

Overview of Workshop 1: Strategies and Energy Research Needs



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Introduction to *Energy Strategies and Energy Research Needs* Workshop

Purpose of workshop

‘To draw upon insights from a range of expert stakeholders to identify the UK’s current energy related research capabilities and its future energy research needs’

Structure of workshop – Split into 3 parts

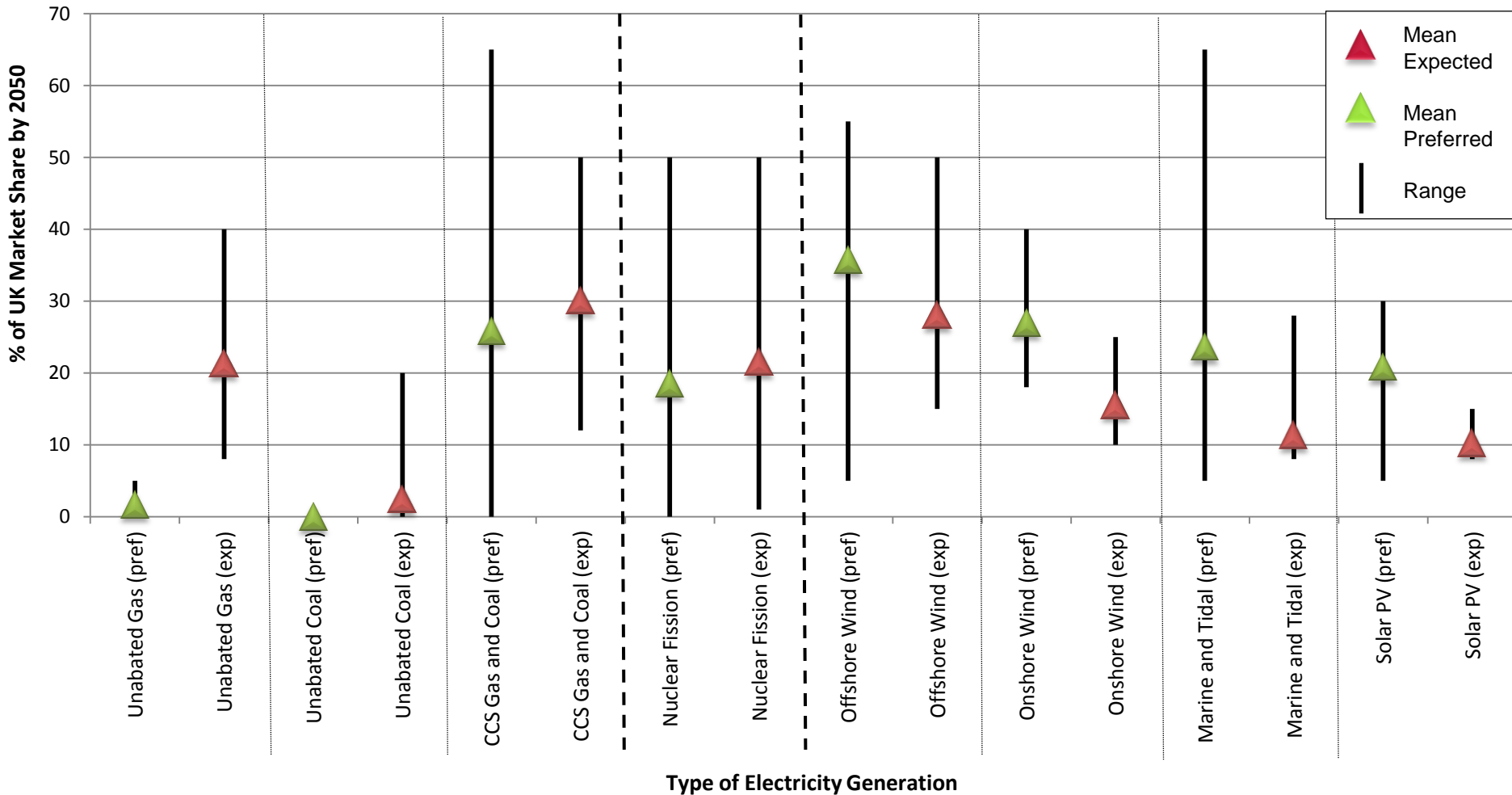
1. A review of approaches to energy futures followed by a plenary
2. Facilitated session on the range of possible UK energy futures
3. Breakout session on energy research portfolios

Make-up of workshop

- 25 workshop attendees from a range of sectors and different energy related professional backgrounds

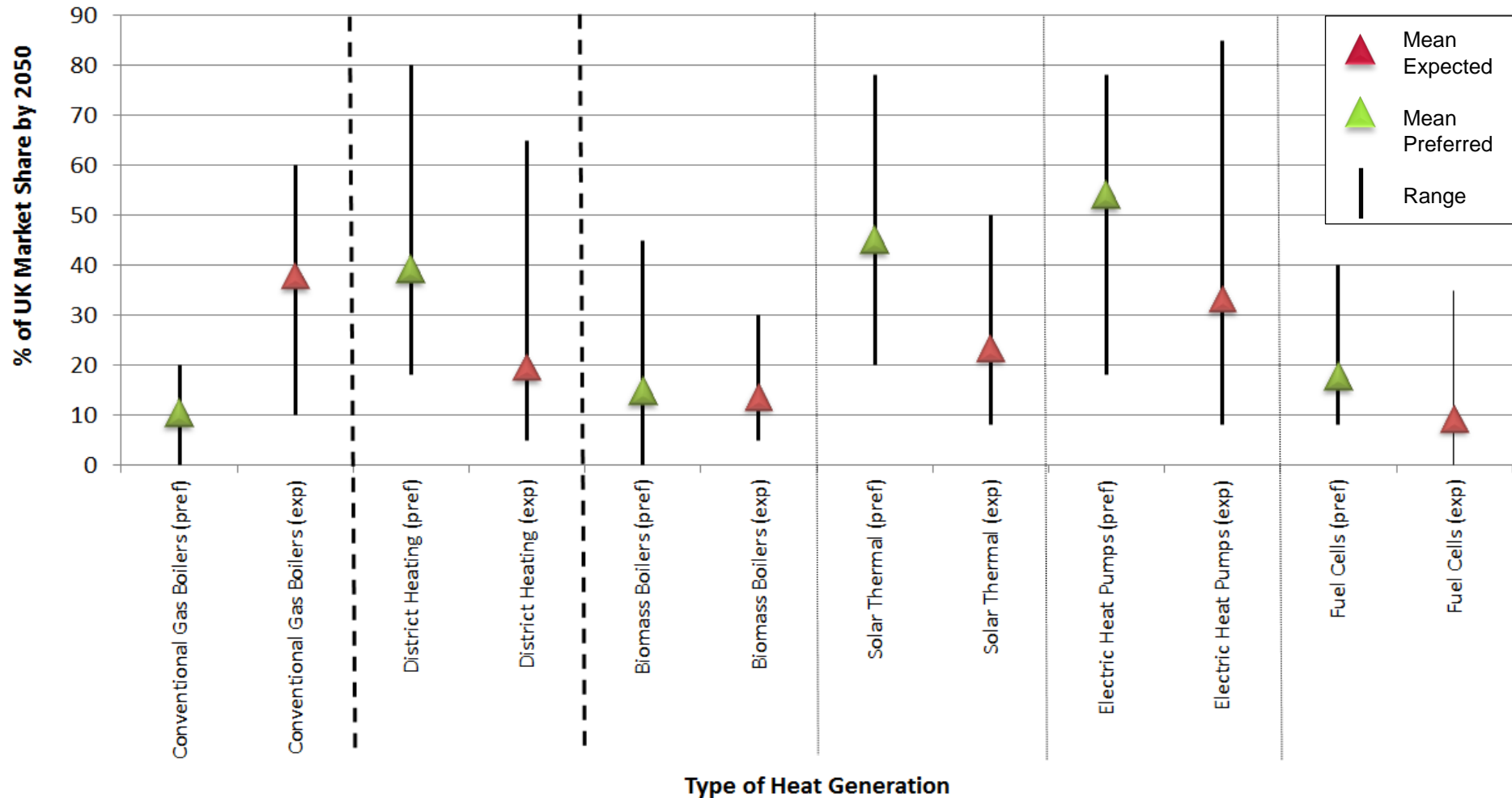
Results from Breakout Session 1

UK Electricity Supply Technology Market Share by 2050



Results from Breakout Session 1

UK Heating Supply Technology Market Share by 2050



Results from Breakout Session 1

Disruptive Technologies and Scenarios

- Smart meters, load shifting and smart business models could be very disruptive e.g. consumer participation in the energy market, demand-side response facilities, new ways to pay for energy etc
- Distant but potentially disruptive technologies e.g. synthesis of natural gas from CO₂ and H₂
- Self-driving vehicles, currently being trialled by Google, could drastically change transportation usage patterns
- We still have potentially 200 years of fossil fuels in the UK from underground coal gasification!

Key Emergent Theme

- Attendees had 'bought into' the vision of a low-carbon economy but were generally pessimistic about how realistic this vision is

Breakout Session 2: UK's Energy R & D Portfolio

Structure of Breakout Session 2

- Attendees split into 5 groups of approximately 4 to 5 people
- Each group was paired with a facilitator
- Groups were supplied with a consolidated version of the IEA's energy R & D nomenclature, which acted as an *aide memoire*
- Groups were asked to consider each category in terms of:

Scientific capability – The UK's capabilities with respect to research; applied research and development; and demonstration

Industrial capability – The UK's capabilities with respect to the deployment and commercialisation of the products of R&D, such as technologies, processes, services etc

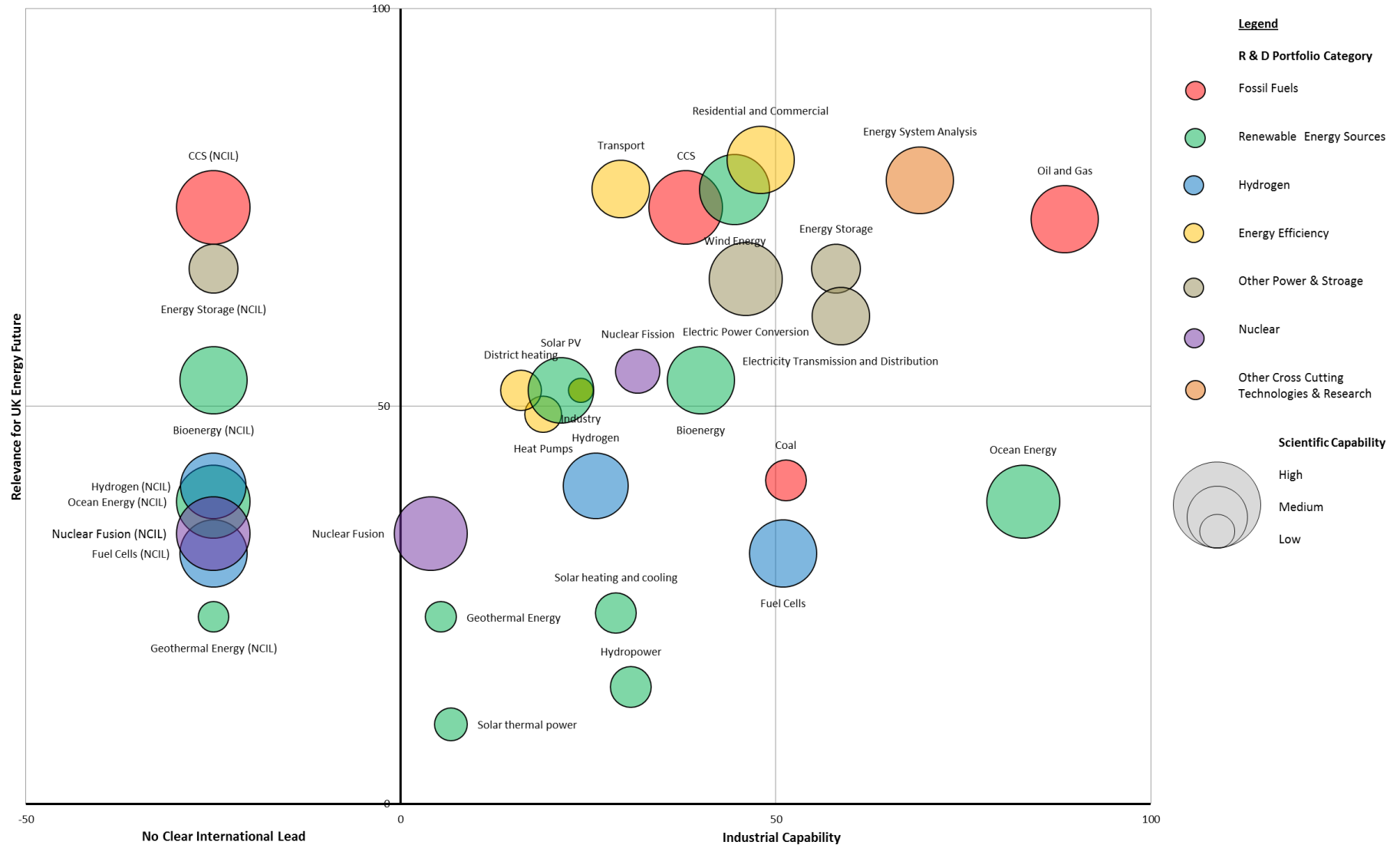
Relevance to UK's Energy Future – How relevant the technology is in terms of meeting the UK's energy policy goals relating to climate change, energy security and affordability

Breakout Session 2: UK's Energy R & D Portfolio

- Groups presented their majority verdict for each R & D category
- Recorded on worksheet in form of colour-coded post-it notes (see picture)
- According to their position, the categories were assigned a value of between 1 - 100
- **Industrial Capability** - Groups given the option of assigning categories a value of 'no clear international lead'



Results from Breakout Session 2



Key Findings from Breakout Session 2

Broader Findings

- A strong divergence across the groups relating to UK's scientific and industrial capabilities for different R & D categories. Also, their relevance
- Industrial and scientific capabilities likely to radically change between now and 2050. May improve or deteriorate with time
- UK considered to lead in certain 'pockets' of energy related R & D but not believed to be strong across the board
- External factors (e.g. climate change, market reform etc) thought to significantly influence UK's energy R & D portfolio: not merely a product of design but one of broader landscape changes
- Despite technological focus of session, attendees emphasized importance of social sciences to UK's energy future e.g. socio-technical analysis

Relevance of Workshop 1 to Workshop 2

- Workshop 1 focused on where we are now in terms of energy R & D and how things are likely to develop leading up to 2050
- In the context of the UK's current research capabilities and future energy needs, Workshop 2 primarily seeks to identify:
 1. How insights from scientific disciplines outside the classic science and engineering (EPSRC) domain might contribute to present and future UK energy research
 2. How these different disciplines might work in conjunction with one another
 3. How we might design research that draws upon a wide range of disciplines and research styles