

Heat: A User's Perspective

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Heat

A great opportunity!

Good focus on technical aspects

But we need to consider consumer attitudes towards use (and reuse) of heat

- to deliver maximum value
- to achieve community engagement and stakeholder support



Research at Loughborough University

Domestic heating in the UK is dominated by boilers, generating heat directly from gas

We will require a shift in attitudes and behaviours to move to new heating systems

(1) Acceptability of using heat released as a by-product from industrial processes for residential use

(2) Perceived impact of terminology and stakeholders on the adoption of this type of heat



Research at Loughborough University

In-depth research with 26 UK householders, varying in demographics and backgrounds:

- postal questionnaire
- In-depth semi-structured interviews including attitudinal rating scales
- thematic analysis of discussion

Researching UK householders' attitudes and perceptions of waste heat streams

Questionnaire Booklet



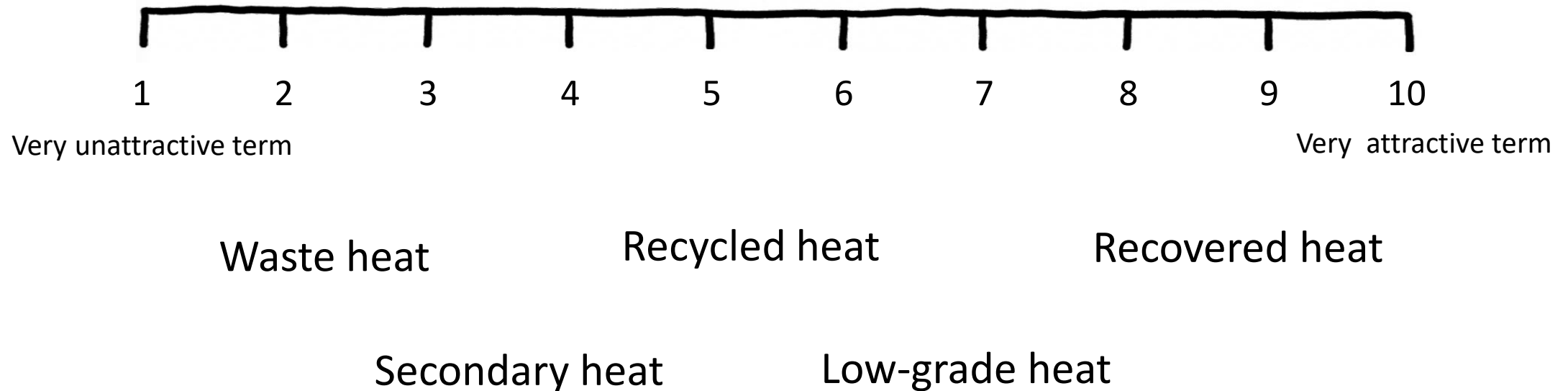
Key topics identified from the research

- Economics
- Energy and sustainability
- Geography and location
- Health and wellbeing
- Safety
- Knowledge

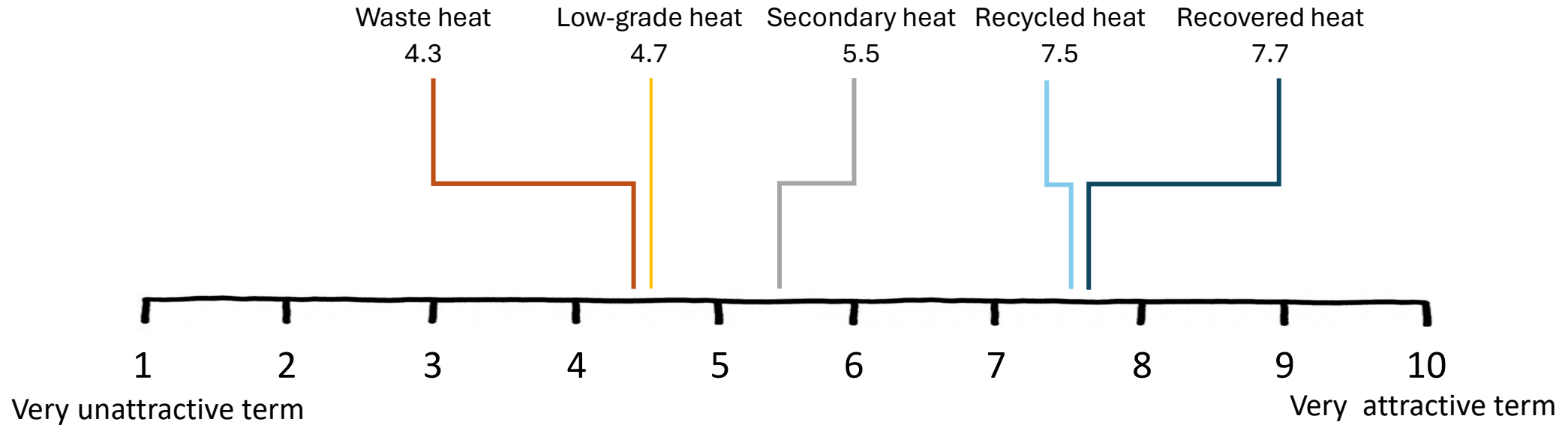


Terminology

- A numerical rating scale was used to assess the attractiveness of five popular terms for the heat being recovered
- Participants were then asked to explain the reasoning for their ratings



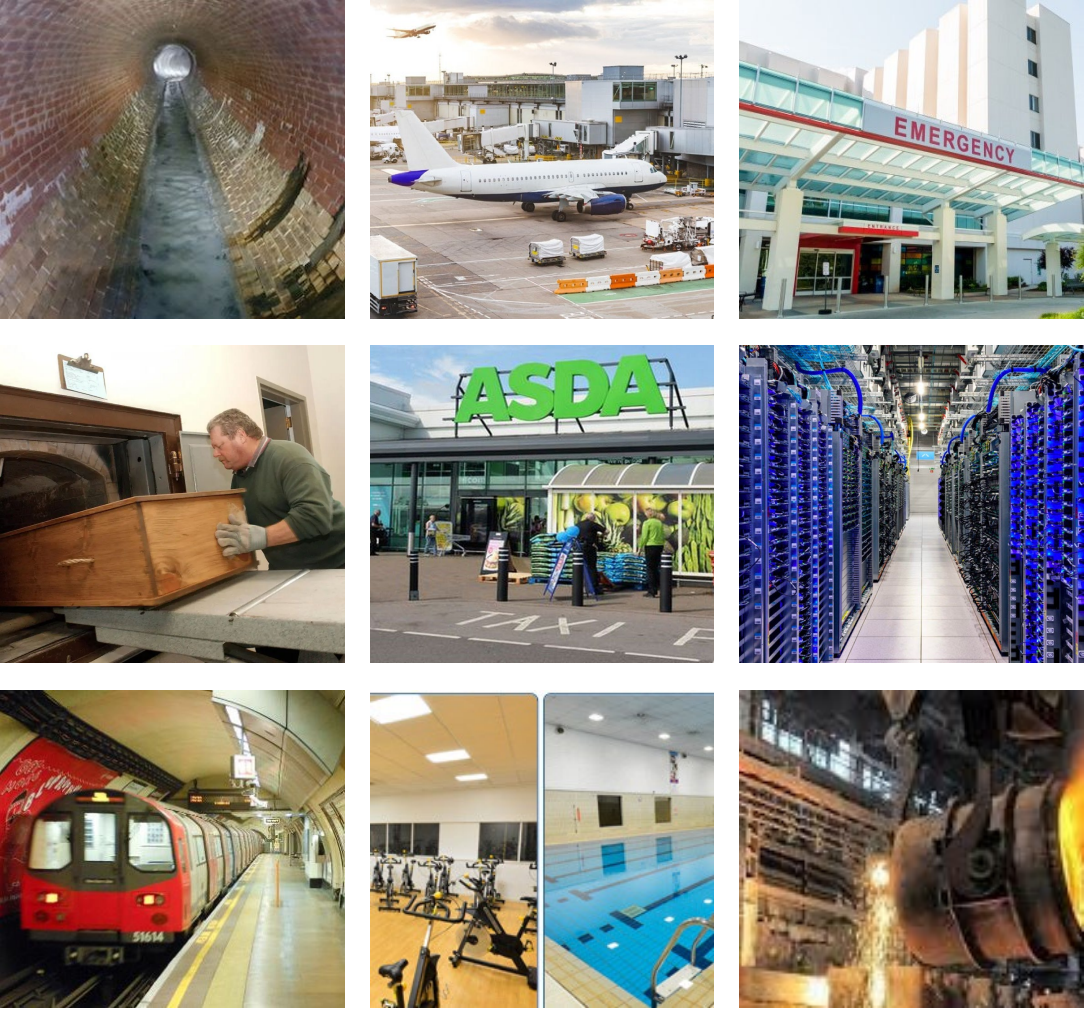
Terminology



- *“if we can recover it to heat not only my home, but possibly hospitals or things like that, it’s going to save the taxpayer money”*
- *“the environment is being safeguarded by being able to use the same energy twice in effect, or multiple times”*
- *“if you’re giving me a low-grade product, I’ll pay low-grade price”*
- *Secondary heat seems “second-best”*

Updated 3/5/24 – data error correction

Acceptability of recovered heat sources



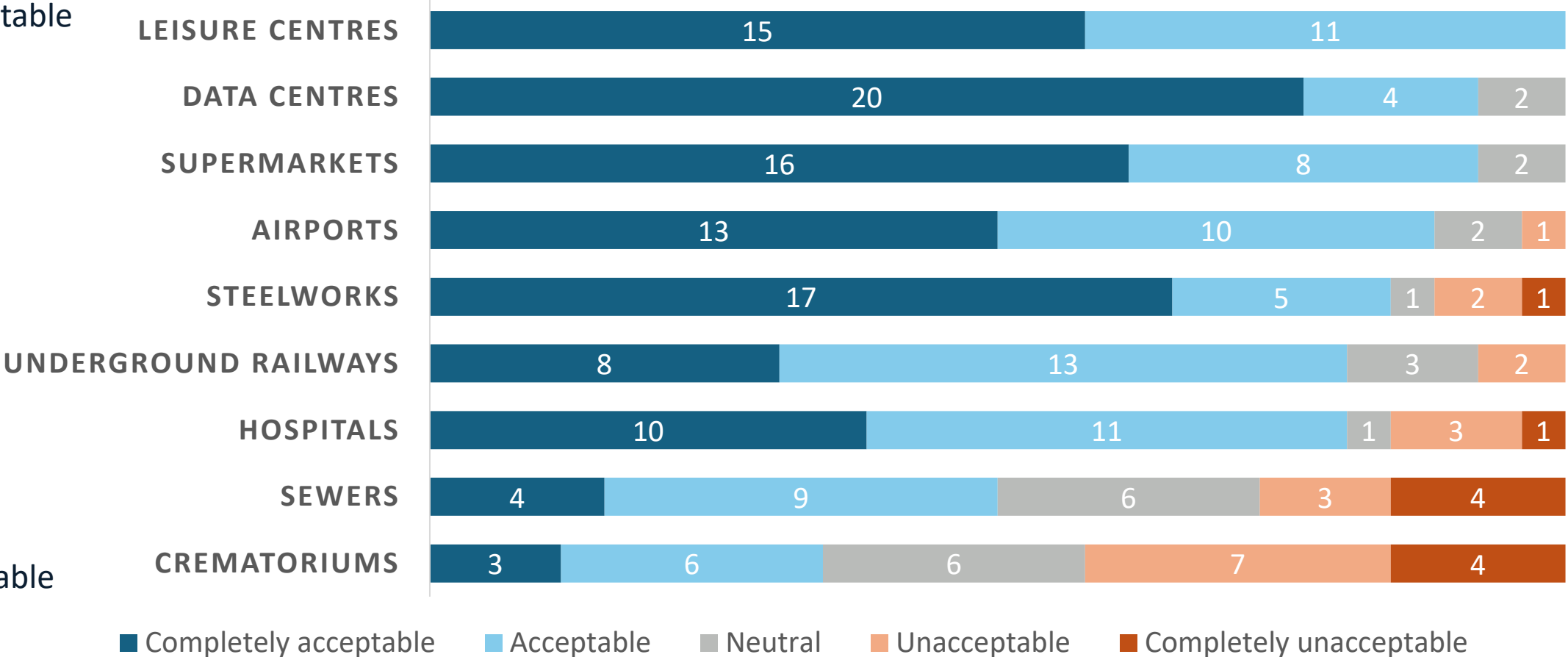
- Completely acceptable
- Acceptable
- Neutral
- Unacceptable
- Completely unacceptable

Acceptability of recovered heat sources

More acceptable



Less acceptable



Acceptability of recovered heat sources

Poor understanding of heat transfer process by everyone!

Most thought heat would mimic the characteristics of source environment

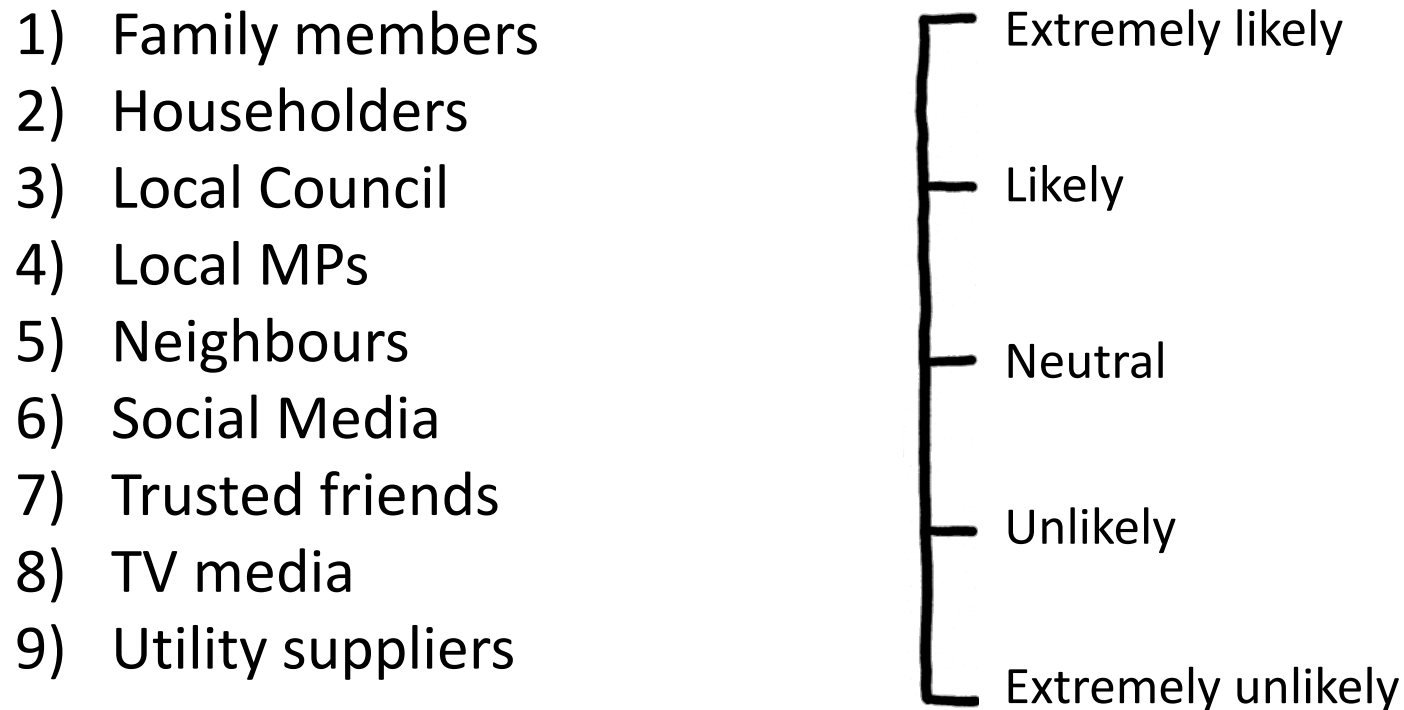
- ‘Clean’ heat – machine made e.g. data centres
- ‘Dirty’ heat – transmission of odours, germs and even bad spirits

Clear environmental benefits; Reliable and dependable supply

*“If we’re having heat sources from anywhere, it’s going to be safe
and it’s going to be processed properly...it’s just heat”*

Influence of stakeholders

Participants rated how likely they felt different stakeholders would be able to influence them to adopt the use of recovered heat in their home

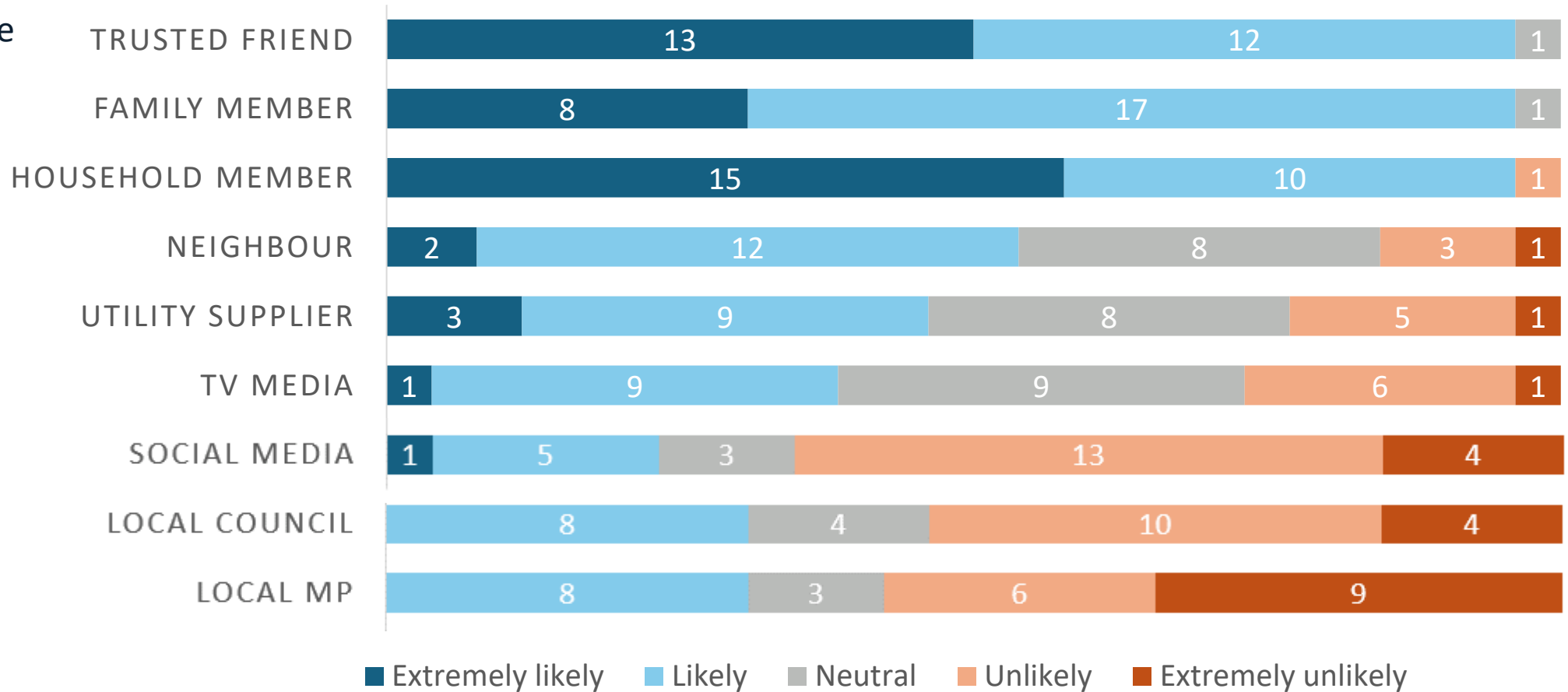


Influence of stakeholders

More influence



Less influence



Summary...

Recovered heat can be seen as a positive option if users know that its clean and safe

Poor heat transfer knowledge leads to unhelpful householder beliefs

Terminology used with householders may not be the same as that used with industry / academia but 'recovered heat' could work well for all audiences

Promoting recovered heat in an acceptable way is needed to engage users

Trustworthy stakeholders are required to encourage widespread UK acceptance.

Questions?