

# 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**





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**





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 CO<sub>2</sub> 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**

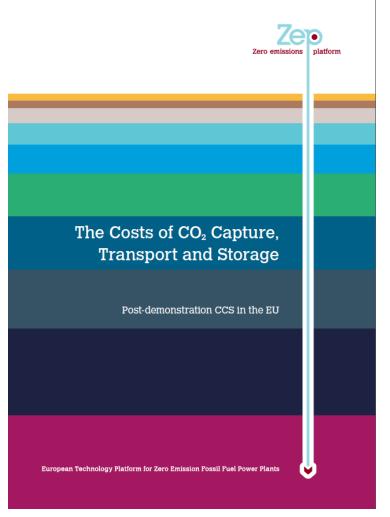
- Maximise sharing...without compromising innovation
- > Share significantly above minimum legal requirement, e.g. to obtain permits
- Provide full transparency, while ensuring stakeholders only receive the information they need
- Distinguish between stakeholders: Contributors to the demo programme, 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<sub>2</sub> 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**

- Zero emissions platform
- CCS will be cost-competitive with other low-carbon power ↓
  technologies. All three CO₂ 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<sub>2</sub> 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<sub>2</sub> 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