

Direction Production et  
Energie Durables

Service Entreprises et Eco-Technologies

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**EGTEI 19**  
**06 may 2011**


**Emerging technologies sub-group**  
**(EmTech 50-500)**

**Progress of work**

**Emmanuel FIANI**



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EGTEI19 - EmTech 50-500 progress

- **Mandate by WGSR47**
  - “Continue the work on emerging technologies for combustion plants lower than 500 MW”
  - EmTech 50-500 builds on the work completed by LCP2030 on LCPs > 500 MWth (july 2008). Eg : catalytic combustion.
  - EmTech 50-500 also builds on work achieved by other EGTEI sub-groups (eg SCI sub-group)
- **Overall aim of the sub-group**
  - get new information on abatement techniques and technologies which are emerging
  - useful for extending the abatement techniques/technologies in the GAINS model (remaining gap between MTRF and no-effect level) and for the LCP BREF revision which started earlier this year
  - Why 50 MWth?: because of current Gothenburg Protocol



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**What is an emerging technology?**

- Pilot plant scale and demonstration plant scale
- Improvements of existing abatement techniques / technologies
- Techniques / technologies applied in other domains (emerging applications)
- New abatement techniques / technologies


**Detailed aim of EmTech50-500**

- Time horizon: 2030
- Information needed: environmental performance (NOx, S, PM), rate of penetration for new and existing plants, energy consumption/CO2 impact, costs.

**Focus (or not focus)**

- 50 and 500 are not strictly fixed borders: possibilities of downscaling or upscaling
- Peak loads plants are not in the scope
- Combustion plants in the sense of the LCP directive (commercially available fuel)
- Natural gas, hard coal and biomass = priority
- Technologies causing no significant air emissions not in the scope (eg fuel cells)

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**Process (secretariat by KIT)**

1. Data collection:
  - bibliographical study + proactive contact (suppliers,...) by KIT
  - information from EmTech50-500 members (reports, experts,...)
2. Analysis of this information proposed by KIT
3. Final analysis by the sub-group
4. Report to EGTEI

**Where are we now?**

- 2 meetings: Paris, 02 feb 2011 + Rome, 05 may 2011
- Stage 1: data collection

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**Data collection**

- Techniques in association with CCS developments (advanced wet FGD, advanced dedusting) → SO<sub>x</sub> < 25 mg/m<sup>3</sup> and TSP < 3 mg/m<sup>3</sup> are possible
- Multipollutant abatement techniques → applicable for small LCPs
- Hybrid monopollutant techniques → interesting for existing plants (retrofitting)
- Coal and biomass gasification → good APC needed, better electrical efficiency, small LCPs, but competition with BtL market, pilot plants up to 45 MWth.
- Emerging fuels
- Lignite predrying → significant increase in efficiency, 2015, effect on PM/NO<sub>x</sub>/SO<sub>2</sub> ?
- Turbines / new Possibilities → DLN/liquid fuel, process gases (inc. low BTU fuel utilization), H<sub>2</sub> vs low NO<sub>x</sub>, IGCC (CCS + lower S/PM/NO<sub>x</sub> emissions),...
- Flameless combustion → already implemented in industrial furnaces, R&D program with an aim to commercial availability for boilers before 2030, objectives: NO<sub>x</sub> < 50 mg/m<sup>3</sup>, higher efficiency

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**Next steps**

- 22 june 2011: meeting in Paris (rough data information/data collection)
- 1 oct: deadline for data collection
- [1-15] oct : meeting (data analysis) in Paris
- november 2011: draft report by KIT
- 21 nov 2011: final meeting in Warsaw (back to back w/ EGTEI20)
- dec 2011 / jan 2012: final report for EGTEI
- Spring 2012: presentation of results at EGTEI21 mtg

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