6th International Conference
Modelling and Simulation of
Metallurgical Processes in Steelmaking (SteelSim)

Dissemination of European R&D outcomes:
15 years of Electric Arc Furnace RFCS supported projects

RFCS Funding for R&D: opportunities and dissemination actions

Bardolino, Garda Lake, Italy,
24 September 2015

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

1. RFCS Background Information
2. Proposal Evaluation
3. RFCS projects – Accompanying measures/Dissemination projects
RFCS Background Information
History of the RFCS

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 €
History of the RFCS

... 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
The RFCS Programme

- A research fund with a budget of ~ 50 M€ / year, no taxpayer money
- Promoting industrial research in the field of *Coal and Steel*
- Yearly call with deadline 15 September for proposals for
  - Research projects (60% funding)
  - Pilot & Demonstration projects (50% funding)
  - Accompanying measures (60 - 100% funding)
- Outside the FP/H2020 … yet closely co-ordinated & complementary
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)
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 time
- >700 M€ funding in Coal and Steel research since 2003 ≈ 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.)
Management of the Programme

3 levels assisting the Commission

- Coal and Steel Committee (COSCO)
  - 28 Member state representatives: give opinion on projects to be funded, etc.

- Coal and Steel Advisory Groups (CAG/SAG)
  - Representatives from stakeholders: give advice on the overall programme management

- Technical Groups (TGC/TGS)
  - Technical experts: give advice on project monitoring

Commission: DG RTD, Dir D, Unit D4
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
STEEL Technical Groups

TGS 1 - Ore agglomeration and iron making
TGS 2 - Steelmaking processes
TGS 3 - Casting
TGS 4 - Hot and cold rolling processes
TGS 5 - Finishing and coating
TGS 6 - Physical metallurgy and design of new generic steel grades
TGS 7 - Steel products and applications for automobiles, packaging home appliances
TGS 8 - Steel products and applications for building, construction and industry
TGS 9 - Factory-wide control, social and environmental issues
Annual Research Priorities

- The long-term strategy of the RFCS is based on annually updated priorities identified by stakeholder platforms in the field of coal and steel (ESTEP, ZEP,...)
- Proposals addressing an annual research priority receive 1 extra point in evaluations
- 6 Annual Coal Priorities & 9 Annual Steel Priorities in 2015
Management of the programme: Project timeline

- First prefinancing (40%)
- Second prefinancing (40%, under conditions)
- Balance payment (20%, under conditions)

- Management of the programme: Project timeline
  - TG advice on report approval
  - TG advice on report approval
Proposal Evaluation
Eligibility and Selection Criteria

Eligibility
- Length and format

Selection
- R&D projects ➔ 4 criteria
- Accompanying measures ➔ 4 criteria

Scoring
- For each criteria from 0 to 5
- If annual priority, then 1 bonus point

0 = Fails/incomplete
1 = Poor
2 = Fair
3 = Good
4 = Very good
5 = Excellent

BONUS
Research Projects

1. Scientific and technical approach
2. Innovative content
3. Quality of the implementation
4. Benefits for the European coal and steel sectors

Pilot & Demonstration Projects

1. Technical approach
2. Contribution to innovation
3. Quality of the implementation
4. Benefits for the European coal and steel sectors

4 criteria, scores 0 to 5

+ 1 point if proposal addresses at least one of the annual priorities
Accompanying measures
(= Dissemination of knowledge gained, workshops/conferences on projects/priorities)

1. Overall approach
2. Dissemination value
3. Quality of the implementation
4. Benefits for the European coal and steel sectors

4 criteria, scores 0 to 5
Each proposal is read and evaluated independently by 3 evaluators.

A meeting is convened by a Commission officer with the 3 evaluators.

Outcome is summarised in a consensus report.

"At last we’ve reached a consensus! This meeting is boring!"
Evaluations and Selection Procedure

- Proposals received
- Eligibility check
- Threshold ok
- First Main list (CAG/SAG)
- Final List (COSCO)
- Budget cut-off
- Clarifications

PROJECT START

Commission Decision
Most common weak points

On 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

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

- **Methods & Techniques, Approach**
  - Experimental activities: link/integration & global objectives unclear
  - Excessive modelization & simulation on invalidated concepts
Most common weak points

On 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

On consistency of resources/quality of partnership

- **Project Scheduling**
  - Coherence of flow of tasks
  - Timing: either lax, either too ambitious

- **Partnerships**
  - Industrial partners: often only pointed/specific contributions
  - Universities: implication in industrial & economic project parts
  - Plethoric & redundant partnerships
  - «Sleeping» partners without real contribution
  - (Real) Participation of industrial partners

- **Work plan**
  - Deliverables
    - Who is responsible for what
    - Definition
  - (Clear) Overall WP flow diagram is helpful
Most common weak points

On Industrial interest & Community added value/policies

• Lack of knowledge of market deployment
• Evaluation of impact on competitiveness: poor or inexistent
• Quantitative assessment of economic impact: poor or inexistent
• Metrics of success (preferably with quantitative criteria) for Go/No Go
• Publication strategy poor (communication, seminars/workshops, website)
Proposals received

![Bar chart showing proposals received from 2003 to 2014 for steel and coal.](image-url)
# Evolution of Available RFCS Budget

<table>
<thead>
<tr>
<th>Year</th>
<th>Coal (€)</th>
<th>Steel (€)</th>
<th>Total (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>16.320.000</td>
<td>43.680.000</td>
<td>60.000.000</td>
</tr>
<tr>
<td>2004</td>
<td>16.320.000</td>
<td>43.680.000</td>
<td>60.000.000</td>
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<tr>
<td>2005</td>
<td>15.368.000</td>
<td>41.132.000</td>
<td>56.500.000</td>
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<tr>
<td>2006</td>
<td>14.892.000</td>
<td>39.858.000</td>
<td>54.750.000</td>
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<tr>
<td>2007</td>
<td>14.654.000</td>
<td>39.221.000</td>
<td>53.875.000</td>
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<tr>
<td>2008</td>
<td>14.535.136</td>
<td>38.902.864</td>
<td>53.438.000</td>
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<tr>
<td>2009</td>
<td>14.067.568</td>
<td>37.651.432</td>
<td>51.719.000</td>
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<tr>
<td>2011</td>
<td>16.572.892</td>
<td>44.356.858</td>
<td>60.929.750</td>
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<td>2012</td>
<td>15.902.446</td>
<td>42.562.429</td>
<td>58.464.875</td>
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<tr>
<td>2013</td>
<td>14.071.240</td>
<td>37.661.260</td>
<td>51.732.500</td>
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<td>2015</td>
<td>12.974.400</td>
<td>34.725.600</td>
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<tr>
<td>Totals</td>
<td>193.483.086</td>
<td>517.851.789</td>
<td>711.334.875</td>
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</table>
RFCS projects

Accompanying measures/ Dissemination projects
>10 years' experience within RFCS

-Monitoring Report presented in Luxembourg in September 2012 (10th Anniversary RFCS)
-Assessment Report prepared following on site visits and detailed assessment running throughout 2012

-Final M & A report was published in 2013 in accordance with Article 38 of the RFCS legal basis

The RFCS Monitoring and Assessment report is published and available from:
EU Bookshop and 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.

*Source: M&A Report*
Projects per Instrument

RFCS supports all actions along the typical stages of innovation, from research over pilot to demonstration projects as well as accompanying measures e.g. for dissemination of knowledge and results.

Projects per Instrument

- 585 Projects
- 33 Accompanying Measures
- 31 Pilot & Demonstration
- 585 Research

Total Budget (€)

- 13,386,596,856,502 Accompanying Measures
- 1,088,557,280 Pilot & Demonstration
- 585 Research
Projects per Instrument

- Research projects are by far the most used action (nearly 90%).
- Pilot / demonstration projects and accompanying measures have a share of about 5% each.
- Accompanying measures are mainly carried out by TGS 8 for dissemination and recommendation of technical guidance applicable to the use of steel in building, construction and industry.
Accompanying Measures

Accompanying measures shall relate to the promotion of the use of knowledge gained or to the organisation of dedicated workshops or conferences in connection with projects or priorities of the Research Programme.

This activity includes the valorisation of research results having a direct impact in one of the following areas and excluding any kind of research activity:

• contribution to the assessment or enhancement of European or international technical regulations and standards;
• valorisation of results that have a direct and immediate potential application at industrial level. The improvement of product quality and environmental and safety standards in and around the workplace are of particular importance;
• exploitation of new or alternative market possibilities of products and processes related to the coal or steel sector.
Dissemination Means

The dissemination of research results is achieved by presentations to the Technical Groups, mainly by publishing the Final Report and also by other publications. Other forms of dissemination are encouraged.

The Final Report, as the essential means for the dissemination of project results, is published by the Commission.

*Source: M&A Report*
Dissemination Means

The Final Report is by far the most common means of dissemination and also seen as effective (Figure 4.5). However, publications and conferences or workshops are clearly rated as more effective, followed by the internet. Publications are the most appropriate means of dissemination.

*Source: M&A Report
Dissemination Impact

According to the assessment of the beneficiaries:
- The degree of dissemination of project results is highest for the same or similar applications at the partners which were involved in the project (Figure 4.4).
- Dissemination is less within the scientific and technical community and within the relevant industrial sectors.
- The degree of dissemination is still more than 80% for all these three groups. Dissemination within society as a whole is comparatively low, at about 35%. However, the sectors are highly specialised and so a wider dissemination beyond the sector itself can rarely be expected.

*Source: M&A Report*
Web Links / RFCS Info

• **RFCS website** *(new 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

• **Latest published technical reports**: http://bookshop.europa.eu/
Thank you for your attention!