Lessons From ZEP
Long-Term Options for Decarbonisation

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Lessons for CCS Progress

1. **Knowledge sharing** is key. ZEP’s collaborative approach to encourage best practice is delivering tangible ($) value.

2. **Infrastructure planning** needs to happen now. Early strategic planning can deliver value and will ensure faster progress to commercial scale.

3. **Faster action** by governments and industry is needed to secure the benefits of CCS.
European Technology Platform for Zero Emission Fossil Fuel Power Plants

ETP Role: define a strategic agenda for the development and deployment of technologies in the EU involving major economic or societal challenges.

• Initiated by the European Commission in 2005
• **Unique coalition of stakeholders:** European utilities, petroleum companies, equipment suppliers, scientists, academics & environmental NGOs
• Over 300 members from 19 countries

ZEP’s Objective: Enable commercial availability of CCS by 2020 and kick-start widespread deployment
EU CCS Demonstration Programme

- Validate technology
- Bring down costs
- Contribute to public awareness

Brings forward a deployable technology at an affordable cost!
ZEP as advisor on entire range of activities

2007 ZEP Vision for EU CCS demo programme

- 2008: ZEP proposal for CCS demo programme
- 2009: ZEP recommendations on NER funding
- 2009: ZEP CCS knowledge sharing proposal
- 2010: ZEP Long-Term R&D report
- 2011: ZEP CCS Cost Reports

2008: EU agrees to co-fund programme

2009: EU passes legislation on CO₂ geological storage

CCS Project Network launch

2010: CCS European Industrial Initiative + CCS Roadmap (within SET plan)
ZEP’s Knowledge Sharing Proposal

- Published October 2009
- The result of in-depth discussions among ZEP experts, wider CCS community and EU governments
- In the range and depth of knowledge proposed to be shared, it has no precedent
- Central to the EU CCS demonstration programme – but can be used as a model for other programmes
- The goal: accelerate technology development, drive down costs, build confidence in CCS – and achieve commercialisation by 2020
ZEP Principles for Knowledge Sharing

- Maximise sharing...without compromising innovation
- Share significantly above minimum legal requirement, e.g. to obtain permits
- Provide full transparency, while ensuring stakeholders only receive the information they need
- Distinguish between stakeholders: Contributors to the demo programme, Non-contributors, Research Institutes, Government/EU, Public/NGOs
- Distinguish between categories of knowledge and levels of detail – Detailed, Medium, Aggregated
- Share knowledge on a reciprocal basis with EU and developed countries and on a reciprocal or asymmetric basis with developing countries
The Costs of Post-Demonstration CCS in EU

- Published July 2011
- Publicly available cost data on CCS are scarce
- Reliable base for ZEP estimations used new, in-house data provided exclusively by 15 ZEP member organisations
- Complete CCS value chains; individual reports analyse costs for CO$_2$ Capture, Transport & Storage
- Focus on new-build coal- and gas-fired power plants, located at generic site in N. Europe from early 2020s
- Study features a **BASE** and an **OPTIMISED** case
- Establishes reference point for costs of CCS, based on a “snapshot” in time (investment costs referenced to Q2 2009)
ZEP 2011 CCS Cost Reports
Key Findings

1. CCS will be cost-competitive with other low-carbon power technologies. All three CO\textsubscript{2} capture technologies could be competitive once successfully demonstrated.

2. If best practices in the report are applied to CCS projects these could deliver a $15/tonne value.

3. Early strategic planning of large-scale CO\textsubscript{2} transport infrastructure can deliver a further $15/tonne of value.

4. A risk-reward mechanism is needed to realise the significant aquifer potential for CO\textsubscript{2} storage.

5. CCS requires a secure environment for long-term investment

6. Without the ZEP’s collaborative approach the industry would not have been able to make this progress.
The ZEP model - Lessons Learned

• ZEP model proves the value of integrated technology platforms.
• Cost report shows real ($) value from collaboration and demonstrates sharing of best practice delivers fast progress.
• More collaboration is needed, within and across regions.
• Technology platforms could play a greater role – giving advice on local and regional infrastructure issues related to NAMAs and could enhance coordination in directing NAMAs towards the necessary activity in individual economies or regions.
• A collaborative approach could also form part of the international framework to meet various 2020 goals.
European Technology Platform for Zero Emission Fossil Fuel Power Plants

www.zeroemissionsplatform.eu