



Diminishing reliability of the application of Standards on Environmental Noise in the UK

Mike STIGWOOD
MAS Environmental Ltd, Cambridge, UK
mike@masenv.co.uk

Difficulties in avoiding perceived bias in UK

1. There is a perception of bias in UK as truly independent bodies are extremely limited.
2. Institutes are at risk of influence from funding organisations and at perceived risk if research outcomes are harmful to those funding. In my case, my research exposed wind farm noise problems = told openly at a Public Inquiry I would not get any work from that industry.
3. UK research work is now extensively undertaken by consultants who have direct business interests.

Difficulties in avoiding perceived bias in UK

4. There is also a **loss of independent expertise within UK regulators**. Capacity for research is diminished due to stringent funding restrictions.
5. Professional Institutes prioritise survival & funding from sources related to objectives of the majority of their membership = industry.
6. Use of competitive tendering limits the scope of research and reduces the depth of analysis due to costs restraints.

Perceptions of bias in UK

7. **Boundaries clouded** between Industry objectives and true research. E.g. ReUK Ltd. = industry body.
8. The perception is that we are **degrading public health** in the interests of wider UK economy needs, profits and government policy objectives.
9. Whether actual bias, partiality or nepotism occurs or just its perception does not matter. It is HARMFUL regardless due to loss of faith and wider harm to professions that are increasingly seen as unreliable or require a precautionary approach.

Background to the start of this research - 1

MAS has long been involved in reviewing how **sounds with character that trigger autonomic reaction** due to that character and its message are **assessed by acoustic consultants**. Sounds which trigger:

- “What is it”
- “Where is it” almost instant reactions

Sounds causing reactions which occur in our **unconscious mind too quickly to ignore** and that attract / grab our attention and so disrupt our private activities.

Background to the start of this research - 2

The perception from reports we have reviewed, especially in recent years was that these types of sound were being **treated as benign noise that did not draw attention and habituate to.**

This led to a **wider study** including, in this study, **random selection of reports** and a forensic analysis of them.

The outcome was that the perception is true.

Objectives of research into standards by MAS

To determine:

1. Whether there is unbiased / balanced development of guidance and **its application** – This paper focuses on application of standards and guidance.
2. Inform the debate on bias in the UK and how to reduce its effects.
3. Develop professional procedures to expose and reduce the risk of bias.
4. Identify common bias issues to be addressed and increase awareness of its occurrence.

Apparent lack of interest from the profession in the level of bias and misapplication of standards in UK

Analysis addressed in this paper

45 reports were chosen randomly and reviewed – mainly produced to support new development.

- ❑ Most reports sought to support new housing – not all
- ❑ In most cases the sources of noise considered did adversely affect the likely viability of the proposal. Including:
 - Commercial sources – plant noise & industrial sources
 - Road, rail, sea and air transport sources
 - Sports and people noise
 - Music
 - Construction
 - Other neighbourhood noise – e.g. Kennels

Common features of concern in reports reviewed

1. Used **incorrect decibel criteria** as developed for transport noise and applied as if it is directly transferable to all sources of noise.
2. **Ignored more direct guidance** or revised guidance.
3. **Ignored attention attracting character** & dominance effects of sources of noise.
4. **Assessed internal impact only with windows closed.**
5. Ad-hoc application of guidance for a characteristic in noise but **not adjusting for its different context.**
6. **Wind direction effects ignored** – Upwind v Downwind

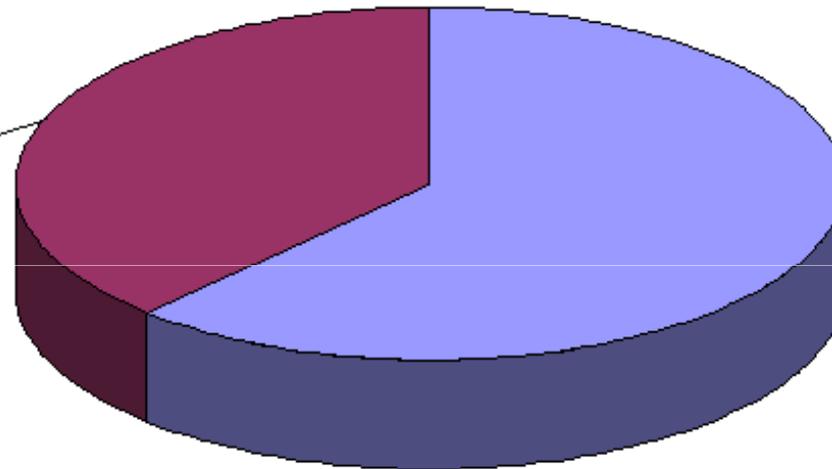
Common features of concern in reports - 2

7. **Focus was on average sound energy** level change (LAeq) and ignored effect of introducing alien sounds or new /uncommon character in noise.
8. **Failed to report use of guidance outside its scope and the effects of this.**
9. **Used benign noise criteria** to determine acceptability of sources containing highly disrupting characteristics.
10. **Completely ignored non-acoustic effects & criteria.**
11. **Ignored cumulative effects** both in terms of sound energy and effects of many different source types.

% reports considering special character

Whether effect of Special Characteristics in the noise considered

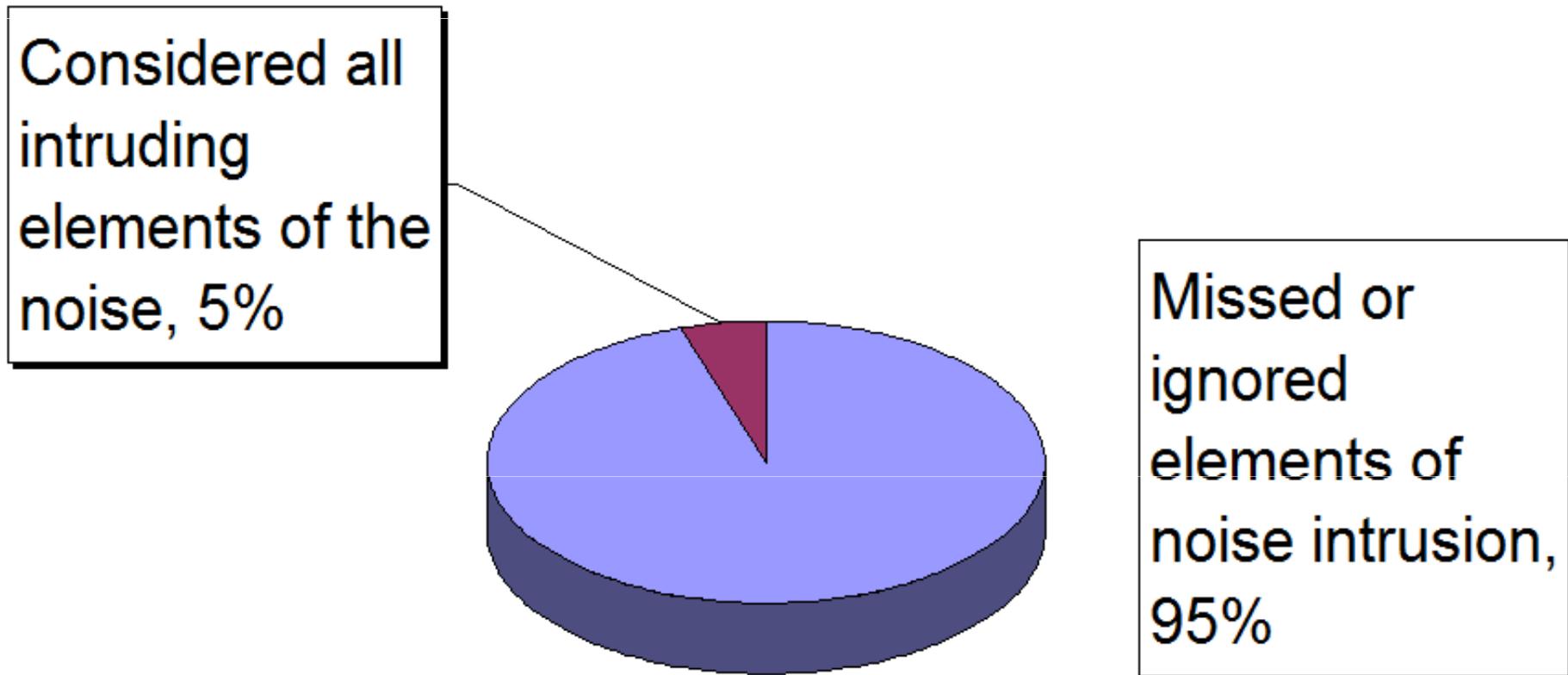
Completely
ignore attention
grabbing content
and treat as
benign, 38%



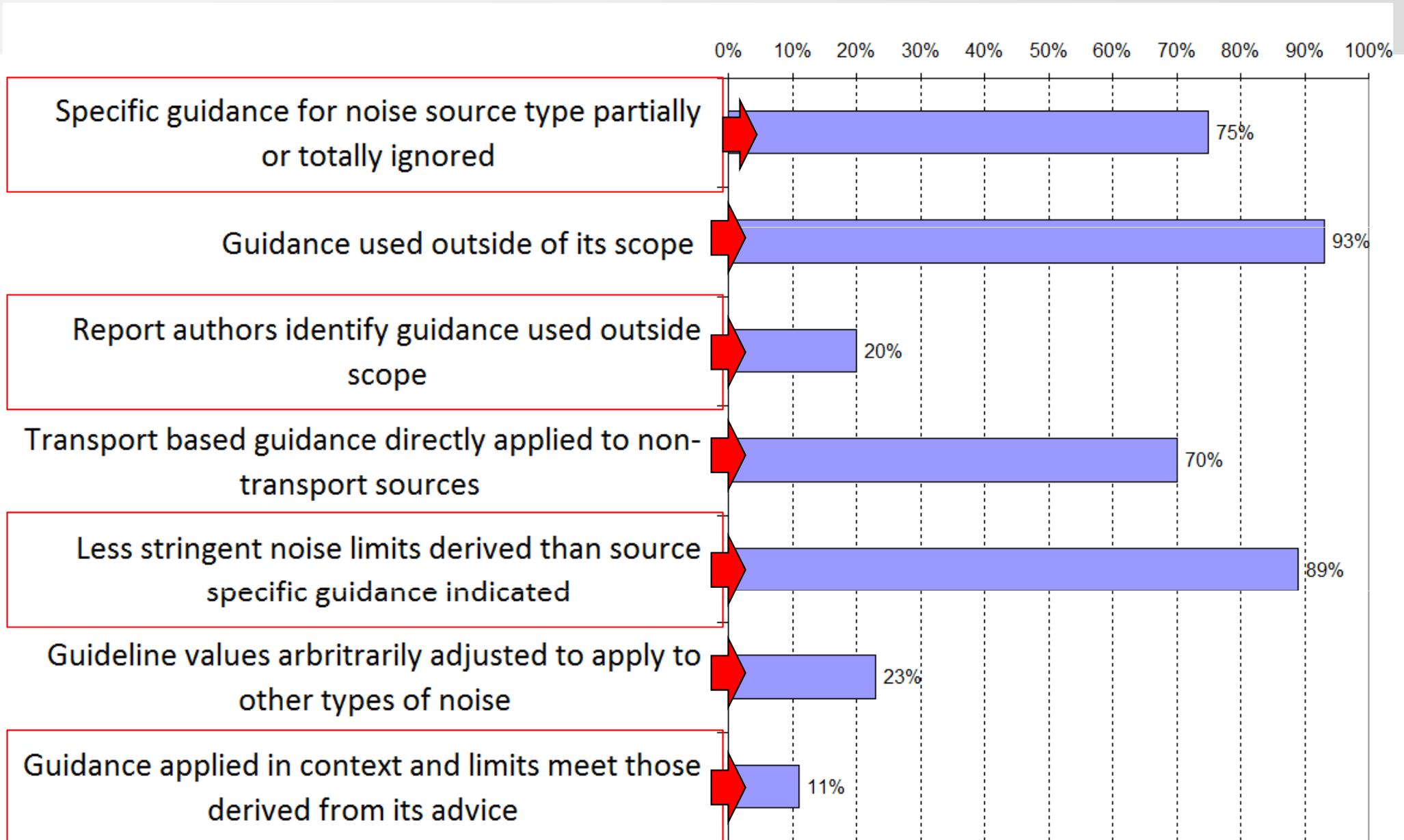
Reflect noise has
special character
but not
necessarily
adjust for it, 62%

% reports missing critical noise content

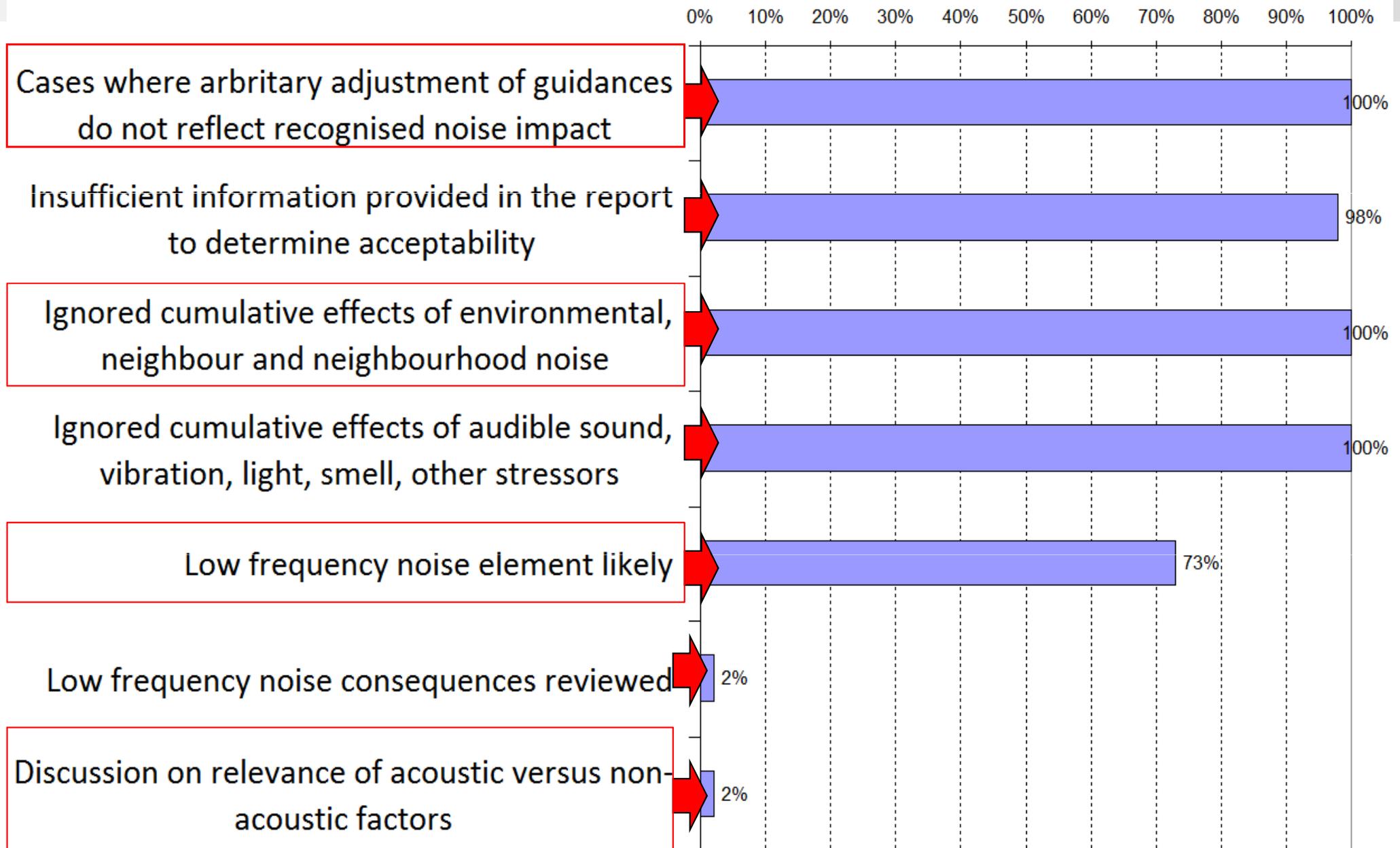
Percentage cases considered all source noise content



% reports that misapply Guidance



Factors ignored or information provided insufficient



Common incorrect statements or inference made in reports

- **Noise cannot cause problems below a set threshold i.e. 30dBA internally regardless of character** - There is no objective evidence to support this.
- **Internal background sound inside does not fall below 20-30dBA** – False belief, we commonly measure values below 10-15dBA even with windows open.
- **Audibility, discern-ability, incongruity and dominance considered irrelevant in the reports.**
- **Sound energy level in isolation is the sole determinant of impact.**

Reports also ignored many factors including

- Lack of research & uncertainty of effect on impact of **combined characteristics** in the sound
- **Unquantifiable effects such as low frequency & modulating content, patterns & syncopation effects.**
- The **inability of sound energy to quantify many different features / effects** or provide decibel adjustment / equivalence. Move to only using decibel descriptors = questionable.
- Response dependant on **sensation level** for the type of sound observed.

Thank you for listening

Conclusions on the evidence reveals there is:

1. Need for fundamental change.
2. Potential lack of integrity and reliability.
- 3. Widespread misuse of standards & guidance**
4. Widespread inconsistency in guidance interpretation
- 5. Ignoring of the importance of special characteristics**
which draw attention.
- 6. Ignoring autonomic “what is it” where is it” responses.**
7. Poor examples set by some profession leaders.
8. Need for greater scrutiny

Don't shoot the messenger on what the evidence shows - Address the message

Epilogue on Bias risk

Do reports / papers address bias risk including my own – Do you:

1. Declare understanding of risk and perception.
2. Set out the risks in the case in question and especially roles of researchers / clients of the body / company.
3. Explain mechanisms how bias risks are addressed in the study and made neutral.
4. Ensure any reviewers are appointed blind and not appointed by those with any perception of biased interest.
5. Clearly identify uncertainties & conflicting evidence.
6. Clearly identify the limitations found or provide ideas as facts.
7. Need a body of independent reviewers anonymous to the authors and not directly involved in the discipline.
- 8. Provide a checklist for Regulators to confirm whether reports are of a sufficient standard & address bias.**