

Research Challenges - Cross Cutting Issues - A User Perspective

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Summary

- Is it safe and reliable
- Economics
- Alignment of researchers and Industry
- Creation of a new industry
- What scale is feasible

What are we trying to achieve?

- Consent
 - That it is safe
 - That it will stay trapped underground

- Confirm that the business is viable
 - Understand costs
 - Components will work
 - Chain will work

The Major Issues

- Issue 1

- Is it safe and reliable?

- Expect the unexpected

- Issue 2

- Economics

- Hinckley Point = £100 per megawatt hour (MWh)
 - Euro 8.5 bn capex

What are the scientists doing?

- The Joy of Science: Excellence and its Rewards.
- Sindermann (1985) defined 'good science' as: "*....production of extensive data, rational insightful application of those data to hypotheses about natural events, and effective presentation of the resulting information and analysis to colleagues*".

- *Issue 3*
 - *Align research with Industry objectives*

New Industry

- Not just a new widget

- Whole system needs to work together

- Linked to electricity market
 - Fundamental to our society
 - Need to change electricity market operations

- Issue 4
 - Birth of an Industry
 - Recognise the scale of what we are trying to do and the linkages

 - Creating new markets for CO₂?

How Big Could CCS Industry Become?

- What is our storage capability?
 - Where are they
 - What dimensions are we considering?
 - UK / Europe / World markets

- Low carbon economy
 - How much of that is CCS?
 - What are the opportunities/threats for our communities?

- Issue 5
 - What is the scale of our ambition?