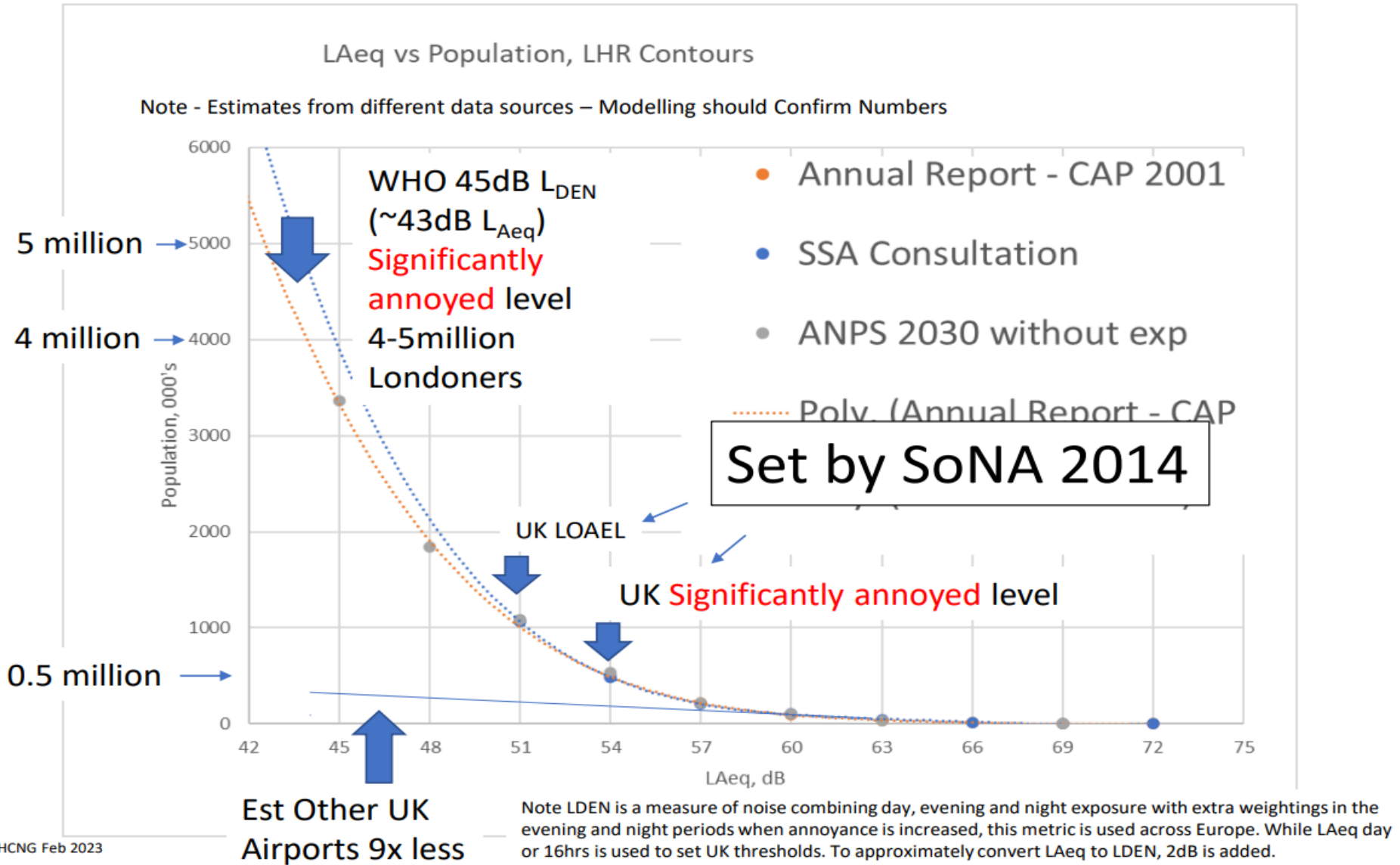


# Government Aviation Policy and Issues with the Survey of Noise Attitudes (SoNA 2014)

- Reminder - SoNA 2014 presently is used to set UK Government Aviation Policy noise annoyance levels so is fundamental in assessing the monetised health and annoyance impacts so it is critical that the input data and analysis is robust
- For policy to achieve the best outcomes - robust evidence is required for significant annoyance and lowest observable adverse effect levels (LOAEL) as well as understanding what features of aviation noise cause most annoyance

# Reminder; Heathrow Noise impact is highly sensitive

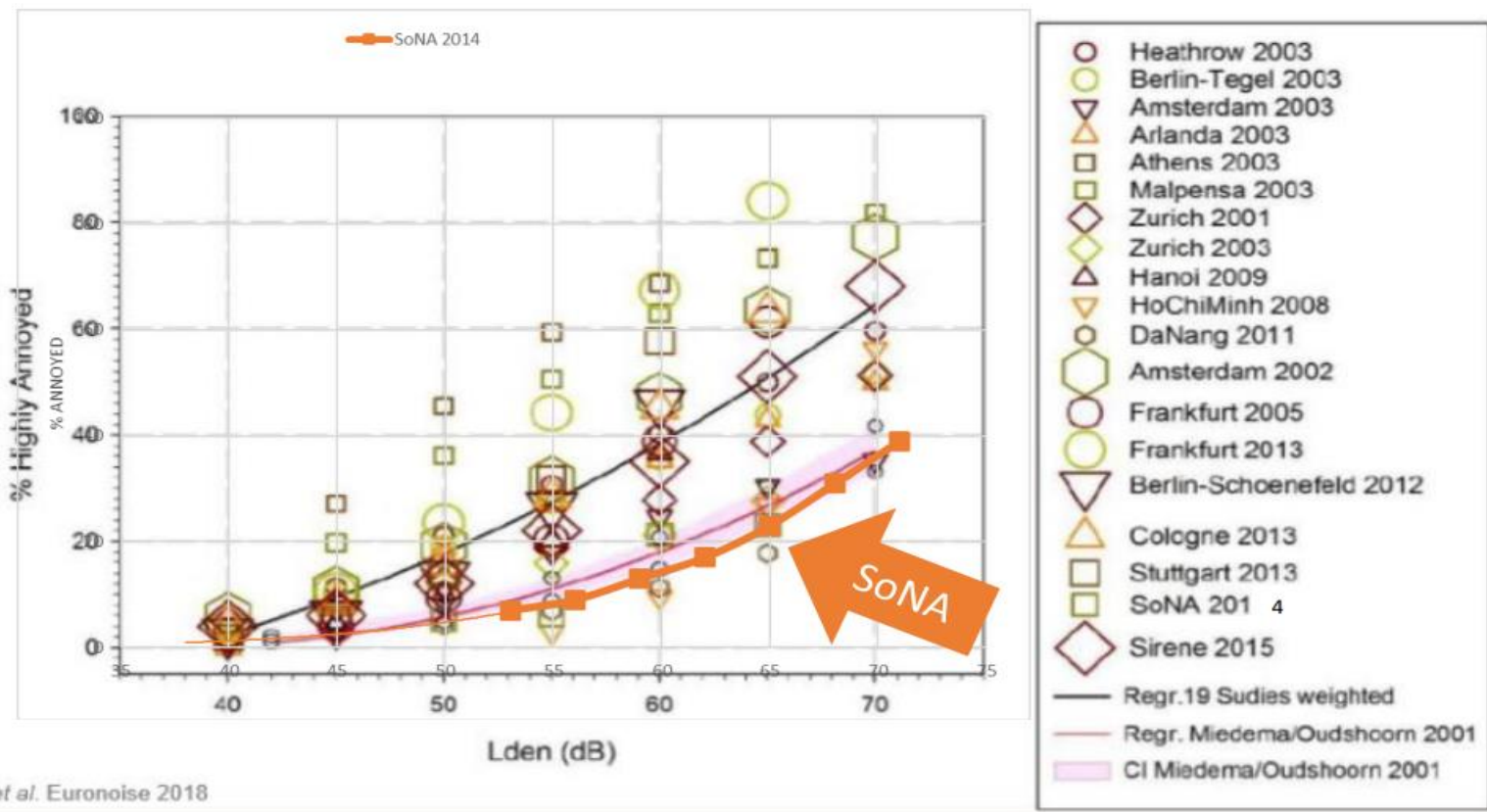


# Reminder; Recent and old studies show SoNA as an outlier

## Aviation – additional studies

The most recent evidence (including post WHO sources) shows the divergence between SoNA and current international research even more markedly.

SoNA is an outlier (only similar to Miedema / Oudshoorn published in 2001)



Guski et al. Euronoise 2018

# Recent HACAN meeting with DfT & DEFRA

- SoNA 2014 issues discussed/challenged
- Suggestion that SoNA was similar to Miedema & Oudshoorn 2001

**Table 2.** Data sets used to establish the relationships between noise exposure and annoyance.

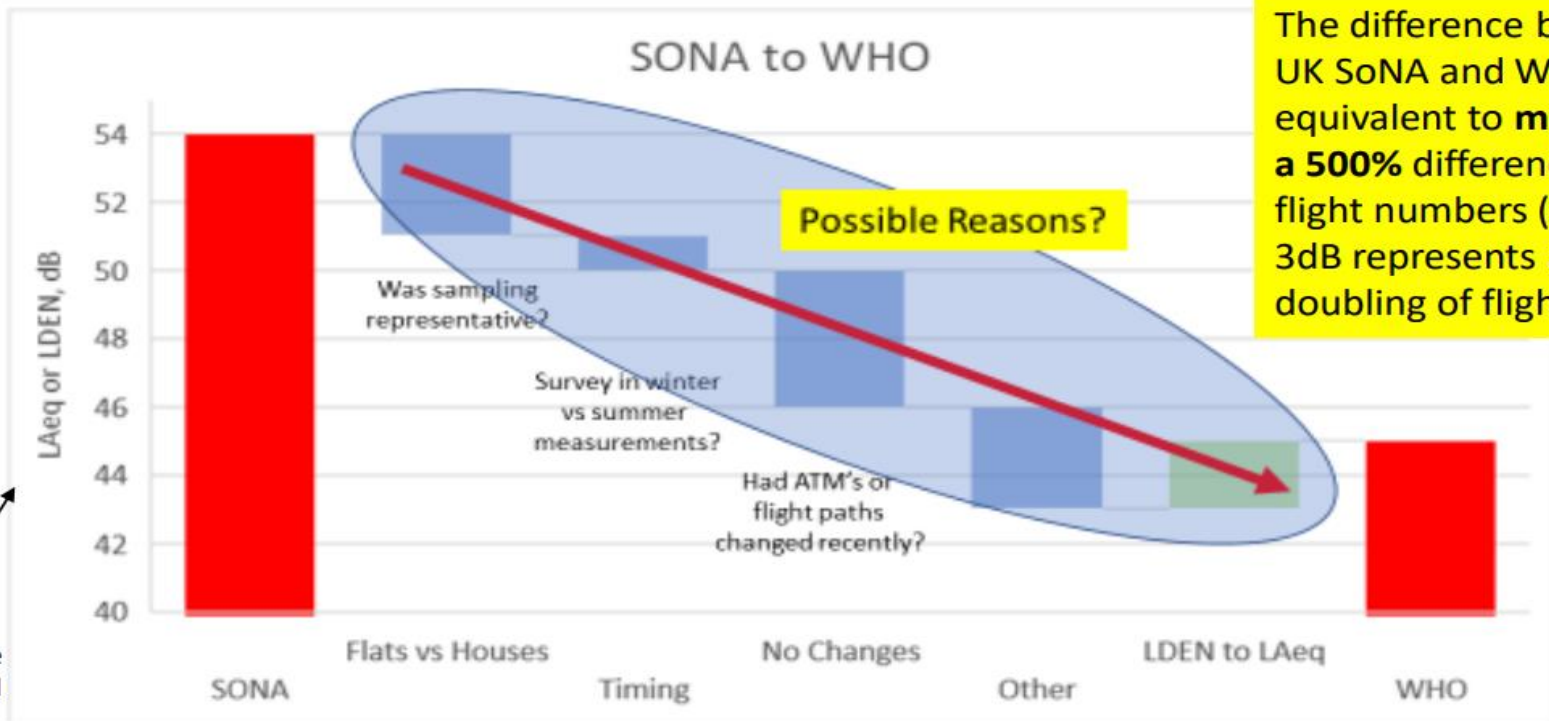
Fields' code (6)	Name of survey (year)	Determination of DENL
<b>Aircraft</b>		
AUL-210	Australian Five Airport Survey (1980) Richmond & Perth Sydney & Adelaide Melbourne	- DNL + 1.2 DNL + 0.3
CAN-168	Canadian National Community Noise Survey (1979)	-
FRA-016	French Four-Airport Noise Study (1965)	-
FRA-239	French Combined Aircraft/Road Traffic Survey (1984)	-
NET-240	Schiphol Combined Aircraft/Road Traffic Survey (1984)	-
NOR-311	Oslo Airport Survey (1989)	-
NOR-328	Bodo Military Aircraft Exercise Study (1991–1992)	-
NOR-366	Vaernes Military Aircraft Exercise Study (1990–1991)	-
SWE-035	Scandinavian Nine-Airport Noise Study (1969, 1970, 1971, 1972, 1974, 1976)	-
SWI-053	Swiss Three-City Noise Survey (1971)	-
UKD-024	Heathrow Aircraft Noise Survey (1967)	-
UKD-242	Heathrow Combined Aircraft/Road Traffic Survey (1982)	-
UKD-238	Glasgow Combined Aircraft/Road Traffic Survey (1984)	-
USA-022	U.S. Four-Airport Survey (phase I of Tracor Survey) (1967)	-
USA-032	U.S. Three-Airport Survey (phase II of Tracor Survey) (1969)	-
USA-044	U.S. Small City Airports (Small City Tracor Survey) (1970)	-
USA-082	LAX Airport Noise Study (1973)	-
USA-203	Burbank Aircraft Noise Change Study (1979)	-
USA-204	John Wayne Airport Operation Study (1981)	-
USA-338	U.S.A. 7-Air Force Base Study (1981)	-

Studies used in this Paper range from 1965 to 1992

- SoNA is similar to Miedema & Oudshoorn but SoNA has been shown to have issues
- Conclusion from looking at the data is Government Aviation Policy is based on studies which are on average 40 years old
- Questions whether Government Aviation Policy is credible and points to issues with SoNA

# Recap Previous request/proposal - slide presented at HCNF meeting Nov 2018

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



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

Acronyms  
LAeq/LDEN are Average Sound energy Levels (not loudness). Energy is calculated from loudness x event length

CNG Nov 2018

SoNA	WHO
<2,000 Respondents	17,094 Participants in 12 studies
1 study run by CAA / ERCD	International Panels of Expert Reviewers
2 reviewers (one noise, one social science)	Full WHO conflict of interest process

# What were the flaws in SoNA 2014?

- Clear reasons why SoNA 2014 underestimated noise sensitivity

## **SoNA 2014....**

- Undertook the survey in Winter
- Avoided questioning those on the route that has one of the highest complaint levels (Detling – which takes late night heavy departures to Middle East)
- Used a ~35 minute face to face survey and first covered detailed questions on road and neighbourhood noise before addressing plane noise
- Asked first key annoyance question after ~15 minutes and second question at around 30 minutes (only 2 questions set policy)
- Did not choose a UK indicative mix of households
- Did not survey to reasonable levels. Survey stopped at 51dB LAeq – while WHO finds levels of 45dB LAeq (16hr day) significantly annoying.
- Also did not consider change so is unsuitable to use for Airspace Modernisation
- Last Heathrow Noise Forum minutes suggest ‘improvements required’ – which is different to major flaws – this needs exploring further as opinions differ between stakeholders

# Strength of evidence

## Box 1 GRADE interpretations of quality of evidence

- **High quality:** further research is very unlikely to change the certainty of the effect estimate
- **Moderate quality:** further research is likely to have an important impact on the certainty of the effect estimate and may change the estimate
- **Low quality:** further research is very likely to have an important impact on the certainty of the effect estimate and is likely to change the estimate
- **Very low quality:** any effect estimate is uncertain

← WHO assessment of their work

← SoNA (not stated but evidence

← suggests around this level of reliability or lower)

The following five factors are used for downgrading the quality of evidence by one or two levels:

- study limitations or risk of bias in all studies that make up the body of evidence
- inconsistency of results between studies
- indirectness of evidence in the studies
- imprecision of the pooled effect estimate
- publication bias detected in a body of evidence.

The following three factors are used for upgrading the quality of evidence:

- high magnitude of the pooled effect
- direction of residual confounding and biases opposes an effect (i.e. when all plausible confounders are anticipated to reduce the estimated effect and there is still a significant effect)
- exposure-response gradient.

This suggests WHO levels are more robust than SoNA 2014 but need ongoing work.  
SoNA 2014 is not robust.

# Proposal

- To bring the different stakeholder opinions together and explore explanations for the differences
- Ask for an Independent advisor to review evidence presented at HCNF forums and from ICCAN noise attitudes survey development and report back to forum, with a Terms of Reference to include addressing the following;
  - Which of the differences to normal survey assessments identified could be considered as improvements and which as flaws?
  - Are the identified issues likely to impact the noise sensitivity measured?
  - What are the most critical issues to address?
  - Can a high level estimate of the likely impact on noise sensitivity be made of each difference?