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Interacting with Academia – a personal perspective

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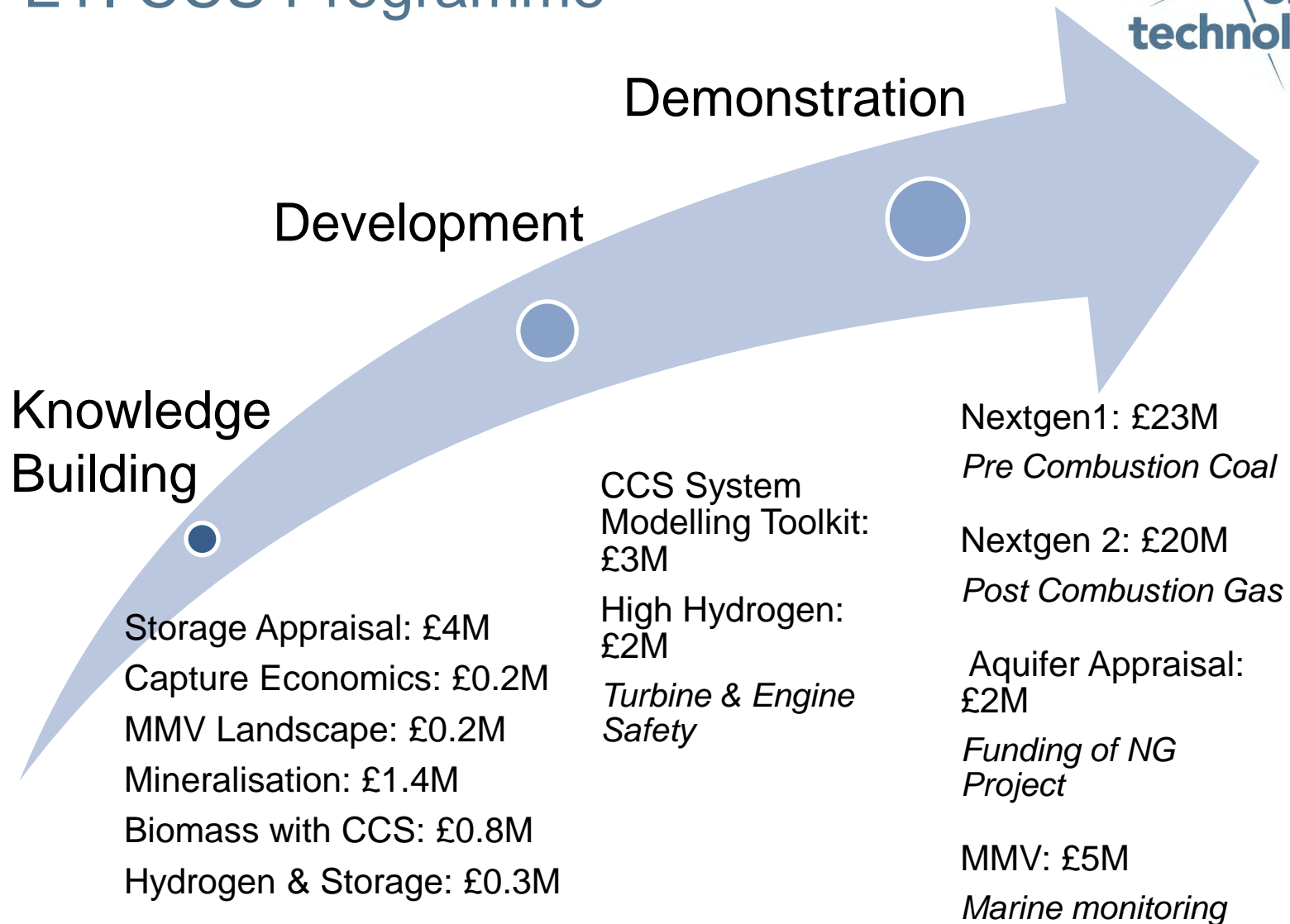
Who is the ETI?



- The Energy Technologies Institute (ETI) is a public-private partnership between global industries and UK Government
- Safeguarding affordable and secure future energy mix
- World-class strategic analysis and energy system modelling
- Strategic investment in proof of concept for new energy technologies
- Our projects impact economic development



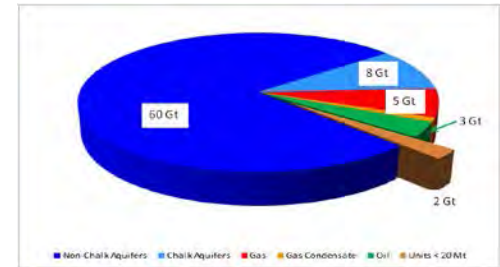
ETI CCS Programme



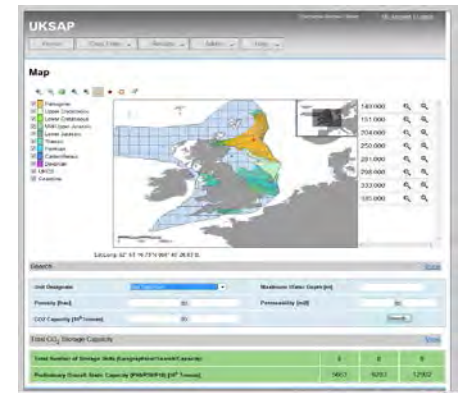
UK CO₂ Storage Appraisal Project: a Case History



- UKSAP delivered:
 - Realistic, defensible & fully auditable assessment of potential CO₂ storage capacity in the UK
 - Overall estimate of capacity – inform CCS investment decisions
 - Unique & comprehensive GIS storage database
 - Capacity
 - Security of storage
 - Economics
 - Underlying data



- UKSAP Database now licensed to TCE/BGS and available free to academic users



UKSAP Perspectives



Academic Perspective	ETI Perspective
Getting to contract with the ETI is difficult and time consuming	It's critical to make sure the structures are in place to ensure the project is delivered effectively, IP is properly protected and our Members and UK government have the rights to use the output
Administrative and project management requirements are a burden	It's really important to us that the outcomes are delivered on time and budget – reporting requirements are consistent with good project management practice
Confidentiality restrictions prevent us publishing and disseminating information	Our Members should benefit from the investments they have made, and IP needs to be protected, but where possible we encourage publication and enable use for academic teaching and R&D
We have been restricted from using the UKSAP database	We have taken great care to ensure that the integrity and long term future of the database is protected – it is now available free (under licence) to academia

It's been hard work – has it been worth it?



- From ETI's perspective – absolutely yes!
 - Cream of academic and industrial expertise brought together to significantly move forward UK storage appraisal
 - Development of common storage assessment methodologies have ensured consistency of input over multiple participants, and which is being adopted worldwide
 - Project delivered within the time a budget requirements
 - National CCS asset has been developed and its future secured
- What has academia gained?
 - Funding £1.2m, around 25 academic staff involved
 - 10 publications (so far) in learned journals/major conferences
 - Rights to use project results for academic research & teaching (now standard in ETI contracts), including access to www.CO2Stored.com
- Lessons Learned?
 - Make sure both sides fully understand the other's perspective and motivations

Capture – priorities for academia



- Low TRL, breakthrough technologies
 - Must offer potential for substantial cost and energy penalty reduction (> 50%?)
 - Should be realistic prospect of them ‘catching the wave’ of CCS implementation (20’s & 30’s?)
 - Novel cycles with breakthrough performance
- Improved understanding of current and ‘generation 2’ technologies
 - Fundamental understanding of capture technologies/cycles to support performance improvement
- Underpinning technologies
 - Advanced materials of construction for lower cost, higher reliability and/or enhanced process conditions
 - CO₂ and other CCS process fluid mixtures physical properties
- System modelling
 - Understanding the impact of capture on the system (& vice versa)
 - Plant flexibility/dispatchability



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