



Expert sub-Groups on Emerging Technologies

EGTEI

ENERGY SECTOR

**Test for the Power Generation
(LCP > 500 MWth)**



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PG 2050 Group: description and limits

Proposal of emerging technologies classification:

- ∅ Technology not available in 2020 (R&D evolution)
- ∅ Technology available in 2020 but with economical barriers
- ∅ Technology technically and commercially available in 2020 but with possible technical improvements



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PG 2050 Group: description and limits

Emerging technologies concerned:

- ∅ Primary and secondary measures
- ∅ CO₂ capture (post-combustion, oxycombustion, pre-combustion)

Make a distinction between:

- ∅ Existing plants (before 2020) without capture ready and still operational between 2020-2050
- ∅ Existing plants (before 2020) with capture ready and still operational between 2020-2050
- ∅ New plants built from 2020



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PG 2050 Group: description and limits

Focus on PM, SO_x, NO_x and CO₂ emissions

Have a more global view on a technology taking into account the whole process

Focus on LCPs > 500 MWth and load factor taken into consideration

Need for judgement from industrial, national administration and research experts



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PG 2050 Group: Organisation

Kick-off meeting in ADEME Paris, June 7th, 2007

2nd meeting: end of September 2007

3rd meeting: December 2007

∅ Draft report (January 2008)

4th meeting: February 2008

∅ Final report (April 2008)



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Questionnaire

Do you know reference documents useful for sub-group?

- Ø Document of EU-project “Assessment of the air emissions impact of emerging technologies”
- Ø Strategic Deployment Document (ETP ZEP)
- Ø IPCC Special Report on Carbon Dioxide Capture and Storage
- Ø CO₂ capture Ready Recommendations of European Power Plant Suppliers Association (EPPSA)
- Ø ...



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Questionnaire

Do you know reference Internet sites useful for sub-group?

∅ IPCC Special Report on carbon dioxide capture and storage
<http://www.ipcc.ch/activity/srccs/index.htm>

∅ IEA: web resources on CO₂ capture and storage
<http://www.co2captureandstorage.info>

∅ European Technology Platform on Zero Emission Fossil Fuel Power Plants (ETP ZEP)
<http://www.zero-emissionplatform.eu/website/>

∅ Club CO2
<http://www.clubco2.net>

∅ ...



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Example of France: Club CO₂

Key element in the organisation of French research in the field of CO₂ capture and storage

A response to the need to more effectively federate national efforts

Missions of Club CO₂

- ∅ Identify the broad orientations and the major challenges to be targeted by scientific and technical programmes
 - ü Proposal of R&D programme on CCS (2005)
- ∅ Recommend to decision-makers of research funding bodies that inter-disciplinary efforts should be initiated and expanded
- ∅ ...



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PG 2050 Group: Type of contribution

| Pollutant and CO ₂ | Abatement techniques or techniques of power generation with CO ₂ capture | Abatement efficiency (%) | Energy consumption | CO ₂ impact | Maturity (*) | Horizon of deployment (2020, 2030, ...) | Penetration rate | New or existing plant | | Retrofit factor | Costs | | |
|-------------------------------|---|--------------------------|--------------------|------------------------|--------------|---|------------------|-----------------------|----------|-----------------|------------|-----------|--------------|
| | | | | | | | | New | Existing | | Investment | Fixed O&M | Variable O&M |
| NO _x | | | | | | | | | | | | | |
| SO _x | | | | | | | | | | | | | |
| ... | | | | | | | | | | | | | |



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Conclusion

Identify emerging abatement techniques to reduce air emissions and CO₂ emissions

Assess at 2030 and 2050 horizons:

- ∅ abatement efficiency
- ∅ energy consumption and CO₂ impact (GAINS model)
- ∅ penetration rate

If possible, provide cost assessments



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Thank you for your attention