

Research Fund for Coal and Steel 3 May 2016 Lisbon / Portugal

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European Commission
DG Research and Innovation
Research Fund for Coal and Steel**

History of the RFCS

The RFCS Programme (1)

From the past ... European Coal and Steel Community (ECSC)

1952: ECSC Treaty of Paris (validity 50 years)

Expired in July 2002

Levy from coal and steel production

Assets left : ~ 1.6 billion €



The RFCS Programme (2)

... to the present: Research Fund for Coal and Steel (RFCS):

- 2001: Treaty of Nice
- To transfer the ECSC assets (originally paid by industry) to the European Community and utilise the interests generated by these assets (now ~ 2,0 billion € to co-finance research in coal and steel
- To create the RFCS: 1 February 2003



RFCS Background Information

Legal Basis

COUNCIL DECISION of 1 February 2003 establishing measures on the financial consequences of the expiry of the ESCS Treaty and on the Research Fund for Coal and Steel *(2003/76/EC)*

COUNCIL DECISION of 29 April 2008 on the adoption of the Research Programme of the Research Fund for Coal and Steel and on the multiannual technical guidelines for this programme *(2008/376/EC)*

WHAT is the RFCS Programme?

A research fund with a budget of ~ 50 M€ / year

Not taxpayer money

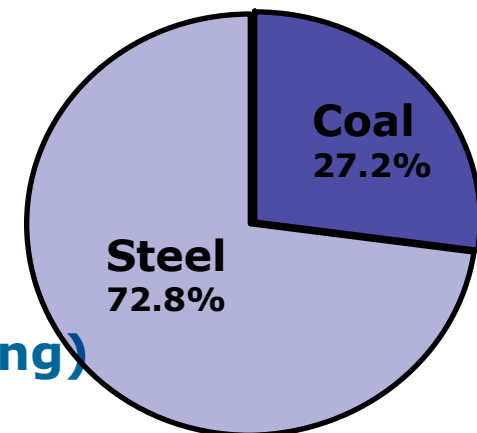
Promoting industrial research in the field of

- **Coal and Steel**

Open call for proposals for

- **Research projects ($\leq 60\%$ funding)**
- **Pilot & Demonstration projects ($\leq 50\%$ funding)**
- **Accompanying measures ($\leq 100\%$ funding)**
- **Deadline: mid September each year**

Outside the FP/H2020 ... yet closely co-ordinated & complementary



*RFCS funding
allocation*

Who can participate?

Simple rules

- Any legal entity established in the EU28 Member States
- Partners outside EU28 are entitled to participate but without receiving financial contribution

Typical projects

- Focused on industrial participation
- Dedicated and manageable consortium (5/8 partners)
- Average funding 1 – 2 M€ per project
- Duration typically 3 – 4 years



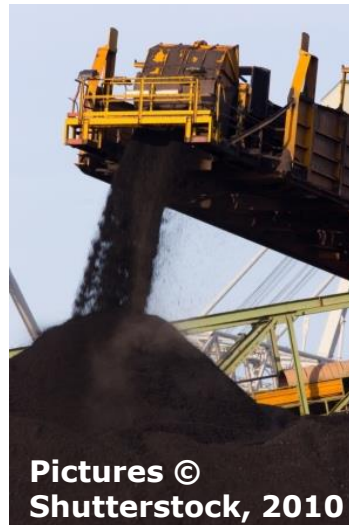
RFCS Overview: Facts & Figures

- **Approx. 300 Grant Agreements running at any one time**
- **>700 M€ funding in Coal and Steel research since 2003 \approx 1 B€ total spending**
- **Mixture of industry, academia and research centres**
- **Technical, innovative projects, well defined objectives**
- **Can be complimentary to other funding (H2020, national funds, etc.)**

COAL: Programme Research Objectives

**Management of
external dependence
on energy supply**

**Health and Safety
in Mines**



**Improving the
competitive
position
of Community Coal**

**Efficient protection of
the environment
& improvement
of the use of coal
as clean energy source**

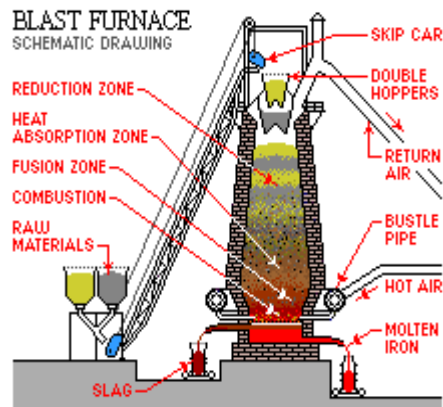


Coal means: Hardcoal - Lignite - Coke - Briquettes - Oil Shales

Coal Technical Groups

- TGC 1** Coal mining operation, mine infrastructure and management, unconventional use of coal deposits
- TGC 2** Coal preparation, conversion and upgrading
- TGC 3** Coal combustion, clean and efficient coal technologies, CO₂ capture

STEEL: Programme Research Objectives



**Conservation of resources
and improvement of
working conditions**

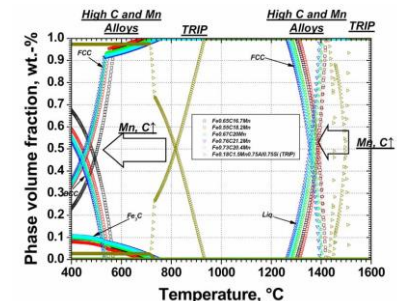


**New and improved
steelmaking
and finishing
techniques**



**Research on
the utilisation
of steel**

-
- A photograph showing a perspective view down a car assembly line. Several silver car chassis are lined up, moving away from the viewer. Two workers in white protective suits are visible in the foreground, working on the rear of the closest car. The factory floor is dark and industrial, with various equipment and cables visible.



Further Groups:

- COSCO:** Composed of representatives of Member States. Its role is to assist the Commission in the overall programme management.
- CAG/SAG:** Composed of technical advisers, active in the field concerned and aware of the industrial priorities. Members are appointed by the Commission. The CAG and the SAG shall assist the Commission in the programme management.

Submitting a Proposal

Deadline 15 September 2016

Main changes introduced in 2015

Evaluation criteria

- Wording of the evaluation criteria improved
- Number of evaluation criteria reduced to 4 for all types of actions (was 5 in the past for research, pilot and demonstration projects)
- Dedicated evaluation form introduced for Pilot and Demonstration projects to better reflect their specificities and better support this activity
- Threshold of minimum **3** points **on all criteria** to avoid proposals with important weaknesses being funded.

Main changes introduced in 2015

Cascade mechanism

Rank	Criterion	Name of the criterion for the different types of activity		
		Research projects	Pilot and Demonstration projects	Accompanying Measures
1 st	Criterion 4	Benefits for the European coal and steel sectors	Benefits for the European coal and steel sectors	Benefits for the European coal and steel sectors
2 nd	Criterion 1	Scientific and technical approach	Technical approach	Overall approach
3 rd	Criterion 2	Innovative content	Contribution to Innovation	Dissemination value
4 th	Criterion 3	Quality of the implementation	Quality of the implementation	Quality of the implementation

- Priority given to the impact for relevant industrial sector
- Any possible ex-aequo cases solved (last criterion budget)

Proposed changes for 2016

- Maximum total financial contribution for Accompanying measures is 100% (was 60%)
- Also Accompanying measures need to fulfill the eligibility criterion:
 - *At least three legal entities, independent from each other and established in at least two different EU Member States, participate in the project as direct beneficiaries*

Not changed

Scoring

0 = Fails or missing/incomplete information

1 = Poor

2 = Fair

3 = Good

4 = Very good

5 = Excellent

Additional priority bonus

Granted to research, pilot and demonstration projects if they address **at least 1** annual priority

Annual Priorities

Not mandatory

- A project addressing one of the annual priorities is awarded 1 “bonus point”



→ **SLIGHT IMPROVEMENT OF RANKING POSITION**

This year bonus point more important: 1 pt per 20 (instead of 1 pt per 25)

***Research, Pilot and Demonstration projects:
Which of the current priorities listed in Vol. I of the Information
Package are being addressed in the proposal?***

Proposed 2016 Annual Priorities Coal

1. Addressing environmental hazards during or after mine operation
2. Enhanced risk management of high production areas in coal and lignite mines
3. Improved monitoring of coke oven conditions
4. Upgrading of coal-derived liquids
5. Technological improvements targeting load flexibility AND environmental performance of coal fired power plants
6. Pilot projects validation of emerging AND innovating technologies leading to efficiency improvements AND CO₂ emission reduction

2016 Annual Priorities Steel (1/2)

2.1 Online analytics of large data streams coming from various sources (using Big Data technologies) to improve plant/process reliability or to realise machine supported decisions on product quality or to improve the flexibility of production scheduling

2.2 Improvement of workers potential by use of advanced tools (including management of knowledge) to improve working conditions, safety, training, knowledge preservation

2.3 Advanced industrial ecology (IE) solutions in iron and steelmaking processes for integrating technologies which enhance the use of the by-products (internal and external available) or of the discharged water or of the off-gases as resources

2.4 Development and improvement of hybrid solutions for new and existing constructions in view of structural performance and improving the overall building performance

2.5 Cost effective lightweight steel solutions for new vehicle concepts or components with improved LCA or safety performance

2016 Annual Priorities Steel (2/2)

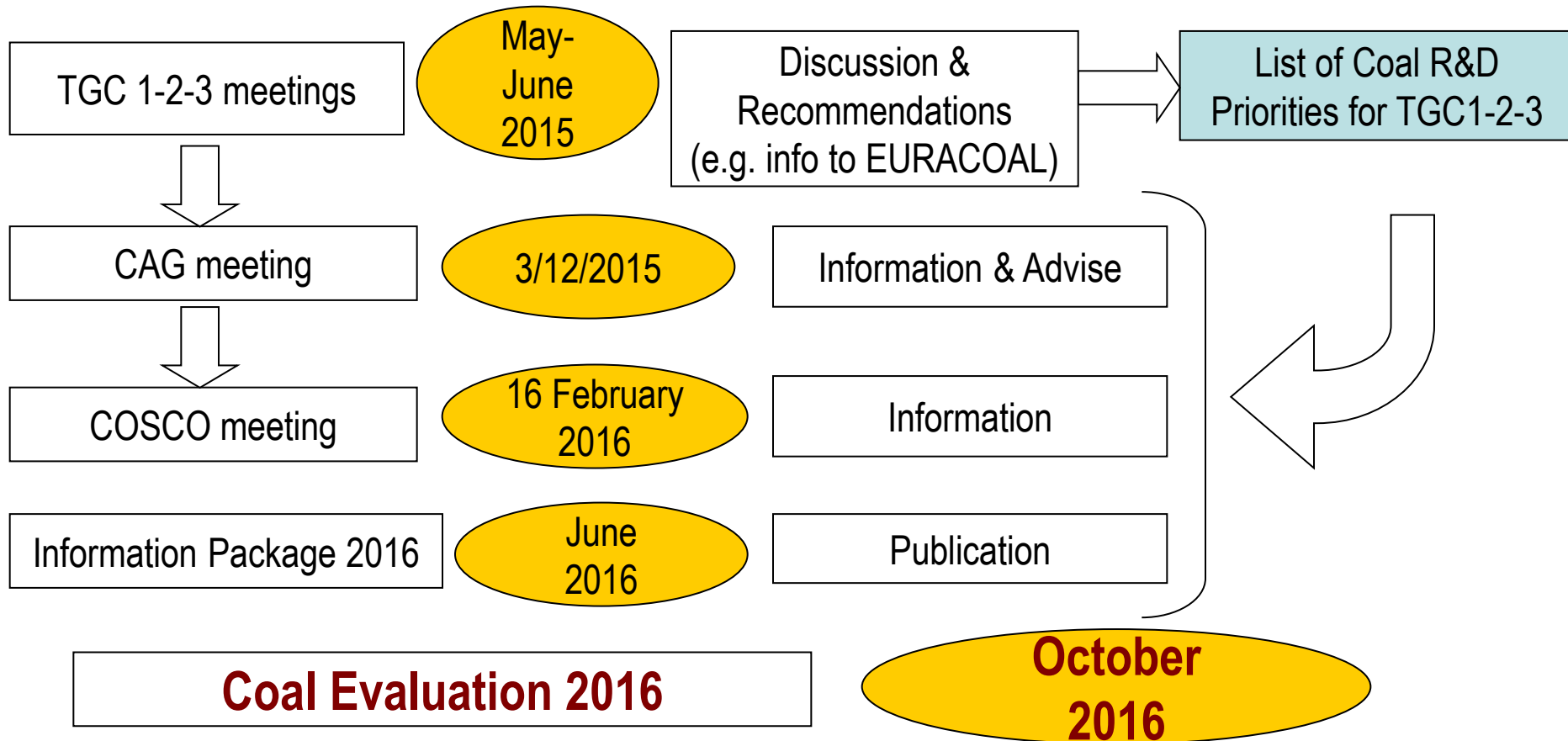
2.6 Adapting processing from upstream to downstream steps to overcome the challenges raised by innovative steel grades (enhanced functional or smart properties) by novel or improved process or control techniques

2.7 Energy efficiency in high temperature steel processes: To develop processes and technologies allowing to capture and utilise waste process heat for production purposes

2.8 Developing of steel solutions suitable for advanced, low CO₂, fossil and/or renewable fuels fired power plants

2.9 New or improved steel process technologies to improve production flexibility and/or to allow use of lower-quality primary or secondary raw materials

RFCS Coal R&D Priorities



Evaluation

Phase 1: Remote evaluation

Each proposal is evaluated individually by 3 evaluators on the dedicated SEP system (Submission & Evaluation of Proposals)

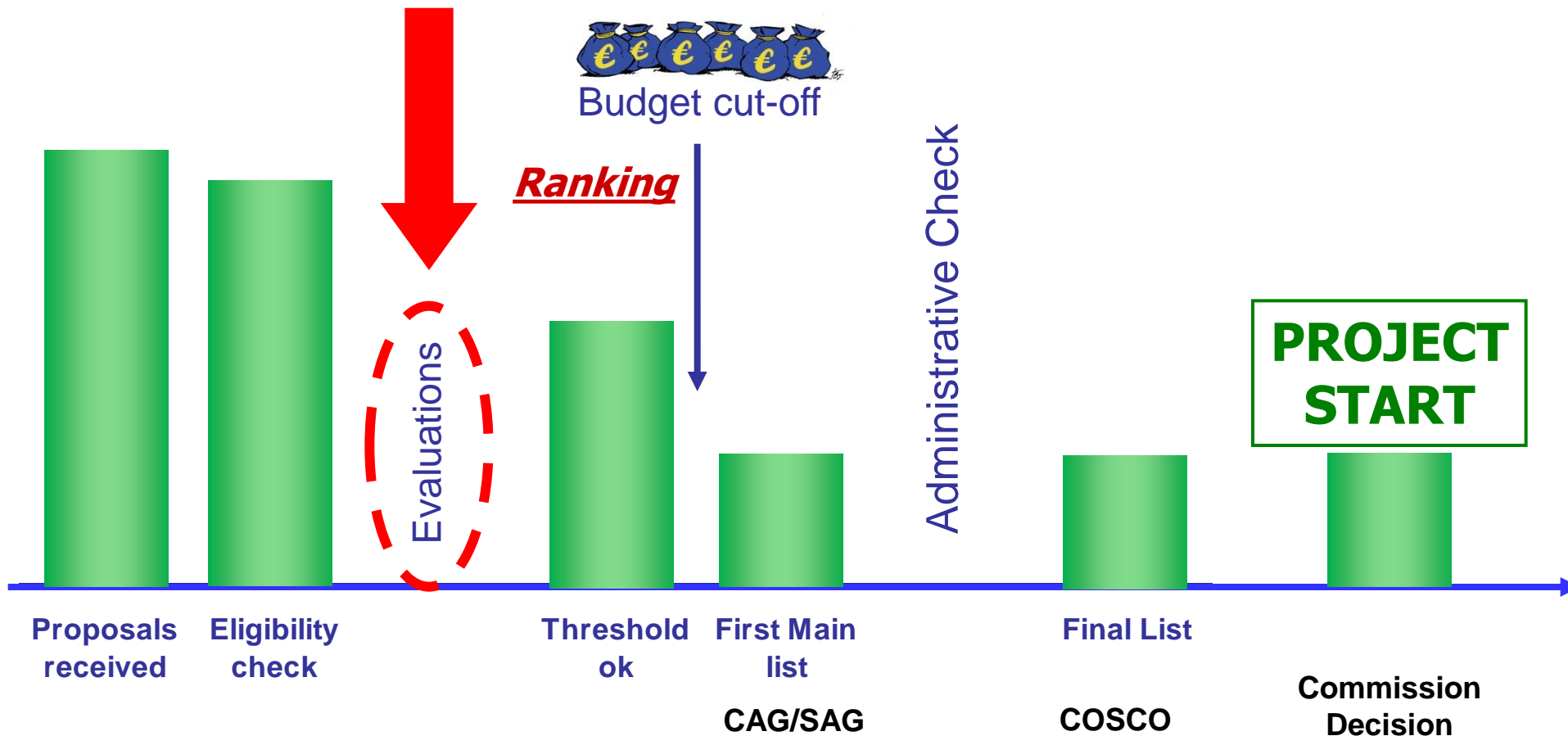
Phase 2: Preparation of draft Consensus Report

For each proposal a draft CR is prepared on the SEP system by a rapporteur (one of the evaluators) on the basis of the individual evaluations

Phase 3: Central evaluation (Brussels)

For each proposal a consensus meeting takes place with the participation of the 3 evaluators and a Commission's Project Officer

Evaluation and Selection Process



Most common weak points

Criterion 1 (Scientific & technical approach)

- **State-of-the-art**

- Poorly described – position at European & worldwide level
- Existing patents not taken into account or referenced
- No prioritisation of reference list (Form A1)

- **Feasibility**

- Poor description/lack of vision on development & validation stages

- **Methods & Techniques, Approach**

- Experimental activities: link/integration & global objectives unclear
- Excessive modelisation & simulation on unvalidated concepts
- Metrics of success missing (preferably with quantitative criteria) for Go / No Go
- Publication strategy poor (communication, seminars/workshops, website,...)

Most common weak points

Criterion 2 (Innovative content)

- Often not so innovative – new ideas necessary
- Real innovative aspects remain unclear
- Incremental research & added value unclear
- Perspective of a wider & general use of expected results: poorly described

Most common weak points

Criterion 3 (Quality of implementation)

- **Project Scheduling**
 - Coherence of flow of tasks
 - Timing: either lax, either too ambitious
- **Partnerships**
 - Industrial partners: often only pointed/specific contributions
 - (Real) Participation of industrial partners
 - Universities: implication in industrial & economic project parts
 - Plethoric & redundant partnerships
 - « Sleeping » partners without real contribution
- **Workplan**
 - Deliverables
 - Who is responsible for what?
 - Definition
 - (Clear) Overall WP flow diagram is helpful

Most common weak points

Criteria 4

(Benefits for the European Coal and Steel sectors)

- Lack of knowledge of market deployment
- Evaluation of impact on competitiveness: poor or inexistant
- Quantitative assessment of economic impact: poor or inexistant

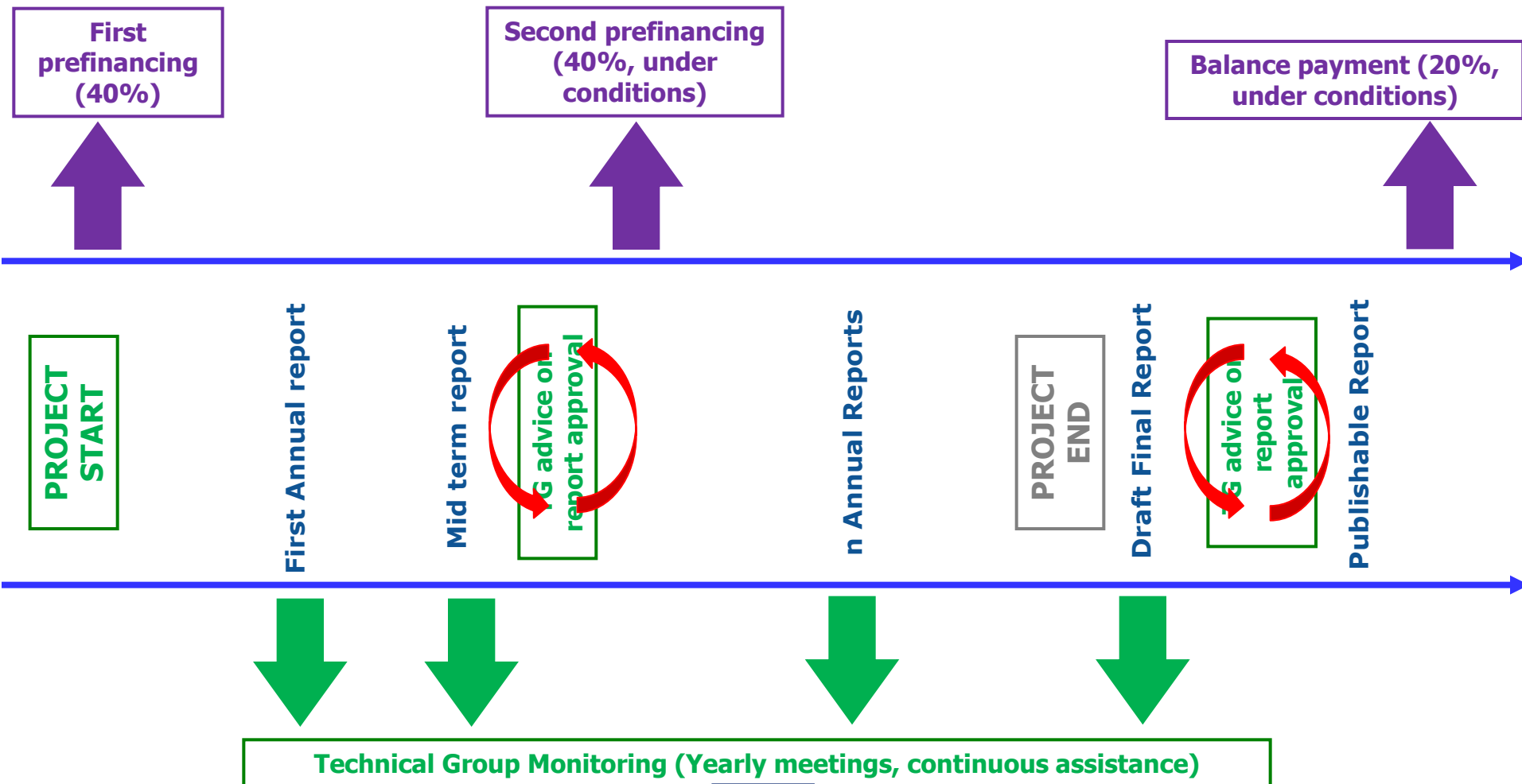
Some Remarks & Advice

- **Strong competition**
- **High quality** level of proposals
- **Long process:** start early with experienced partners !
- Descriptions should be **short & concise**, but don't expect the evaluators to dig out necessary information
- Explain improvements in case of resubmission
- **Test your application** by 'neutral' proof-readers
- Make use of the **RFCS projects synopsis** (good overview about recent projects)
- **Enrol as an expert (Evaluator)**
- Typical projects:
 - Focused industrial subjects, almost **problem solving**
 - Dedicated and **manageable consortium** (5/8 partners)
 - Average funding ~ **1 – 2 M€**

How to submit a proposal

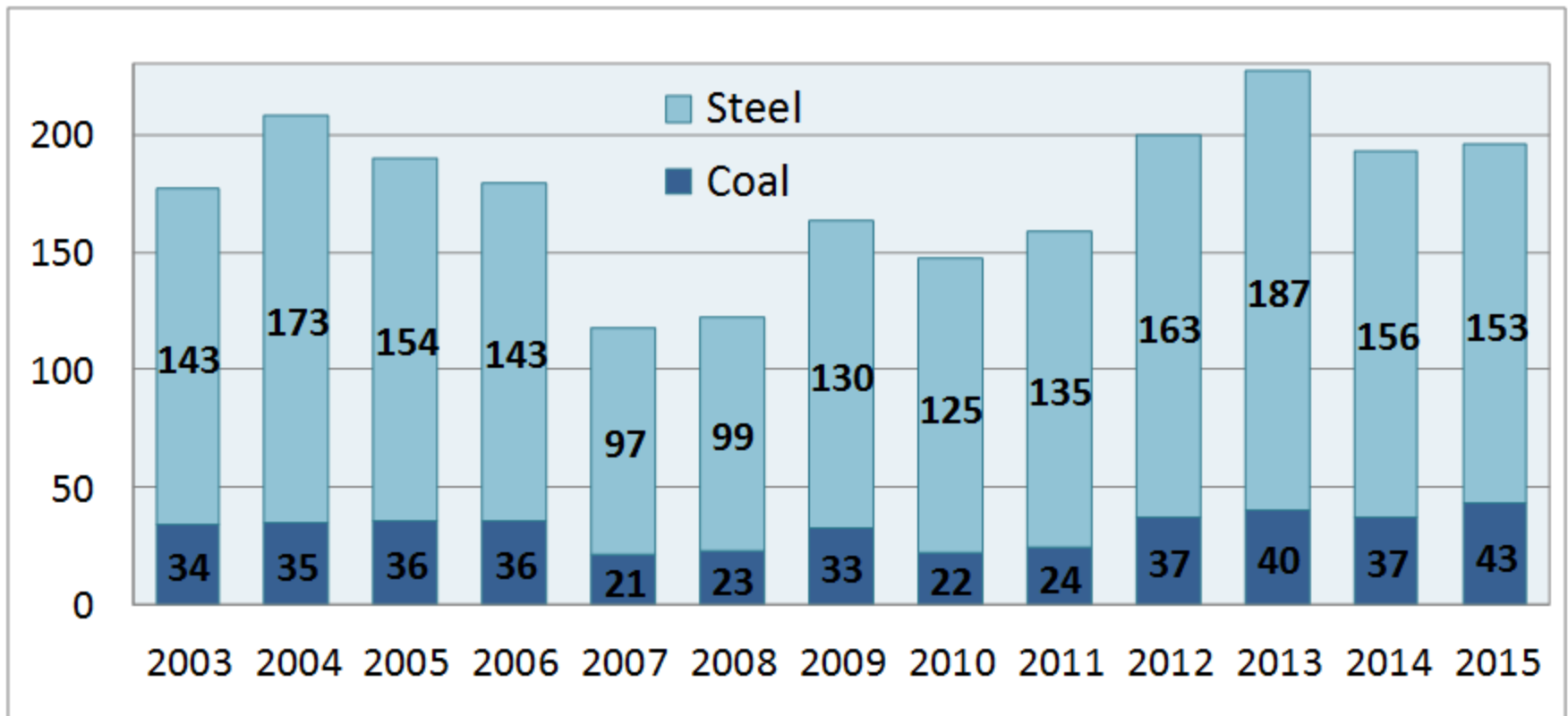
- Since 2011, RFCS proposals are to be submitted electronically.
- To be able to apply to the RFCS, each beneficiary needs a user ID and a **Participant Identification Code** (PIC).
- Unless you have already one (through prior participation in the RFCS, FP, H2020) → request and validate your PIC as soon as possible through the **Unique Registration Facility** (URF).
- Step by step description on RFCS website

Management of the programme: Project timeline



Results of the 2015 Evaluation

Proposals received



Evolution of Available RFCS Budget

Year	Coal (€)	Steel (€)	Total (€)
2006	14.892.000	39.858.000	54.750.000
2007	14.654.000	39.221.000	53.875.000
2008	14.535.136	38.902.864	53.438.000
2009	14.067.568	37.651.432	51.719.000
2010	14.649.784	39.209.716	53.859.500
2011	16.572.892	44.356.858	60.929.750
2012	15.902.446	42.562.429	58.464.875
2013	14.071.240	37.661.260	51.732.500
2014	13.155.620	35.210.630	48.366.250
2015	12.974.400	34.725.600	47.700.000
2016	11.723.200	31.376.800	43.100.000
Totals	205.206.286	549.228.589	754.434.875

Results of the 2015 Evaluations

Coal 43 proposals submitted
7 proposals successful
21 proposals on reserve list
15 proposals under threshold
0 proposals not eligible
Success rate: 16%

Steel 153 proposals submitted
31 proposals successful
71 proposals on reserve list
48 proposals under threshold
3 proposals not eligible
Success rate: 20%

Portuguese Beneficiaries in RFCS

- Σ RFCS Coal: Participation in 10 projects;
funding 3,0 Mio €
- Σ RFCS Steel: Participation in 76 projects;
funding 15 Mio €
- Σ RFCS: Application for 477 projects (394
steel, 83 coal); 89 successful (19 %)
- RFCS 2016: Application for 2 coal projects;
1 successful (50 %)
Application for 37 steel projects;
5 successful (13,5 %)



RESEARCH & INNOVATION

Participant Portal

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Reference Documents

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Financial Viability Self-Check

SME Participation

Reference Documents

This page includes all the H2020 & FP7 reference documents starting with legal documents and the Commission work programmes for research and innovation up to model grant agreements and guides for specific actions and horizontal issues. The documents are grouped by categories. It also includes reference documents of other EU programmes, as 3rd Health, Consumer, COSME and Research Fund for Coal and Steel programmes. To access a document:

- Click on a folder
- Click on ARROW to have more information about the document and its available translations

You can search a specific H2020 or FP7 document on the [Europa Search](#) service.

H2020

Other EU programmes

FP7

- 3rd Health Programme
- Consumer Programme
- Cosme
- Research Fund for Coal and Steel
 - RFCS legislation
 - Work Programme
 - Grant agreements and contracts
 - Guidance
 - Templates & forms

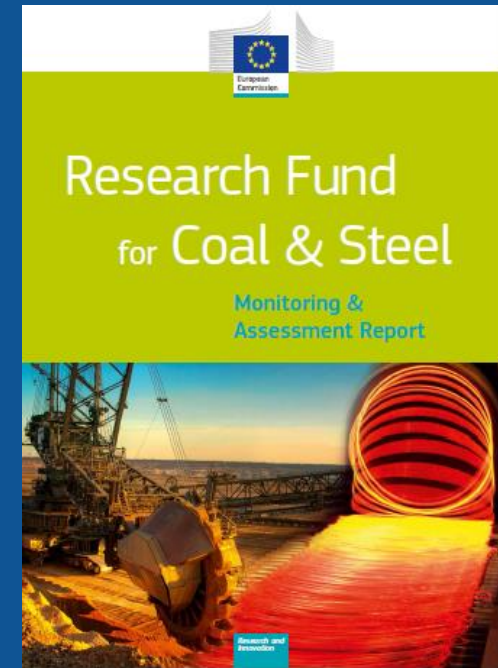
RFCS Planning 2016-2017

- Commission Decision: May 2016
- Signature of Grant Agreements: May - June 2016
- New Info pack: June 2016
- Earliest Pre-financing: July 2016
- Start of most projects: 1 July 2016
- Deadline for the Call 2015: 15 September 2016 (Wednesday)
- Remote evaluations: September/October 2016
- Central evaluation sessions: October/November 2016
- 17th CAG Meeting: 7 December 2016 (tentative)
- 19th SAG meeting: 17 January 2017 (tentative)
- 18th COSCO meeting: 14 February 2017

The RFCS Monitoring and Assessment report is published and available from:

EU Bookshop, or

RFCS web site



Quantitative Benefits

The 23 projects analysed have provided an **annual benefit** of about **100 M€/year** for the beneficiaries.

This annual benefit was compared to the corresponding budget of the projects and to the RFCS funding → **1 Euro of RFCS funding** resulted in a **benefit of 3.3 Euros/year for the beneficiaries.**

Estimation of the potential accumulated **benefits for the beneficiaries** → **400 M€.**

Correspondingly: **1 Euro** spent of **RFCS funding** corresponds to an average of potential **accumulated benefit of ~ 14 Euros** at the level of the beneficiaries.

Success Stories

Themes

- > Agriculture & food
- > Energy
- > Environment
- > ERA-NET
- > Health & life sciences
- > Human resources & mobility
- > **Industrial research**
 - Building & construction
 - Coal & steel
 - Industrial processes & robotics
 - Materials & products
 - Nanotechnology
 - Standards, measures & testing
 - Other
- > Information society
- > Innovation
- > International cooperation
- > Nanotechnology
- > Pure sciences
- > Research infrastructures
- > Research policy
- > Science & business
- > Science in society
- > Security
- > SMEs
- > Social sciences and humanities
- > Space
- > Special Collections
- > Transport
- > Video reports

Countries

- > Countries
 - Algeria
 - Argentina
 - Australia
 - Austria
 - Belarus

> Industrial research - Coal & steel

Last Update: 11-05-15

Results: 1-10 of 24

Page(s) 1 of 3 [Next >>](#)

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☐ Engineering longer lives for bridges



Bridges are an integral part of today's road and rail transport network, but maintaining them puts significant strain on public finances. The EU-funded project Long Life Bridges has found a way to keep them safe at lower cost. It has also built a prototype of a device designed to extend the lifetime of bridge cables.

Published: 25 February 2015

☐ Mapping greenhouse emissions to prevent climate change



EU-funded researchers have used advanced modelling and geo-spatial information to compile more accurate greenhouse gas inventories for Poland and Ukraine. The approach could substantially improve the accuracy of national inventories of greenhouse gases and boost Europe's efforts to reduce emissions.

Published: 30 June 2014

☐ OXYMOD – Cleaner power thanks to mathematics



Mathematical modelling has in recent years proven to be a useful and cost-cutting tool for designing and modernising coal-fired power plants. The OxyMod project – supported by the European Union (EU) Research Fund for Coal and Steel (RFCS) – has striven to extend existing combustion modelling capabilities to oxy-fuel combustion conditions. This should lead to preparation and pre-engineering of large demonstration power plants in Europe using modern and clean oxy-fuel CO2 capture technology in the

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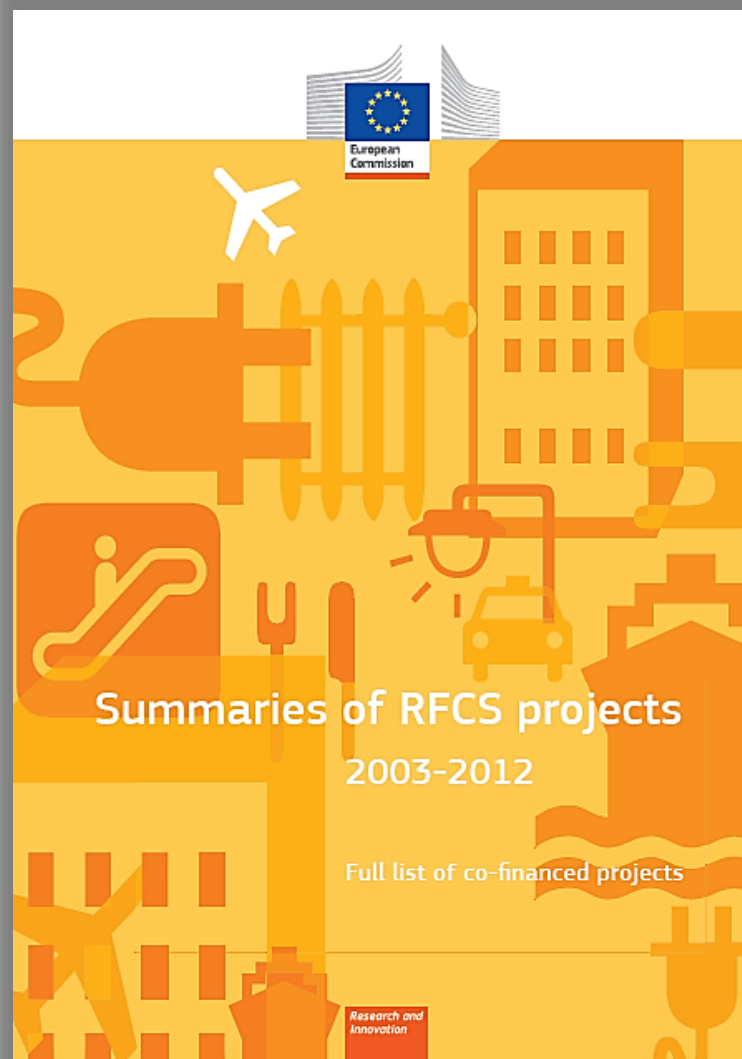
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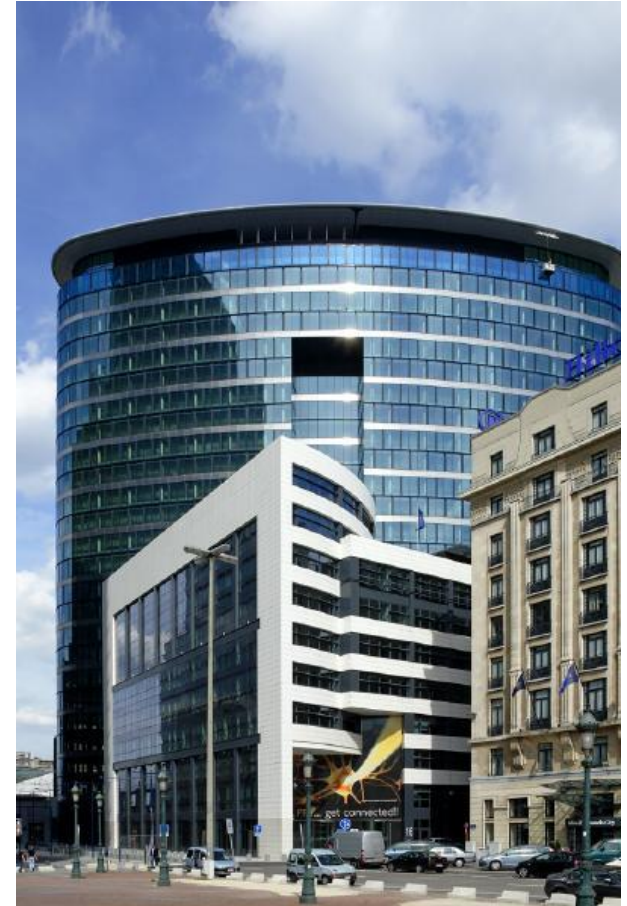


2016 RFCS Evaluations

Location for session in Brussels:
Covent Garden Building

Indicative Planning

- ▶ Remote evaluation:
September/October 2016
- ▶ Central session:
October /November 2016



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Web Links / RFCS Info

- **RFCS website:** http://ec.europa.eu/research/industrial_technologies/rfcs_en.html

The website now contains :

- the latest news about activities in Coal and Steel
- information for stakeholders on how to participate
- a link to successful RFCS projects

When accessing the CORDIS website a reference to the new website is given,

- **Latest published technical reports:**

<http://bookshop.europa.eu/>

- **Register as Technical Expert:**

<http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html>

Thank you for your attention !

Examples of successful projects:

- **NEMAEQ**
- **IMPECABL**
- **LIGPOWER**
- **CFB 800**

NEMAEQ - New mechanisation and automation of longwall and drivage equipment

Project aimed at increasing the productivity and reducing production costs. Research results:



Coal/rock distinction; collision avoidance, less maintenance and downtime

Used a wide variety of sensors: Infrared; RADAR; impact sound sensors

Wireless communication and when necessary fibre-optic links

Networked sensors and dedicated software

Cost reduction through: productivity increase; decrease of labour cost, increase of running time

NEMAEQ: Financial Benefits

Productivity increase with a fully automated shearer loader system

1.5 M€/y/longwall; potential 45 M€/y within EU

Cost reduction: decrease of labour cost, increase of running time

0.1 M€/y/longwall; potential 3 M€/y within EU

IMPECABL - Improving environmental control and coke battery life through integrated monitoring systems

Project aimed at **reducing emissions** from coking plants and **extend life time** and **productivity rate**.

Prolonging lifetime of coking plant to 40 – 50 years.

Techniques developed provide plant management with **investigative and monitoring tools** for early detection of problems in older coking plants.

Results can lead to a **reduction of capital cost of 10%**. Based on the European coke production and assuming only 5% reduction for the sector → **potential cost reduction of 0.75€/t or 32 M€/y**

LIGPOWER – More efficient cleaning concept for stepping up availability of lignite-fired power plants

Strong interest from the power generation community to apply **suitable cleaning technologies** for **enhancing availability** of coal fired power plants.

The use of efficient cleaning facilities results in an **increase of 1% plant availability**, leading to a **benefit of 1M€/y for a 600 MW** unit. In Europe 3 units are covered within the assessment period → **3M€/y benefit**.

In addition benefit from the avoidance of **unnecessary investment** is estimated at **10 M€**.

CFB 800 – Circulating Fluidized Bed combustion for coal-fired power plants

The CFB is considered to be one of the very important technologies leading to the increase of efficiency in power generation and decrease of emissions.

The CFB project aimed at scaling up design for CFB technology to 800MW size with a net efficiency of 45%. 0,2 Mt/y of CO₂ can be avoided by using 5% biomass (corresponding to a **benefit of 1,6 M€/y**). Further savings can be achieved by using a coal/petcoke ratio of 80/20 → potential **benefit of 7,4 M€/y** savings in operational costs.