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CO_2 Storage Regulations and Implications

British Geological Survey

Some fundamentals

- UK CO_2 storage regulations are in place, with 28 licences awarded in total (+ one out of round). NSTA have issued guidance for applicants on technical aspects
- UK currently on track to store at least 20-30 Mtpa by 2030
- Provides growing experience of regulating subsurface activities and is generating significant new geological knowledge
- Regulations are precautionary, requiring a safety case which must demonstrate:
  - "Permanent and safe containment", of the estimated volumes over the project lifetime, at the rates required
  - Prediction requires sufficient understanding of the subsurface processes at multiple scales – pore scale to trap and beyond.
  - *Permanent* implies timescales well beyond the end of injection must be considered
  - *Safe* requires an assessment of risks, plans to mitigate risks and remediate impacts

What are the challenges?

- Following award of licence, developers in the first CO_2 storage round will take between 6 and 8 years before submission of their storage permit.
  - After this point, FID may be taken and construction initiated.
- This time is needed because there is a lot of site investigation, analysis, modelling and design required to provide confidence in the safety case.

- Meeting Net Zero is likely to require many more permitted storage sites
- The UK also has an opportunity to store CO_2 captured from Europe
  - For example: France has recently set a target for CCS with up to 50 Mt stored by 2050, all of which will be stored outside of France, at least in the short term (10-15 years)

What are the solutions?

- Continue to licence stores, to reduce risks of insufficient capacity in CB7 & CB8, and offer import opportunities
- Undertake pre-licence, pre-commercial appraisal to:
  - Reduce time to permit
  - Derisk sites
  - Optimise storage (to meet challenges of co-location, capacity, import)
  - Stimulate transformation to market-driven storage industry and economic return
- Create mechanisms to share knowledge to benefit other subsurface technologies for Net Zero
- Is there an opportunity to integrate regulations for other future geoenergy with CO_2 storage regulations?

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Thank you