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EC activities on CCS from the research perspective

6th CO2GeoNet Open Forum May 9-11, 2011, Venice

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EU Strategic Policy Objectives

- **Europe 2020 – smart, sustainable and inclusive growth**
Headline targets, including **3% of GDP** invested in R&D
- **EU energy policy targets - sustainability, competitiveness and security of supply**
- **Innovation Union flagship initiative - COM(2010) 546**
 - A strategic and integrated approach to research and innovation
 - Make Europe attractive for research and innovation
 - **Common Strategic Framework** focusing on societal challenges, competitiveness and research excellence
- **Energy research and innovation**
 - SET-plan (joint programming, PPPs)



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SET-Plan – the technology pillar of EU energy and climate change policy

Objectives:

- To accelerate the development of a portfolio low carbon technologies leading to their market take-off
- To achieve targets of the *Europe 2020*, while at the same time investing in RD&D for the *2050 horizon*

Main elements:

- Joint strategic RD&D planning between *EU Member States, Industry, Research Community and the EC*
- Non bureaucratic Governance (*High level Steering Group with MS and EC*)
- Increase in resources- financial & human
- Reinforce international cooperation



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SET-Plan



Implementation:

- **European Industrial Initiatives (EII)**
- **European Energy Research Alliance (EERA)**
- **Trans-European Energy Networks and Systems of the Future**

Information and Monitoring system (SETIS)



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European Industrial Initiatives (State of play)

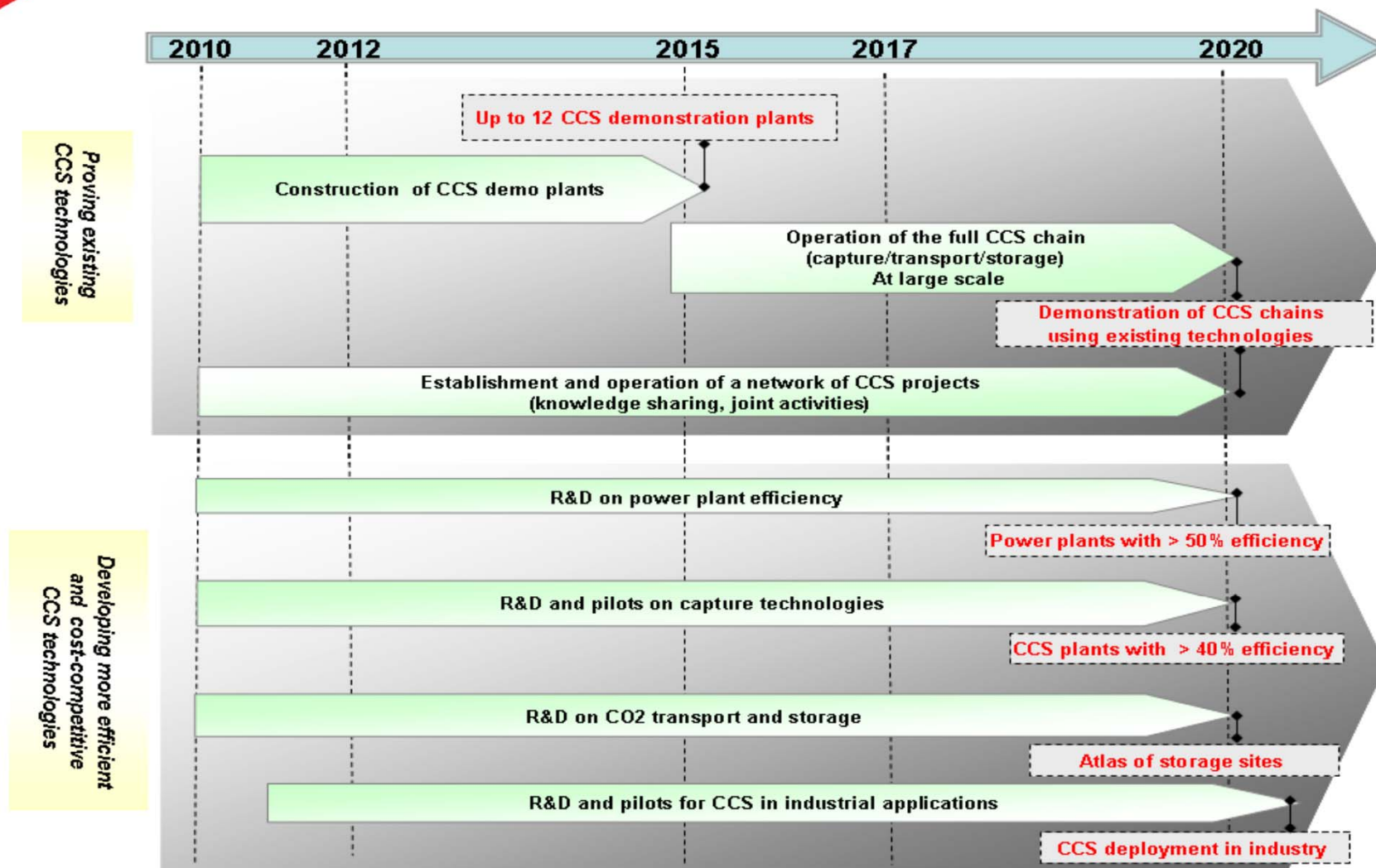
- **Launched**
 - **CCS European Industrial Initiative on 3 June 2010 in Madrid**
- **Joint Statement supported by the public (EC, MS) and private side (relevant industry)**
- **All parties committed to support:**
 - **Technology Roadmap 2010-2020**
 - **Implementation Plan 2010-2012**
 - **Close cooperation, light governance structure**



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EII on CCS – Technology Roadmap 2010-2020





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SET-Plan European Energy Research Alliance

Initiative by a number of leading European research institutes (Oct. 2008)

Aim: to accelerate development of new energy technologies through Joint Programmes (JPs)

EERA Joint Programme on CCS

- *32 members, 12 MS, 270 py/year*
- *launched on 15 November 2010 at the SET Plan Conference in Brussels*
 - CO2 Storage joint programme - Coordinated by Sergio Persoglia (OGS)
 - Aims towards a safe and wide deployment of geological CO2 storage



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CCS – Regulation, Financial support and incentives

- **CCS directive, Member States transposition by June 2011**
- **Economic Recovery programme – 6 CCS demo projects supported (1.0 bn €)**
- **NER 300 (300m allowances dedicated for CCS and innovative RES)- Deadline for submission by MS, 9 May. *Each CCS project to contain an independent research block related to safety of storage sites.***
- **CCS Project Network provides knowledge sharing and public engagement to first EU demonstration projects**
- **European Industrial Initiative on CCS – CCS lighthouse (pilot-scale) projects**
- **EC Communication on new Energy Infrastructure Instrument covering CO2 pipelines, November 2010**



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Carbon Capture and Storage (CCS) Framework Programmes in support of research

EU Framework Programmes

About 86 M€ spent on CCS in FP5 & FP6

FP7 : 2.3 b€ for Energy

✓ More than 100 M€ spent or earmarked for CCS so far

FP7: Support to CCS and CCT in 2011

✓ *FP7 Call (2011-1) DG RTD : Indicative EC funding: 16 M€*

✓ *FP7 Call (2011-2) DG ENER: Indicative EC funding: 20 M€*



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FP7: EC support to CCS

Call (2007): focus on capture (EC funding 17.4 M€)

- ✓ Advanced capture techniques (3 projects)
- ✓ Support to regulatory activities for CCS (**STRACO2**)

Call (2008): focus on storage (EC funding of 10 M€)

- ✓ Transport infrastructure (**CO2EUROPIPE**)
- ✓ Public acceptance (**NEARCO2**)
- ✓ Qualification of deep saline aquifers (**MUSTANG**) -8 M€

Call (2009) (EC funding :27 M€)

- ✓ Advanced capture technologies (4 projects)
- ✓ Storage safety (**RISCS**) -4 M€
- ✓ Transport infrastructure 3 projects (**COCATE, COMET CO2PIPEHAZ**) -7.4 M€



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FP7 : current developments

- **Call 2010 (EC funding :10 M€)**
 - **Demonstration of advanced capture technologies**
– no project funded
 - **Site characterisation - SITECHAR**
 - **Site abandonment - CO2CARE**
 - **Trans-national cooperation - CGS EUROPE**
- **Call 2011 (Stage 1 - closed 16 November 2010, Stage 2 - closed 26 April 2011)**
 - **Indicative EC funding : 16 M EUR**
 - New liquid solvents for post-combustion capture
 - Understanding the long-term fate of stored CO₂
 - IGCC for high-ash coal (India)



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FP7 : the next Call

- ***Work Programme 2012 will be published before this summer:***
 - **Topic 1: Sizeable pilot tests for CO₂ geological storage**
 - **Topic 2: Impact of the quality of CO₂ on transport and storage behaviour**
 - **Topic 3: New “secretariat” for the ZEP Technology Platform**
- ***Total budget for CCS Call 21,5 M€***



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What we expect from a pilot

- ***Topic 1: Sizeable pilot tests for CO₂ geological storage***
 - Demonstrate technologies and protocols for safe storage
 - Real-time monitoring and visualisation
 - Mitigation/remediation of leakage
 - Open Access laboratories for research and training
 - Public engagement and education
 - Cooperation with industrial demo plants
- ***Maximum EC contribution in the order of 9 M€, 2 projects can be funded***
- ***Substantial part of the funding expected to come from third parties!***



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Other European Commission Activities On CCS

- ✓ **Support to the European Technology Platform on Zero Emission Fossil Fuel Power Plants (ZEP)**
- ✓ **Coordination of MS research activities – “FENCO” ERA-Net of 12 MSs and Norway**
 - The “FENCO-Net” network was launched (without EC funding) in November 2010
- ✓ **International Cooperation**



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International Cooperation

Membership of international level:

- **Carbon Sequestration Leadership Forum (CSLF)**
- **International Energy Agency (IEA)**
- **Global CCS Institute (GCCSI)**

Established bilateral S&T cooperation:

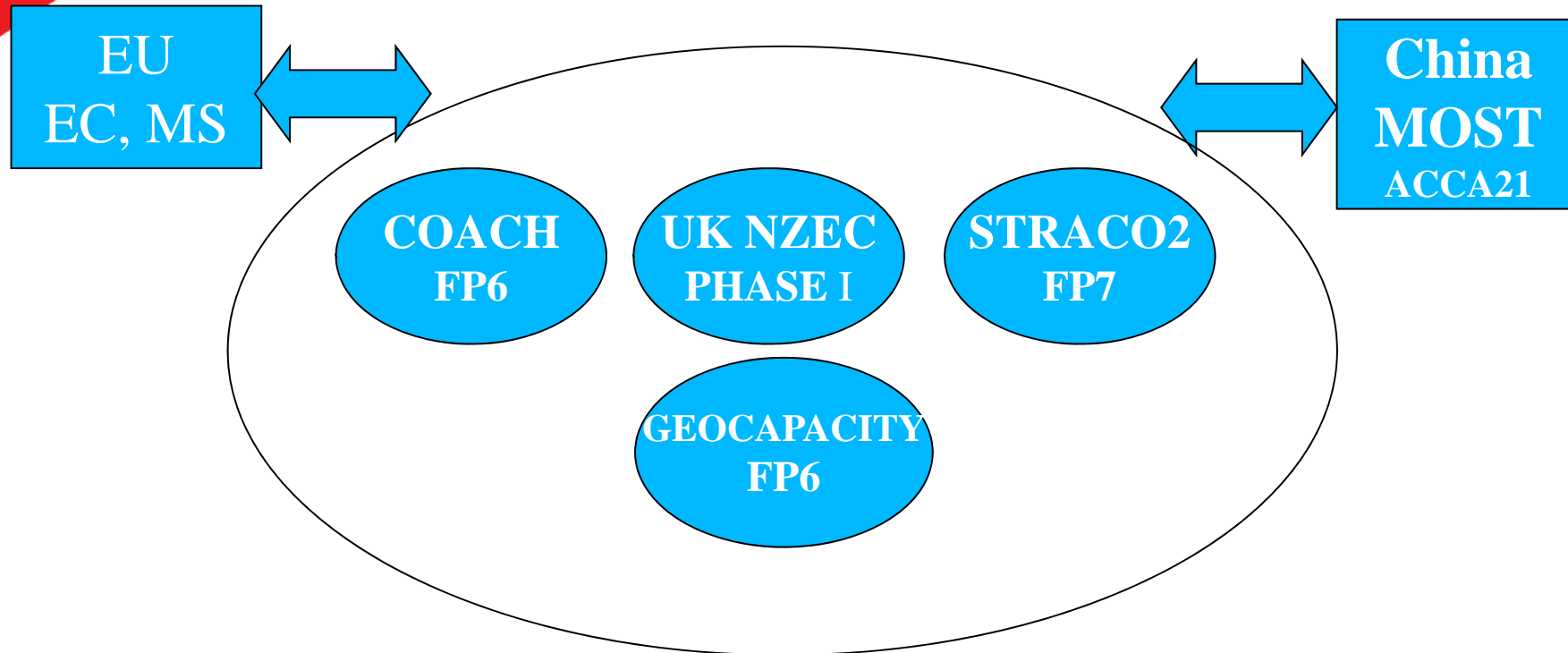
- **USA – EU-US Energy Council Working Groups**
- **Japan – expert workshops and site visits planned**
- **Canada – workshop in May 2010**
- **China – NZEC project**
- **India – call topic on Clean Coal Technologies**
- **South Africa – fact finding mission 2009**
- **Australia – joint workshop/visit is organised for Dec. 2011**



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EU-China NZEC Phase I



**-Conclusion of Phase I and Joint Workshop, October 28 -29 ,2009
Beijing**

- 30 November 2009 :Signature of the EU-China MoU Phase II in Nanjing

- Phase IIA pre-feasibility and project identification is on-going with support from EC, UK and Norway.



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Public Awareness and Acceptance

- **The deployment of CCS will not take place without public acceptance at local level**
- **Research is needed to understand the nature of various public concerns (e.g. environmental, ethical, economic, cultural...) and mechanisms**
- **CCS Project Network, ZEP, CO2GeoNet, CGS EUROPE, play an important role in public outreach**
- **FP Research projects: ACCSEPT, NEARCO2 , FENCO-ERANET, SiteChar**
- ***FP7 call:* FP7-SCIENCE-IN-SOCIETY-2011-1, Deadline : 20 January 2011**



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Green Paper: Towards a Common Strategic Framework for EU Research and Innovation Funding

- ***Consulting on major improvements to future EU research and innovation funding***
 - Covering the FP, CIP and EIT in a Common Strategic Framework
 - With a coherent set of funding instruments along the whole innovation chain (from basic research to market uptake)
 - And far reaching simplification of procedures and rules
- ***For the next EU Budget (to start in 2014)***
- ***Seeking stakeholder views ahead of the Commission's formal proposals (Deadline 20 May 2011)***
 - On the proposed improvements
 - On the priorities of the Common Strategic Framework



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Looking ahead

- **Continuation of public research efforts, including FP7, in support of the demo programme and to develop next generation CCS technologies is a part of the SET plan priorities**
- **Financing of the demo projects has public support (Recovery Plan, NER300)**
- **Interaction between demo projects and research is necessary**
- **Knowledge sharing has to be ensured**
- **Extension to other carbon-intensive industries is planned**
- **Public awareness and acceptance of CCS is now a top priority**



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Thank you for your attention

Gateway to information:

<http://cordis.europa.eu/en/home.html>

For everything for SET plan

http://ec.europa.eu/energy/technology/set_plan/set_plan_en.htm

A link to Energy research in FP7

<http://cordis.europa.eu/fp7/energy/>

***The Energy research
in Europa***

http://ec.europa.eu/research/energy/index_en.cfm

International cooperation in Energy research

http://ec.europa.eu/research/energy/eu/policy/intl-coop/index_en.htm