

Z E P
Technology Platform
Zero Emission Fossil Fuel Power Plants

European Technology Platform ZEP - a major EU Stakeholder Initiative

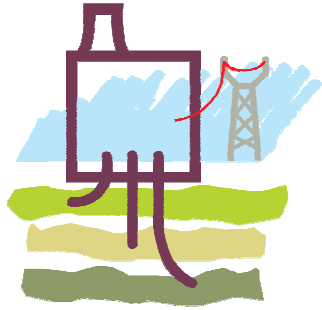
Nick Otter

ZEP Co-ordination Lead

and

Director of Technology and External Affairs, ALSTOM Power Ltd

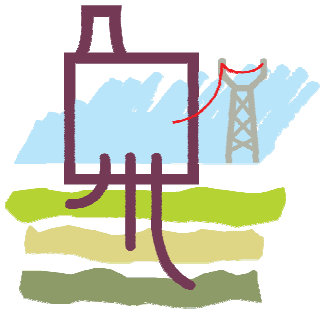
CSLF CCS Workshop, Paris on 27th March 2007



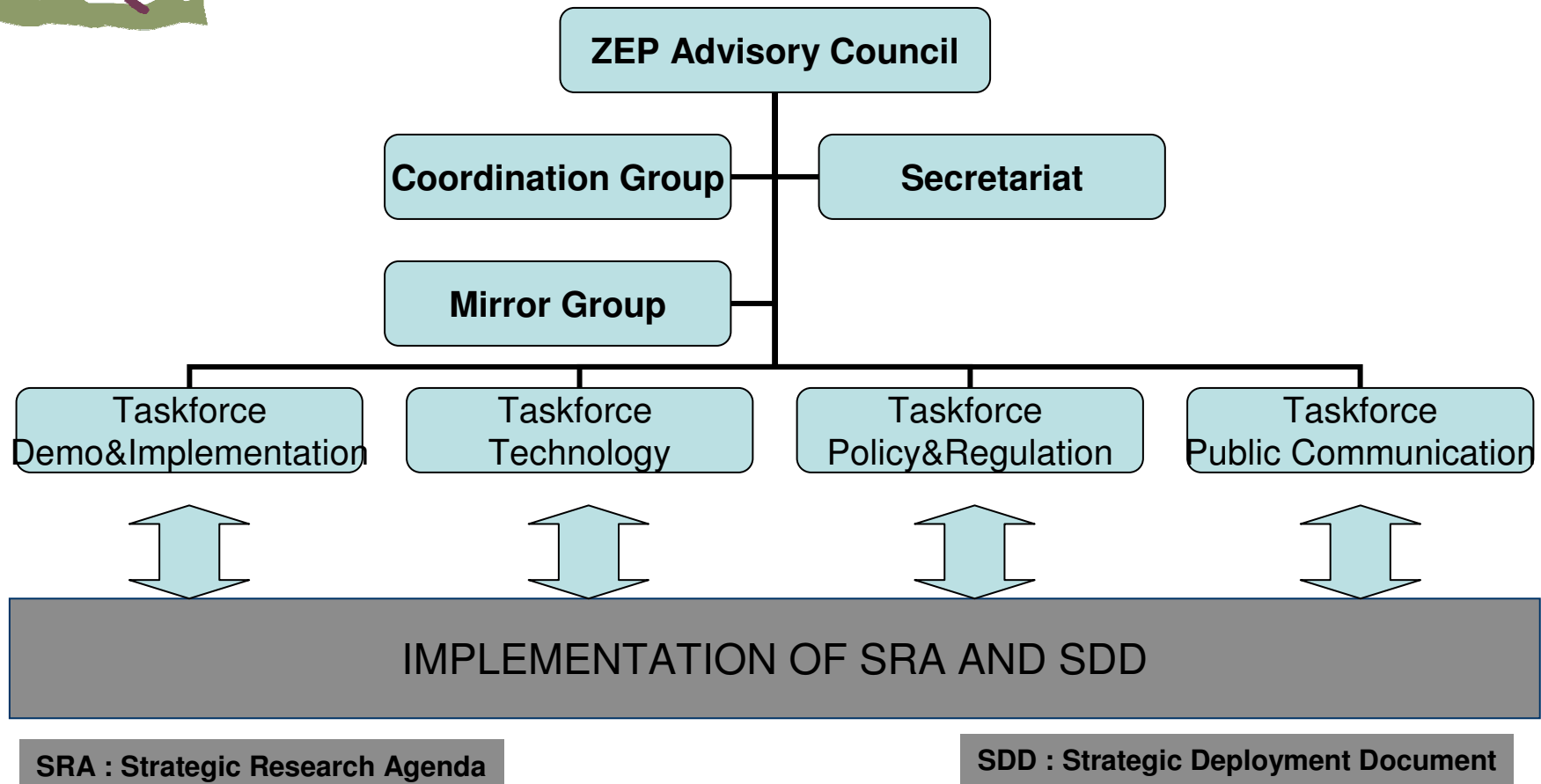
ZEP : Set-up and Vision

The Vision: To enable European fossil fuel power plants to have zero emission of CO₂ by 2020.

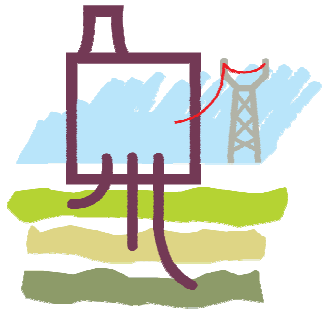
- **Primary task to set strategic research agenda (SRA) and deployment document (SDD) for a major European action**
- **Advisory Council formed in June 2005**
 - **6 Generators:** E.ON, Endesa, Enel, Energi E2, RWE, Vattenfall
 - **6 Equipment suppliers:** Ansaldo, ALSTOM, Air Liquide, Foster Wheeler, Doosan Babcock, Siemens
 - **5 Oil and Gas:** BP, Shell, Statoil, Total, Schlumberger
 - **5 Research:** BGS, CIRCE, IFP, Polish CMI, GEUS
 - **3 NGOs:** Bellona, Climate Action Network Europe, WWF
 - **Chair:** Kurt Haege/Vattenfall **Vice-Chairs:** Olivier Appert/IFP, Gardiner Hill/BP, Charles Soothill/ALSTOM, Frederic Hauge/Bellona
- **Formally launched 1st December 2005**
- **First General Assembly 12-13th December 2006**



ZEP : Organisation



~200 individuals from 19 countries
57% industry, 39% research, 4% NGOs



ZEP : Member State Mirror Group

- Countries involved

- **UK*** Chair
- **Germany*** Vice-Chair
- **Norway*** Vice-Chair

plus

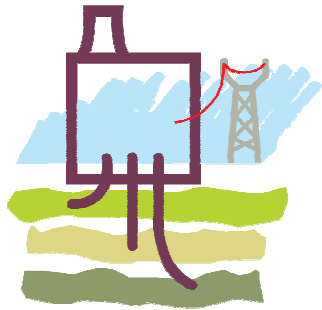
- Austria **Denmark*** Finland **France***
- **Greece*** **Italy*** **Netherlands*** Poland
- Portugal Spain Switzerland

- Support from **EC***

- FENCO (Clean Fossil Energy) Co-ordination Action

Linked to government actions

* CSLF member countries

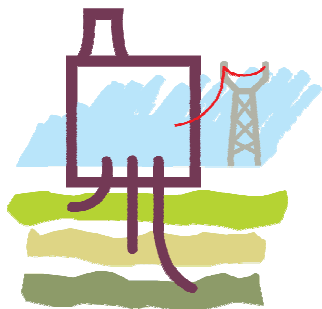


ZEP : Strategic Recommendations

**Strong endorsement
from stakeholder and
government community**

**ZEP General Assembly
Brussels 12-13th
September 2006**

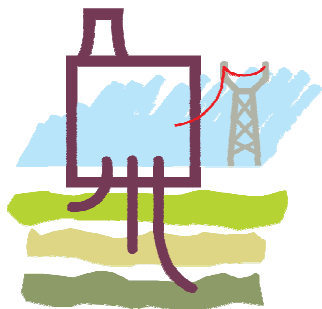




ZEP : SRA Recommendations

The Strategic Research Agenda describes a collaborative programme of technology development for reducing the costs and risks of deployment

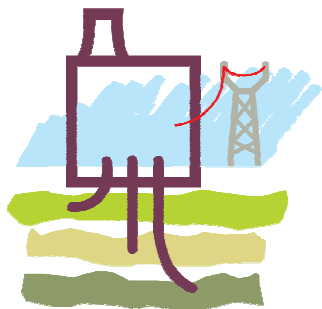
- **Urgently implementing 10-12 integrated, large-scale CCS demonstration projects Europe-wide**
- **Developing new concepts already identified, but not validated, for demonstration by 2010-2015 and implementation beyond 2020**
- **Supporting long-term exploratory research into advanced, innovative concepts for implementation of next-generation technology by 2050**
- **Maximising cooperation at national, European and international level**
- **Strengthening and accelerating R&D priorities to support the Strategic Deployment Document, informed by experience from demonstration projects and parallel R&D projects.**



ZEP : SDD Recommendations

The Strategic Deployment Document outlines how to accelerate the market for efficient zero emission power production.

- **Kick-starting the CO₂ value chain with urgent short- and long-term commercial incentive**
- **Establishing a regulatory framework for the geological storage of CO₂**
- **Gaining public support via a comprehensive public information campaign**
- **Establishing robust RD&D funding under EC and national programmes:**
 - Improve energy conversion efficiency, reduce cost and reduce scale-up risk of CO₂ capture technology
 - Undertake EU-wide mapping of large CO₂ sources and geological storage
 - By 2008, establish a portfolio of mechanisms for maximising European co-operation.

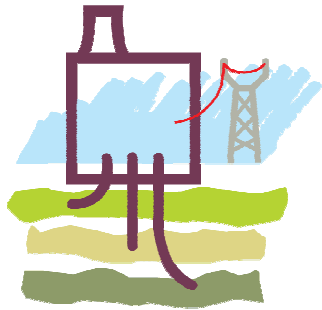


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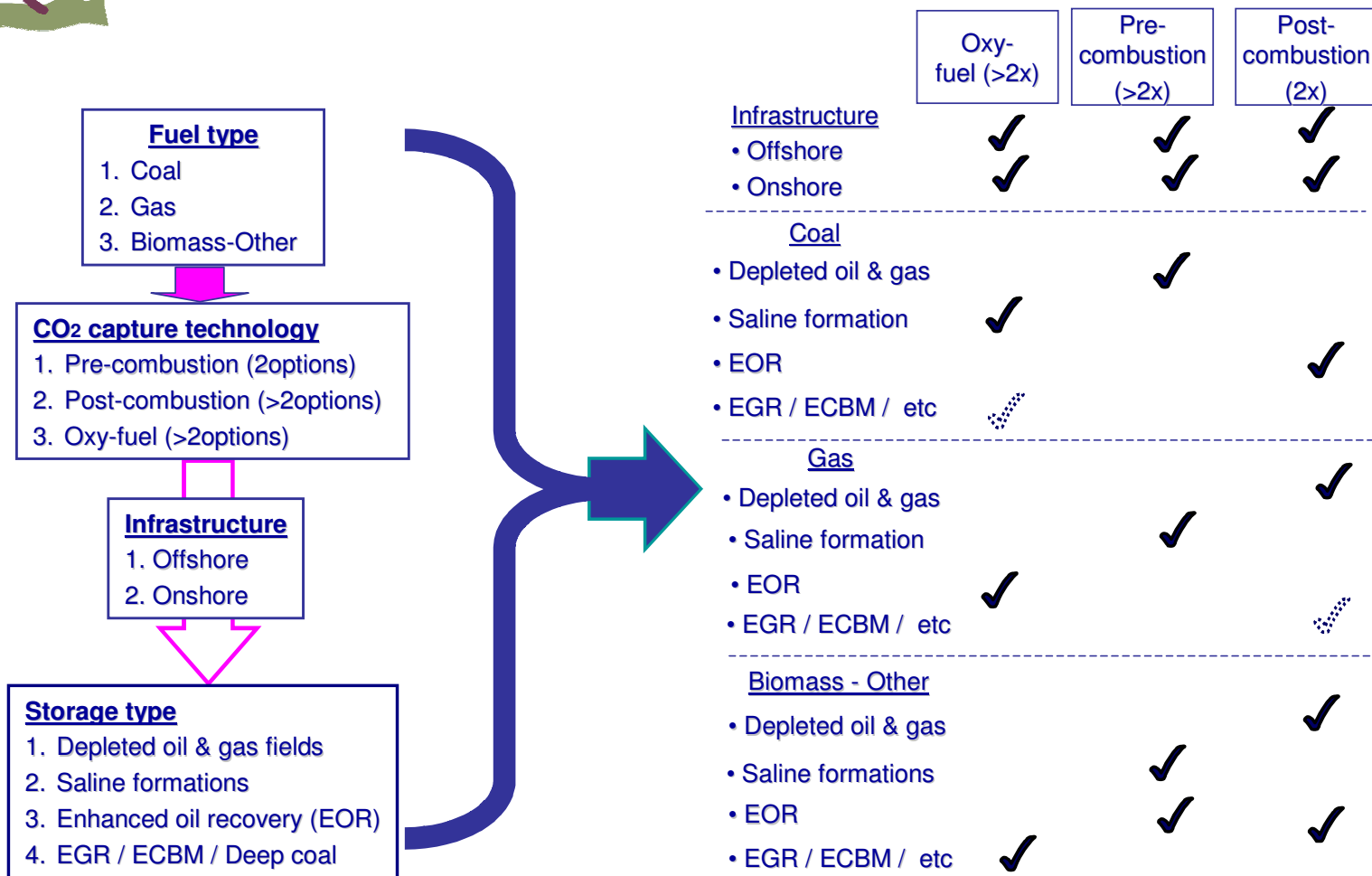


STRATEGIC RECOMMENDATIONS

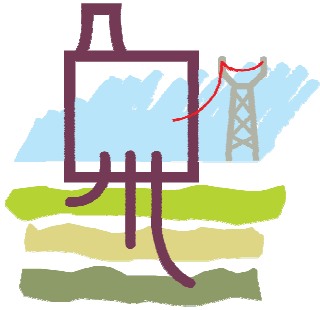
Major input to EC Energy Package of 10th January 2007 especially the Communique on Sustainable Power Generation from Fossil Fuels



ZEP : Flagship Programme



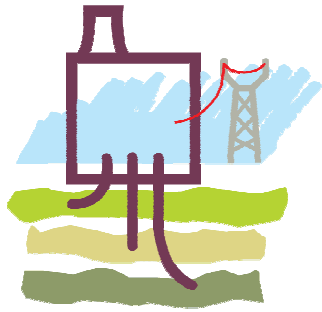
Multiple technology combinations demand a programme approach



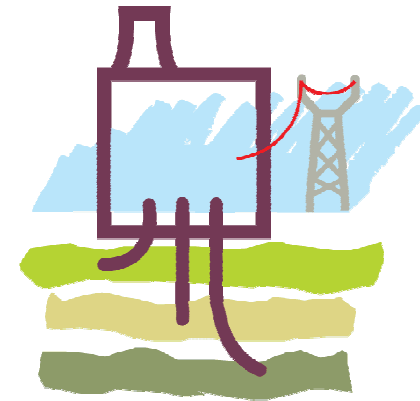
ZEP : Summary

- **A major initiative addressing a key issue**
 - Setting pathway for zero emission fossil fuel power generation
 - Important in European and global context
 - Technology applicable for world application
 - Retrofit
 - New plant
- **A major action involving all stakeholders**
 - All appropriate industrial sectors
 - Research community and technology providers
 - NGOs
 - Governments

**Has had and will continue to provide major input to EC
Will take forward an EU-wide ZEP Flagship Programme**



Thank you for your attention



www.zero-emissionplatform.eu