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Community Research

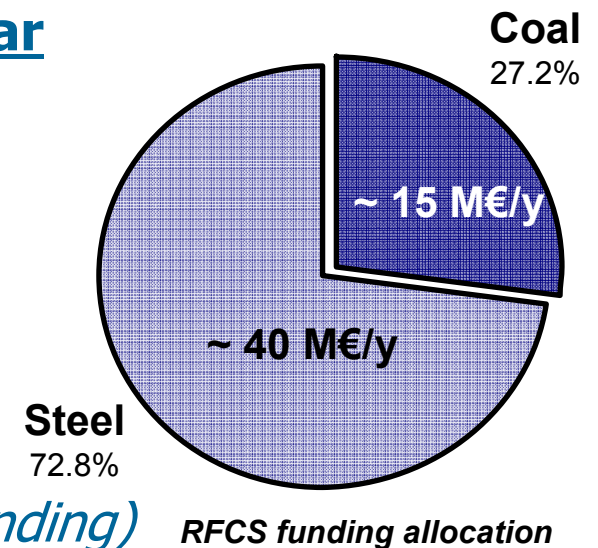
Research Fund for Coal and Steel (RFCS)

PoISCA Meeting
15 April

Alan HAIGH
Head of Unit DG RTD G.5

WHAT is the RFCS Programme?

- A research fund with a **budget of ~55 M€/year**
- **Promoting industrial research** in the field of
 - Coal and Steel
- **Open call for proposals for**
 - **Research projects** (*60% funding*)
 - **Pilot & Demonstration projects** (*50% funding*)
 - Accompanying measures
 - **Deadline: in principle, September 15th of each year**
- Outside the FP...yet closely co-ordinated & complementary





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RFCS Information Day

Facts and Figures

- **Typically 40 Million € per year for Steel \approx 30 Grant agreements**
- **Typically 15 Million € per year for Coal \approx 8 Grant agreements**
- **Approximately 350 Grant Agreement running at any one time**
- **440 Million € invested in Coal and Steel research since 2003**
- **Good mix of Industry, academia and research centres**
- **Scientific, technical, innovative projects, well defined objectives**
- **Can be complimentary to other funding**
- **Typical funding, 1 to 2 Million €. Occasionally as large as 5 Million €**



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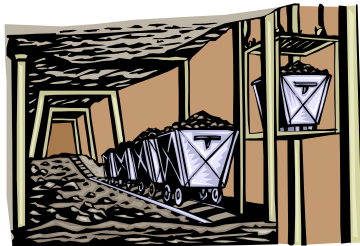
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WHO can participate?

- Any legal entity established in any of the Member States
- Consortium size – no minimum - but typically 4 to 8 participants
- Not necessarily directly connected with the coal or iron and steel industries but the project has to be within the scope of the programme
- Partners from Candidate or Third Countries are welcome (though not eligible for EC funding)

RFCS - COAL research: Funding distribution & activities

Total RFCS funding allocation for COAL projects
from 2003 to 2011*: **136.6 M€**



SOURCING

36%

49 M€

- Coal mining
- CO₂ geol. storage
- Underground gasification
- ...

CONVERSION

19%

26 M€

- Coal preparation
- Coal gasification
- Synfuels
- ...

COMBUSTION

45%

61 M€

- Clean coal tech.
- CO₂ capture
- Co-combustion
- ...



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RFCS Flagship projects

COMTES700

Component Test Facility
for a 700°C Power Plant

- ✓ Testing of advanced materials
- ✓ Budget: 15 M€ (initial) - 40% by RFCS
- ✓ 17 partners from 6 EU countries
- ✓ Final Objective:

$\eta > 50\%$ Coal Power Plant



Host Plant: E-ON Scholven F, Gelsenkirchen (D)

DG RTD G.5 – Research Fund for Coal & Steel (RFCS)

ULCOS

Ultra-Low CO₂ Steelmaking

- ✓ Selection of promising steelmaking routes
- ✓ Budget: 55 M€ - co-funded by RFCS & FP6
- ✓ 48 partners from 13 EU countries
- ✓ Final Objective:

50% CO₂ reduction in steelmaking



15 April 2011

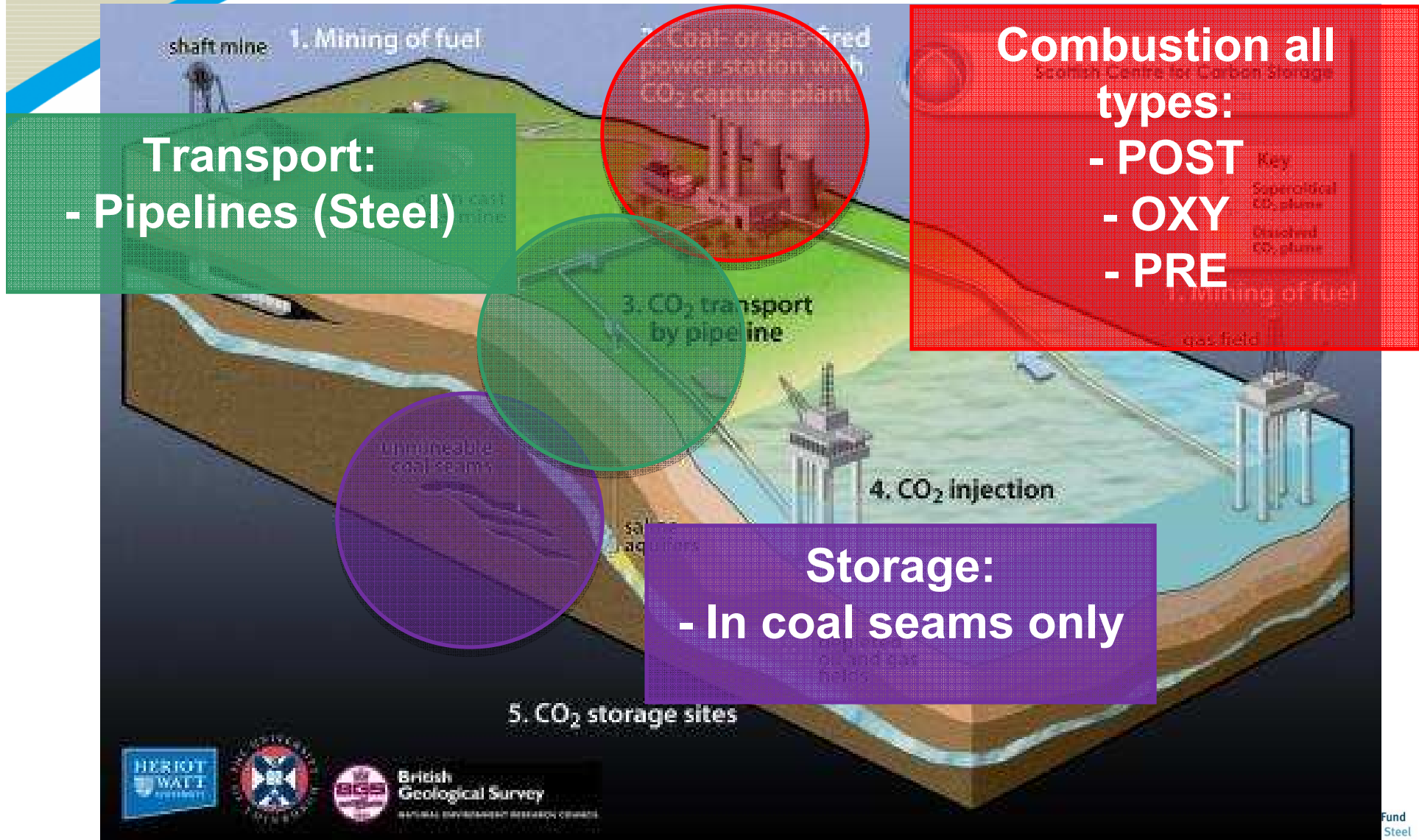




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What we can do in RFCS ?





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Regular and POST-Combustion

HORIZONTAL

CFB800

- Scale up CFB to 800MWe

COMTES700

- 700°C Technology

DENOPT MERCURYCAP ABETRAP NODIOXCOMB

- Emissions
(NOX, mercury,
ashes, etc.)

ECOSCRUB

- Preparation post
combustion
- Capture ready

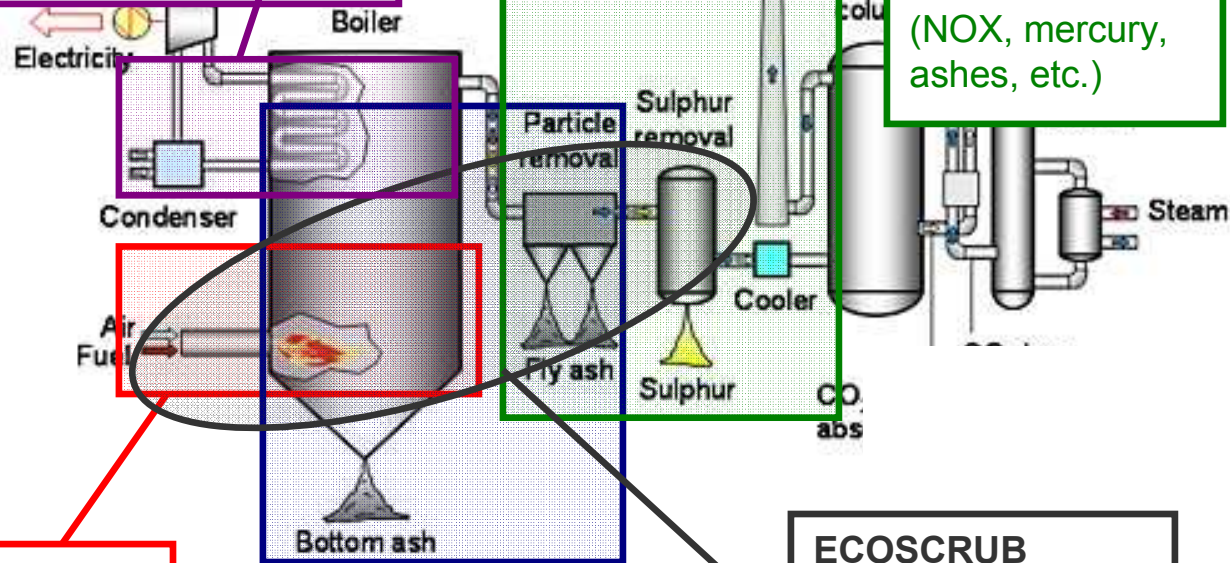
CLEAN SELECTIVE

- 3D modelling
Ash deposition

SMARTBURN

- Boiler and
process control
- Coal/biomass

TGC3





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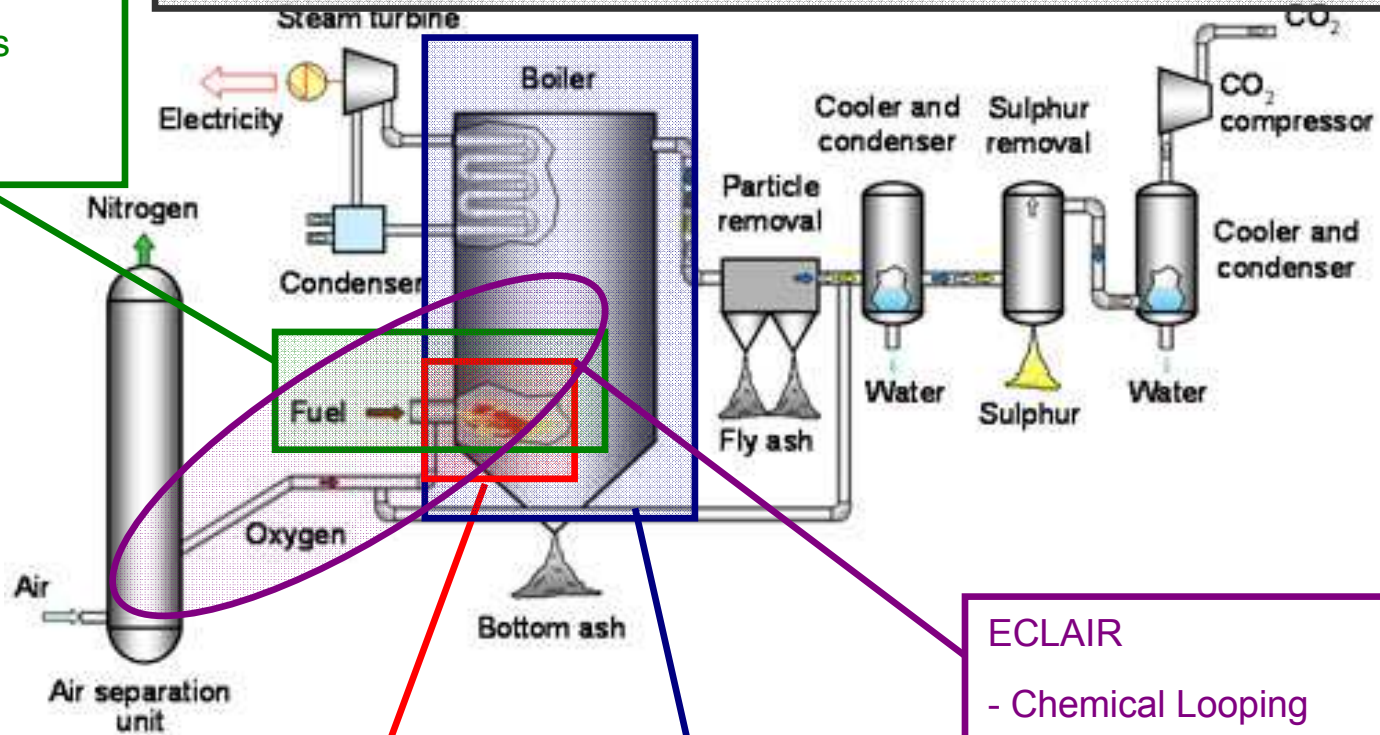
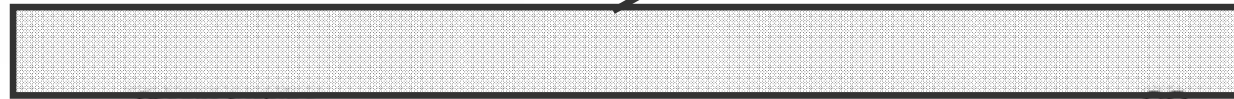
OXY-Combustion

OXYMOD

- Process modelling

FLOXCOAL and BOFCOM

- Flameless
- Biomass



TGC3

OXYBURNER
- Burner

OXYCORR
- Boiler corrosion
FRIENDLYCOAL
- Boiler concept

ECLAIR
- Chemical Looping





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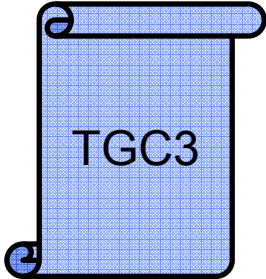
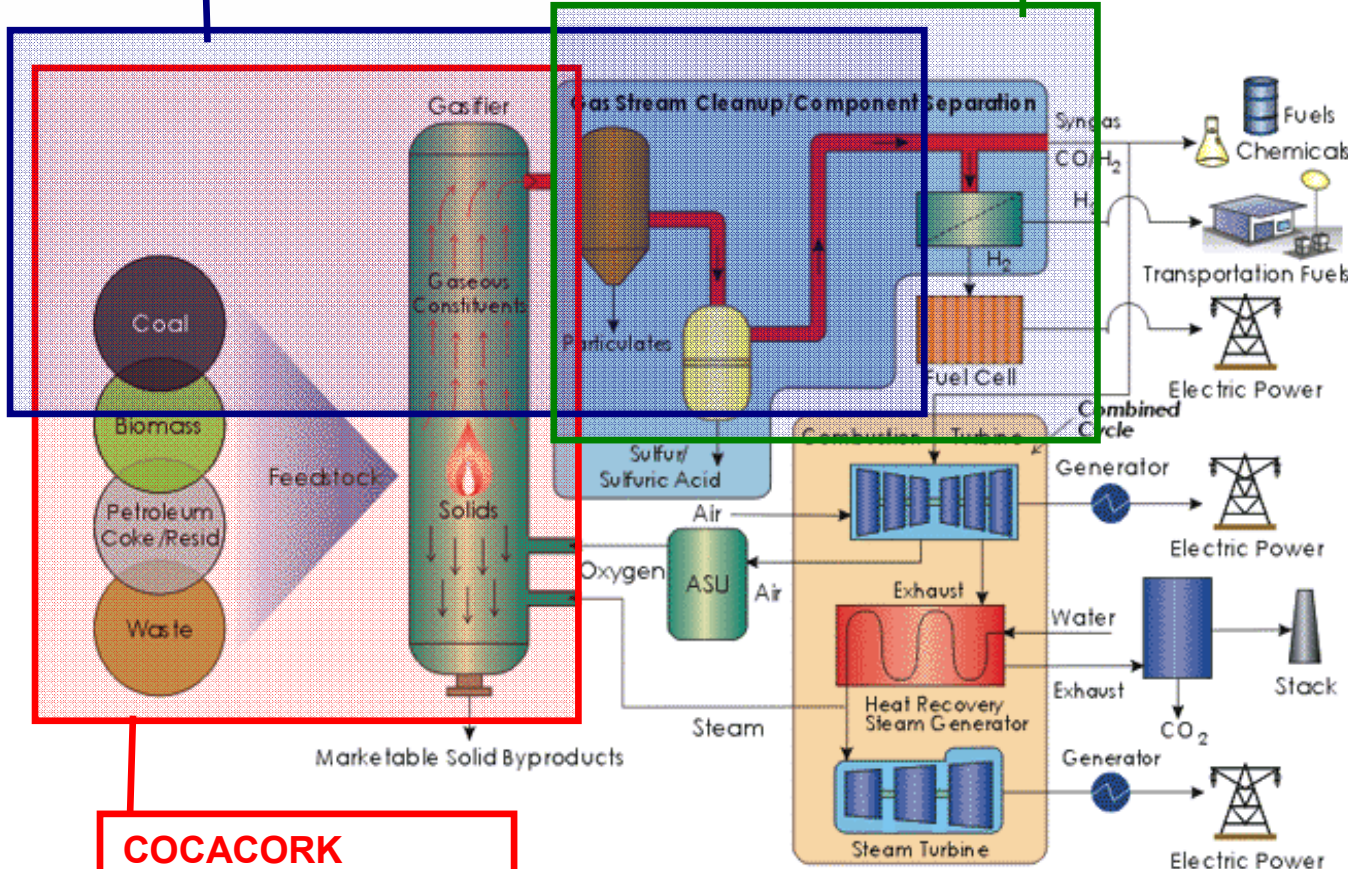
CLYCARGAS

- Gasification and syngas cleanup
- Low rank coal

AGAPUTE

- Purification techniques

« PRE » / IGCC Combustion



COCACORK

- New Gasifier
- Coal/biomass/waste

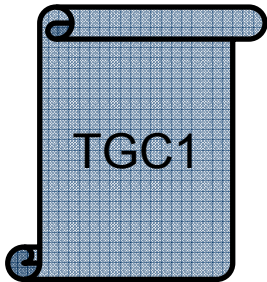




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RFCS in Storage



CARBOLAB

- CO₂ storage coupled with Enhanced Coal Bed Methane (methane recovery) in unmineable coal mines

COALSWAD

- Behaviour of coal for CO₂ sequestration and methane production



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RFCS Weblinks

- **RFCS website:**
 - <http://cordis.europa.eu/coal-steel-rtd/>
- **Information Package**
 - http://cordis.europa.eu/coal-steel-rtd/infopack_en.html
- **Latest published technical reports:**
 - <http://bookshop.europa.eu/>
 - <http://cordis.europa.eu/library/>
- **Synopsis of ongoing RFCS projects:**
 - http://cordis.europa.eu/coal-steel-rtd/synopsis_en.html