

Decoupling Capture from Transport and Storage

Gardiner Hill, Vice-Chair ZEP

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Advancing the Business Case for CCUS
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ZEP introduction

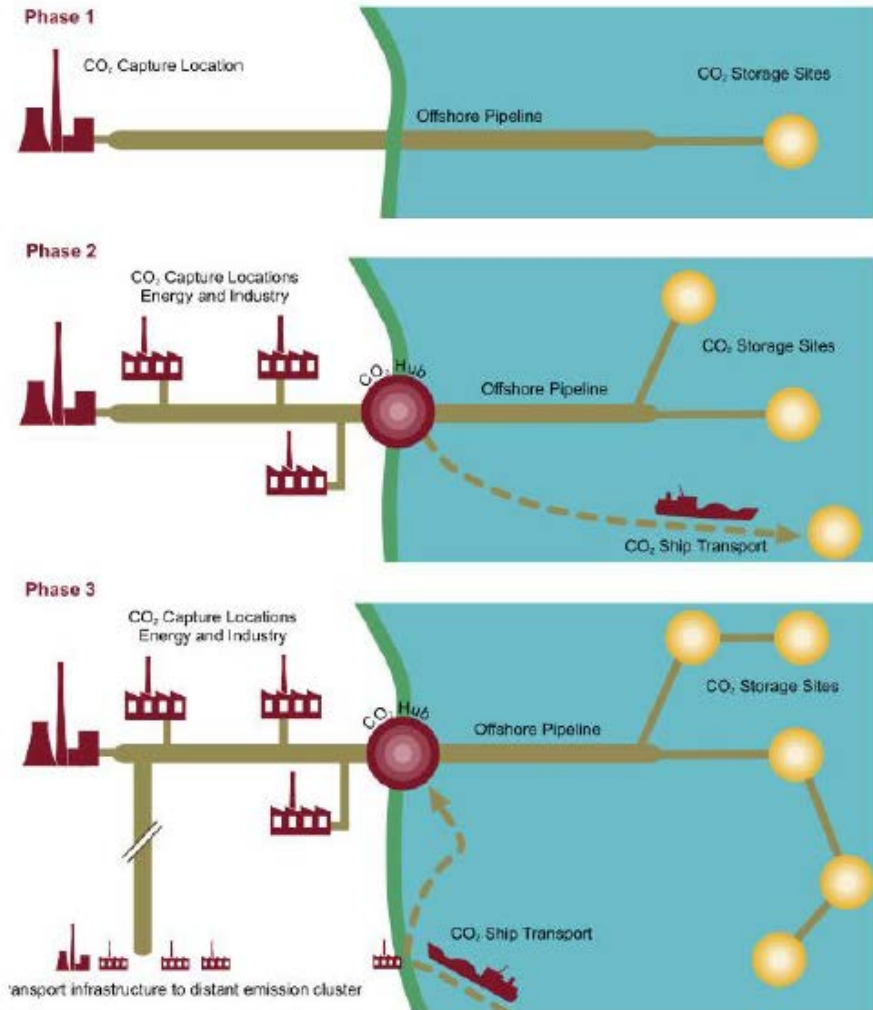


- ZEP is a unique coalition of CCS stakeholders – supported by the European Commission – to deliver the following objectives;
 - Enabling CCS as a key technology for all CO₂ emitting sectors including electricity, energy intensive industry and producers of hydrogen and biofuels
 - Making CCS an investable technology by 2020
 - Accelerating next generation RD&D of CCS technology and the widespread deployment post 2020
 - Enabling CCU as a part of the portfolio of options available for CO₂ emitters
- ZEP modelling has demonstrated the importance of CCS to the European economy
 - Value of CCS for the EU exceeds €1 trillion by 2050 and more than €50 bn per year thereafter
- ZEP reports have highlighted the importance of decoupling CO₂ transport and storage infrastructure to realise investible CCS and significant cost reductions

<http://www.zeroemissionsplatform.eu/>



ZEP vision on CCS deployment



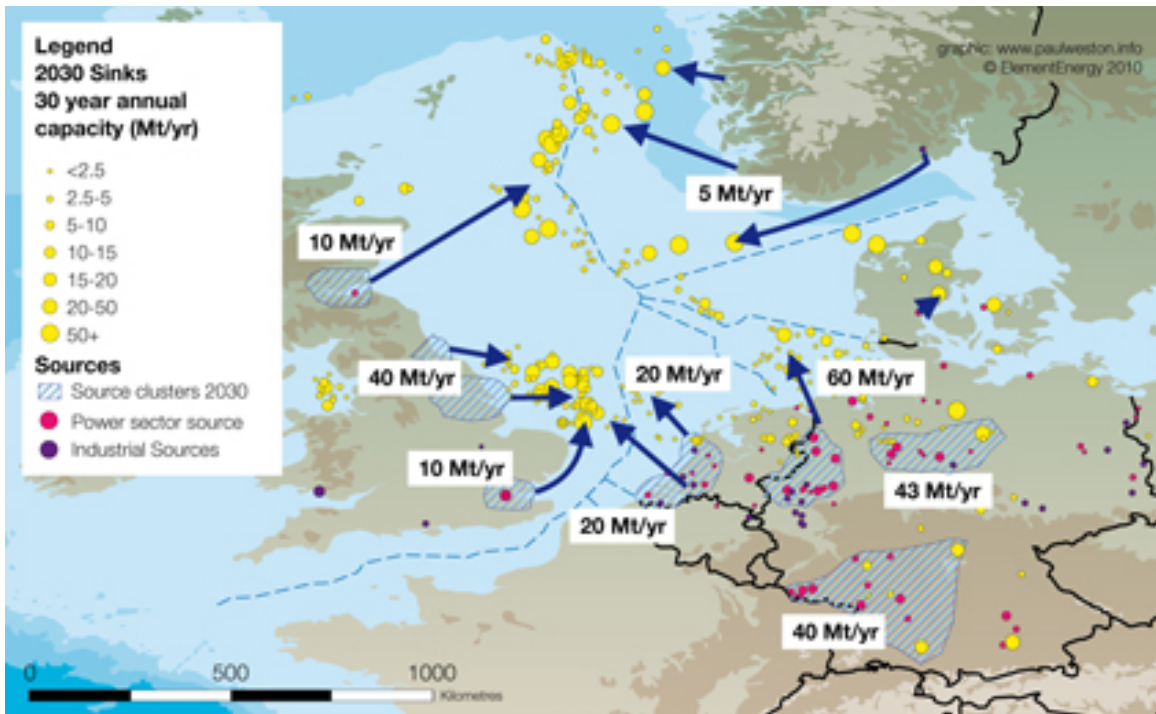
- CCS deployment enabled by first projects – located in prime locations – which expand into CO₂ hubs that serve the region and potentially neighbouring countries.
- Largest cost-reductions realised where transport and storage infrastructure is shared, and de-coupled from CO₂ capture.
 - Supports emission reductions across industry, power and – via clean Hydrogen – heating and transport.
- ‘Market Makers’ may be required to service emitters who wish to capture CO₂ from their operations, by;
 - Developing CO₂ storage and transport infrastructure
 - Transporting and storing captured CO₂ on a commercial contract basis
 - Taking the operational storage risk

European CCS & CCU 2020 targets



- Member States, industry and European Commission have recently agreed new 2020 targets to progress CCS and CCU
- Implementation Plan established to deliver targets – includes a four activities that focus on supporting infrastructure
 1. Progress multiple regional CCUS clusters, including feasibility for a European H₂ infrastructure
 2. Support at least one transboundary CO₂ infrastructure project in the North Sea
 3. Establish a European CO₂ Storage Atlas
 4. Advance small-scale storage projects to increase European storage experience

Transboundary CO₂ infrastructure



- Sharing infrastructure may also require movement of CO₂ across national boundaries
- Europe has established “Projects of Common Interest (PCIs)” to assist in permitting and funding CO₂ transport infrastructure
- Four PCIs adopted and could form the starting point for pan-European CO₂ infrastructure

London Protocol still a potential barrier to these projects as insufficient ratifications of the amendment to allow transboundary movement of CO₂

Conclusions and recommendations for CSLF countries



- Development of shared CO₂ transport and storage infrastructure is an important enabler for widespread, cost-effective CCS deployment
- Opportunities for early CCS projects to contribute to strategic, regional CO₂ infrastructure should be identified
- Targeted policy and funding mechanisms are needed to deliver strategic infrastructure from storage appraisal through to construction and operation
- Cross-border cooperation on CO₂ hubs is needed for countries without access to storage capacity. The London Protocol currently a barrier for some of these projects
- Understanding the value of CCS to decarbonisation efforts is key to ensure that infrastructure investments are consistent with the Paris Agreement