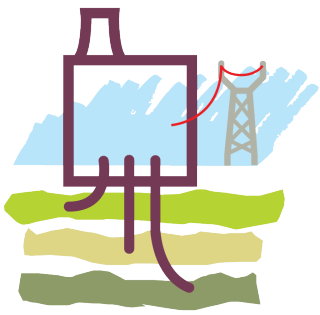


ETP-Z E P

European Technology Platform
Zero Emission Fossil Fuel Power Plants

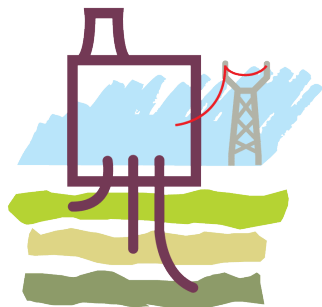
ETP-ZEP Scene setting

Presentation
for AC#13, 16 November 2007



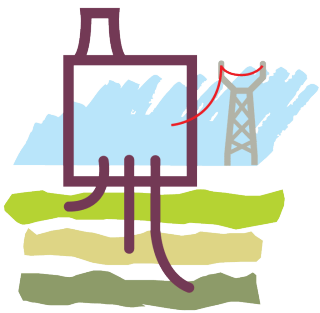
Issues for scene setting

1. What did we agree at last AC-meeting?
2. Feed back GA
3. Progress EC on CCS:
 1. TREN: the communication
 2. ENV: the CO2 storage directive
 3. RES: the SET plan
4. Our prospects on industrial scale CCS-projects



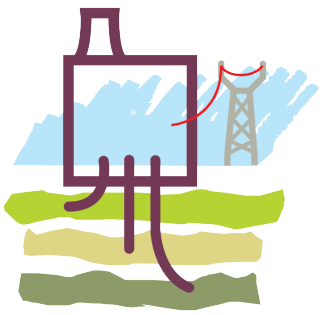
Summary conclusions previous AC-meeting

1. Approval of the high level proposal of the flagship programme
2. Approval estimate CCS-R&D funding needs (800-1.000 MEuro)
3. Approval of the proposed way forward of the taskforce Technology. Next steps:
 - Coordination FP7 – national programmes
 - Mapping the need for additional finance for R&D
 - By initiating public-private partnerships
4. Approval of the proposed public communication strategy
 - Initiate immediate public information campaign
 - Target media and key stakeholders
 - Utilise effective communication channels
 - Focus on early mover CCS-projects
 - Taylor messages and communication tools
 - Establish resources



General Assembly key data

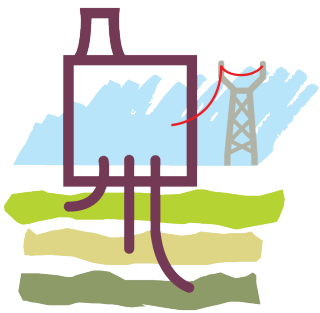
- 1-day event, attended by 300 people, similar to last GA
- Cooperation with CO2-symposium, 10% overlap in participants
- Cost estimated at Euro 65 K
- Separate press conference, 12 journalists, articles in le Monde and some smaller papers



Feed back from GA

Organisational issues

- One day was enough
- Next GA: less speakers and presentations, a better focus
- Panel discussion better than last year, but external moderator is preferred
- Combination with another event was good
- More time for panel discussion, external moderator is preferred
- Next GA: try to get more representatives of member states



Feed back from GA

Progress CCS debate

Participation

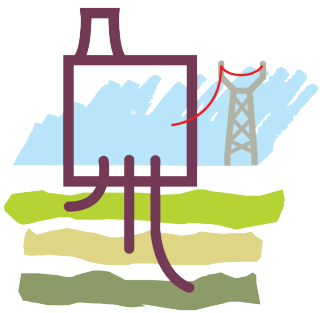
- Supply industry not visible (alstom = exception)
- Bellona doing well, but we miss other NGO's

General objectives

- CCS and flagship programme accepted by everyone
- Top industry leaders committed to rapid action
- Legal framework developing satisfactorily

Financing

- Financing flagship programme not settled, flagship programme still a vision, Risk of losing momentum and delays
- Need for practical proposals on funding mechanisms. Push for extra ETS-allowances is counterproductive
- Commitment to demo's of some ZEP-members as well as supply industry insufficient



Feed back from GA Action

Policy issues

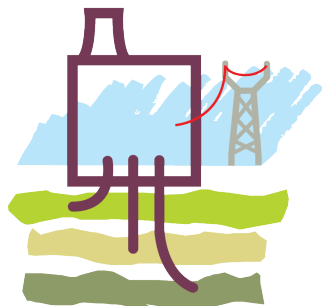
- Give policy development around flagship programme a second push
- Discuss possible future actions, focus on R&D, public communication
- Make transport&storage network a focus area of ZEP
- Clarify position member states
- Reinforce ZEP-messages in the SET-plan

Funding issues

- Emphasize that the EC stays to its financial commitments (FP7)
- Focus on funding on a member state level

Internal issues

- Taskforces now need clear instructions
- Better coordination ZEP: speak with one voice
- Build vision on infrastructure



SET-plan summary draft 4-10

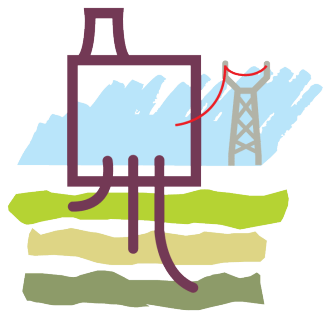
CCS among targets 2020

The SET-plan will be published on 21 November.

Draft may change

For 2020: improve performance and lower costs of existing technologies

- Make second generation biofuels competitive to hydrocarbons....
- Enable commercial application of technologies for CCS through focused R&D efforts including demonstration at industrial scale
- Double the output of the largest wind turbines
- Demonstrate commercial readiness of large scale photovoltaics ...
- Enable a single European electricity grid to accommodate integration of renewable and distributed energy sources....
- Step change in energy efficiency in energy supply, transport, etc.
- Maintain competitiveness in fossil technologies ...

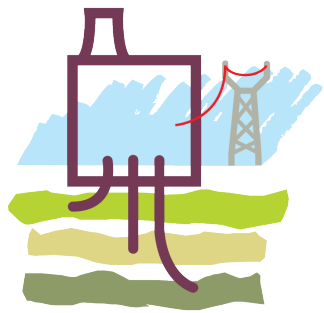


SET-plan summary draft 4-10

CCS NOT among targets 2050

For 2050: New generation of technologies, and major organisational & infrastructural changes:

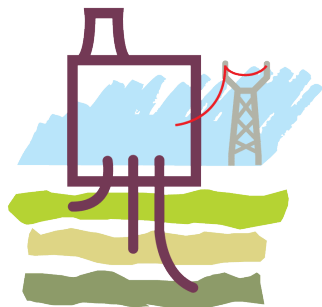
- Bring next generation renewables to market competitiveness
- Achieve a step change in efficiency of energy storage tech's
- Enable industry to commercialize hydrogen fuel cell vehicles
- Prepare for demonstration of new generation fission reactors
- Complete the ITER fusion facility
- Develop alternative vision on trans-European energy networks, develop coherent transition strategies



SET-plan summary draft 4-10

EU has a supportive role

- Industry at the forefront of efforts
- Member states have the responsibility to achieve their 20% targets for 2020
- EU should stimulate and support member states, e.g. through 7FP, addressing common problems etc.



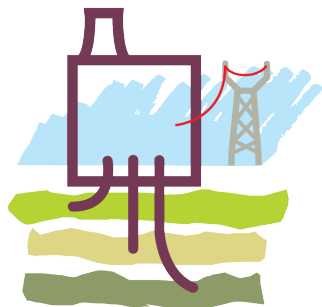
SET-plan summary draft 4-10

Objective and approach

SET-plan will focus, strengthen and give coherence to the overall effort in Europe, with the objective of accelerating the development and global market take up of cutting edge European low carbon technologies

Joint strategic planning:

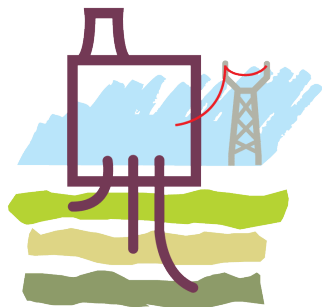
- A new governance structure: EU steering group on energy research and innovation
- EU Energy technology conference
- EU energy Technology Information system



SET-plan summary draft 4-10

3 levels of intervention

- 6 European industrial initiatives proposed (e.g. ITER, JTI on hydrogen and fuel cells):
 - European wind initiative
 - Solar europe initiative
 - Bio energy europe initiative
 - **European CCS initiative**
 - European electricity grid initiative
 - Sustainable nuclear fission initiative
- Strengthening energy research capacities
 - Energy research board
 - Virtual European energy research institute
- Trans European energy networks and systems of the future

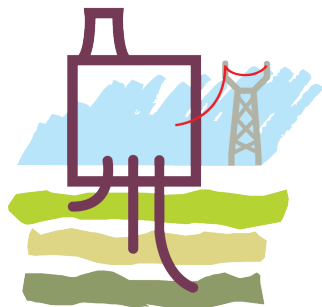


SET-plan summary draft 4-10 resources

Financial:

- Increased budgets of 7FP (annual 574m → 886m)
- Call on member states to step up spending
- High level group on financing low carbon technologies: prepare a report **in 2008** addressing needs and sources, avenues for raising additional funds. In particular it will examine the opportunity of creating a new european mechanism/fund for industrial scale demonstration, early deployment ...

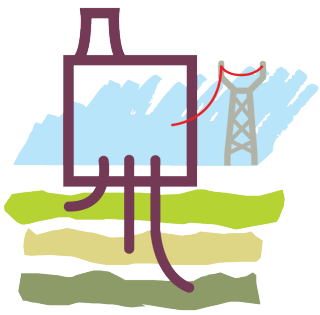
Human resources → researchers



SET-plan summary draft 4-10

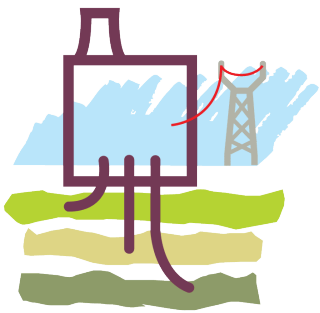
summary actions

1. New governance structure, incl. steering group on energy research & innovation, to launch European Industrial Initiatives, to be established first half 2008
2. Stimulate EU industry to invest more and take risk, e.g. regarding European Industrial Initiatives, by public-private cooperation
3. Strengthen national research capacities, establish energy research board first half 2008
4. Stimulate member states to spend more on energy R&D
5. Take account of needs of energy sector in review of EU budget and mid term review FP7
6. Establish high level group to find sources for public/private investment in low carbon technologies



DG TREN: communication (1)

- Title: supporting early demonstration sustainable power generation from fossil fuels
- History: stagnated temporarily
- Expected release: 23 January
- Current status: interservice consultation. Only illegal copies circulate.

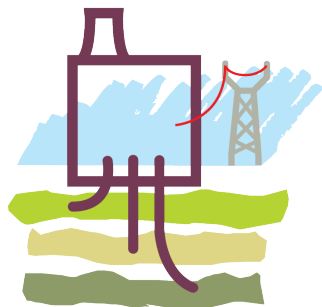


DG TREN:

TREN communication (2)

What we believe to be the contents:

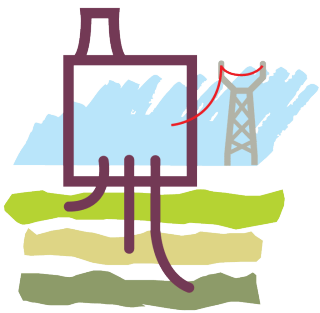
- Financial public support for CCS is needed
- Call for quick adoption regulatory framework by member states
- CCS is strategic technology: Call for increased R&D spending by member states, and offer to coordinate R&D (joint strategic planning)
- Support structure: Set up of a secretariat and regular calls for projects. Criteria to be set in 2008. Sales offer network: share info on progress & experience in exchange for visibility, a “EU-logo” and state aid clearance. Indirect reference to flagship programme. Informal advisory group of industry, society and member states
- Catalyze finance
 - Industry should make clear and early material commitments
 - EU paves the way for memberstate financing
 - High level group for raising EU-funds
- Include CO2 infrastructure in TEN-E programme



DG ENV, Progress

Risk management framework

1. Capture and transport regulated under existing instruments
3. Free-standing legal framework for storage
 1. Risk management requirements covering exploration, site selection, operation, monitoring, reporting, closure and post-closure
 2. Long-term liability dealt with by transfer to the Member State
 3. Provisions on access to the transport and storage network
 4. Capture-ready requirements, but no mandatory CCS at this stage



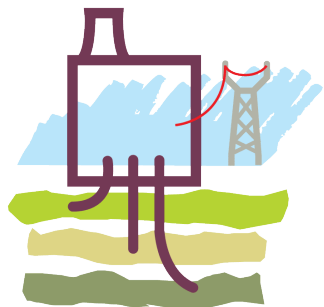
DG ENV, progress Storage

1. Relation with the ETS clarified

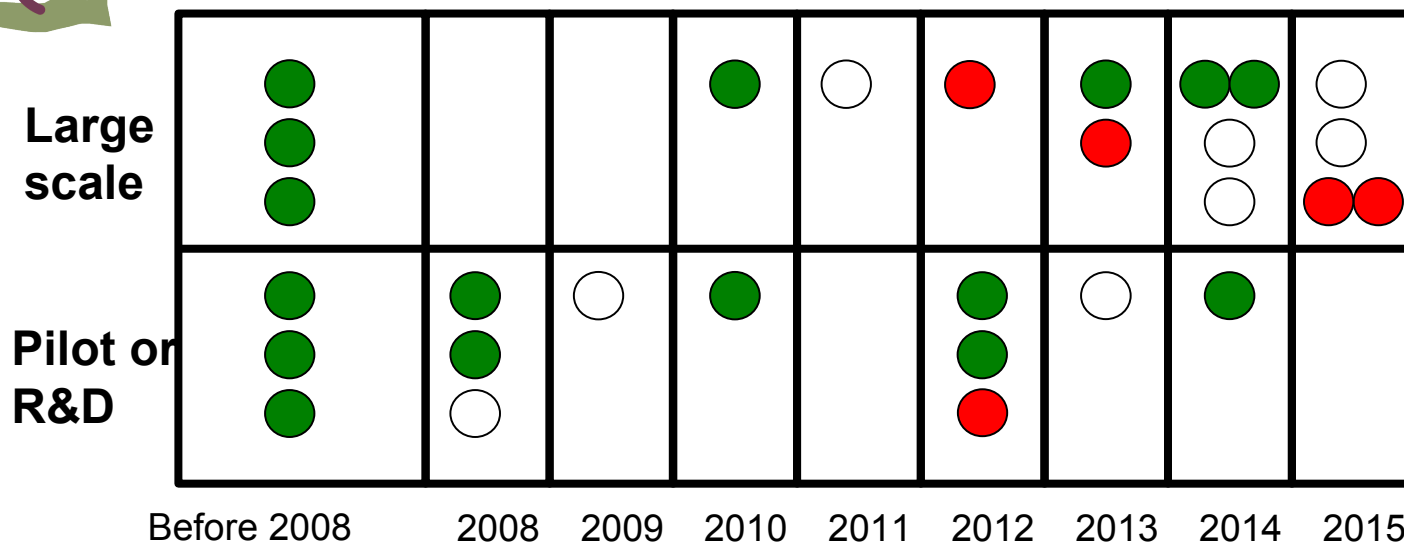
- CO₂ captured, transported and stored considered as not emitted
- Revised ETS will include capture, transport and storage separately in Annex I

2. Legal barriers to CCS removed

- Water Framework Directive amended
- CO₂ captured, transported and stored removed from the scope of the waste legislation
- Ratification Decision for amendment to OSPAR Convention to be tabled together with the enabling legal framework.



Currently known European CCS projects until 2015



- Low cancellation risk
- High cancellation risk
- Cancellation risk unknown

Remark: few of the ● projects are regular CCS-projects. Many are EOR, refinery, cryogene separation

7 year delay introduction CCS → 90 GT avoidable CO₂ emissions by 2050 (Shell), resulting in an increase of 10 parts per million in atmospheric CO₂ concentration (target: limit total increases to less than 100 ppm above today's level.")