is required for the DCO process
- These and other changes since the Airports NPS suggest economics now very negative for Heathrow expansion of order minus £10bn
- DfT need to assess whether the 2 strategic arguments for expansion still outweigh negative economics;
  - connectivity up to 2 new long haul (on 122) & up to 12 (on 69) more daily connections by 2050
  - risk that other expansion options would not deliver increases in freight (note freight presently only constrained on popular long haul routes from Heathrow – otherwise spare capacity today)
- Are these strategic arguments worth more than £10bn?

Questions

- Does the DfT accept that airspace change associated with a 3rd Runway at Heathrow will increase the level of noise sensitivity compared to the 'low/no change' results obtained by SoNA. If so how has this been integrated into its financial analysis in the NPS?

- In the light of WHO advice (and other independent studies such as NORAH), how does the DfT justify such a high LOAEL at 51dB L_{Aeq} when it has not studied any levels below this?

- Has the DfT undertaken economic and environmental impact and risk analysis relating to assumptions about noise sensitivity? If so where can the results be found?

- It now appears probable the economic benefits of Heathrow expansion are significantly negative and could be of order minus £10bn NPV. How will the DfT address this new information and when will it advise Parliament?

- Can the DfT confirm that if the negative health consequences (from noise and air quality) are significantly more adverse than projected in the NPS this will be independently addressed at the DCO stage? Does the DfT accept this could lead to consent for the project being refused?