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Materials and Technologies for Energy – Possible sources of EU funding

Centro Sviluppo Materiali SpA Workshop

Jean-Luc Delplancke

jean-luc.delplancke@ec.europa.eu

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Introduction

- European policies
- Instruments for funding research and innovation
- Research Fund for Coal and Steel
- Future instruments for funding research and innovation
- Conclusions



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European policies Introduction (1)

- 10/02/2010: Election of the New European Commission (2010-2014)
- **EUROPE 2020** - A European strategy for smart, sustainable and inclusive growth
- The new Commission is proposing five measurable EU targets for 2020:
 - *for employment*
 - *for research and innovation*
 - *for climate change and energy*
 - *for education*
 - *for combating poverty*





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European policies Introduction (2)

- Target for research and innovation:
 - 3% of the EU's GDP should be invested in R&D.
- Targets for climate change and energy:
 - 20% reduction of greenhouse gas emissions
 - 20% of renewable energy sources in the final energy consumption
 - 20% increase of energy efficiency



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European policies

Introduction (3)

- Ms Geoghegan-Quinn (IE) is the new Commissioner for **Research, Innovation and Science**



European Research Area

- Her main priority is to build the European Research Area (ERA) by:
 - Strengthening intra-EU co-operation
 - Pooling human and financial resources across the EU
 - Promoting free movement of knowledge, technology, ideas and researchers
 - A cross-cutting approach to innovation



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Main European policies

- Research policy:
 - Improving our competitiveness in a knowledge-based economy
- International cooperation:
 - Cooperating with other countries to tackle common challenges
- Energy and Climate policy:
 - Sustainability, security of supply and competitiveness are the magic triangle of Europe's energy and climate policy
- The SET-Plan:
 - Technology pillar of the EU's energy and climate change policy





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Instruments for funding research

1. European Energy Programme for Recovery (EEPR):

- DG Energy
- <http://ec.europa.eu/energy/eepr/>
- 2009-2010
- Demonstration projects in the field of energy:
 - gas and electricity infrastructures: 2 365 M€
 - offshore wind energy: 565 M€
 - carbon capture and storage (CCS): 1050 M€
- 3 980 M€ (already closed but some money is left and may be subject to a further call)





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Instruments for funding research

2. Seventh Framework Programme for Research and Technological Development (FP7):

- DG RTD, ENER, INFSO
- <http://ec.europa.eu/research/fp7/>
- 2007-2013
- Work programmes and dedicated calls
- 50 521 M€



- PARTICIPATION -

COOPERATION

PEOPLE

IDEAS

CAPACITIES

EURATOM



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Instruments for funding research

2.1. IDEAS:

- European Research Council Executive Agency
- <http://erc.europa.eu>
- 2007-2013
- **Investigator-driven frontier research**
- 7 510 M€





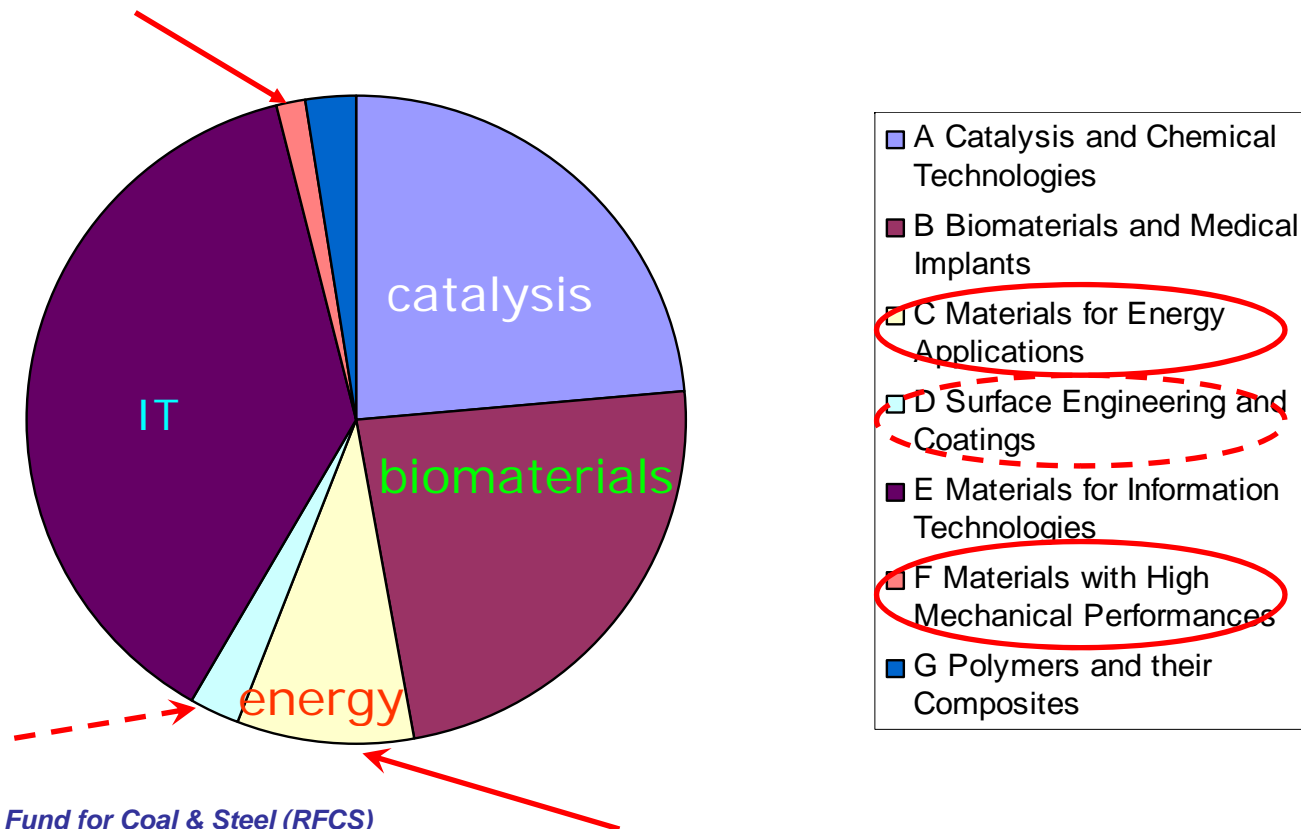
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European Research Council portfolio

ERC Advanced Grants: Projects are related to materials for energy (total of €94.2 million)

ERC Advanced





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Instruments for funding research

2.2. COOPERATION:

- DG RTD
- <http://cordis.europa.eu/fp7/cooperation/>
- Collaborative research across EU and other partner countries through projects by transnational consortia of industry and academia
- 10 thematic areas



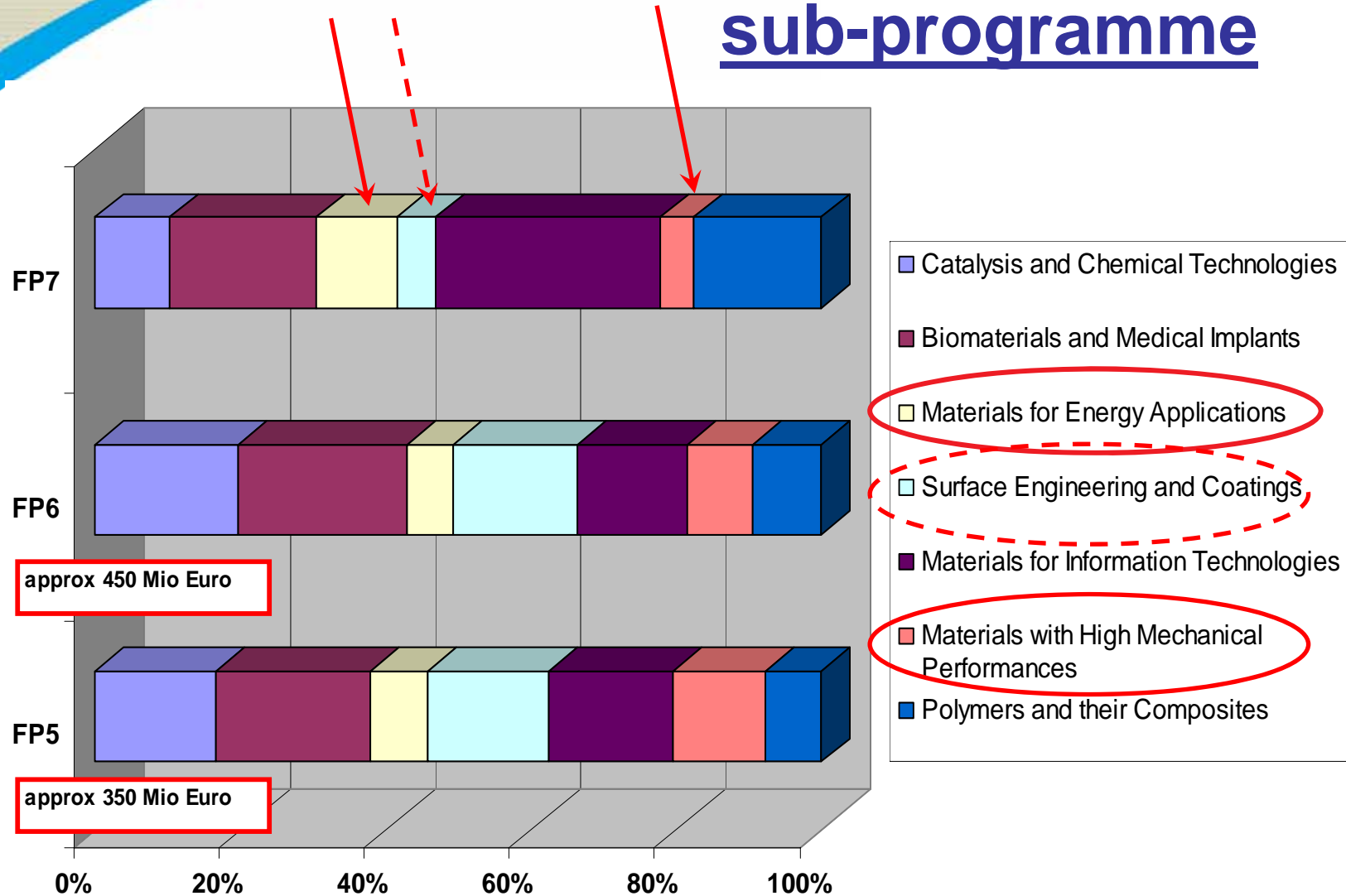
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Instruments for funding research

- Cooperation thematic areas:
 - Health: 6 100 M€
 - Food, agriculture and fisheries and biotechnologies: 1 935 M€
 - Information and communication technologies: 9 050 M€
 - **Nanosciences, nanotechnologies, materials and new production technologies (NMP): 3 475 M€**
 - **Energy: 2 350 M€**
 - Environment (including climate change): 1 890 M€
 - Transport (including aeronautics): 4 160 M€
 - Socio-economic sciences and the humanities: 623 M€
 - Space: 1 430 M€
 - Security: 1 400 M€

EC funded materials research portfolio under the cooperation sub-programme

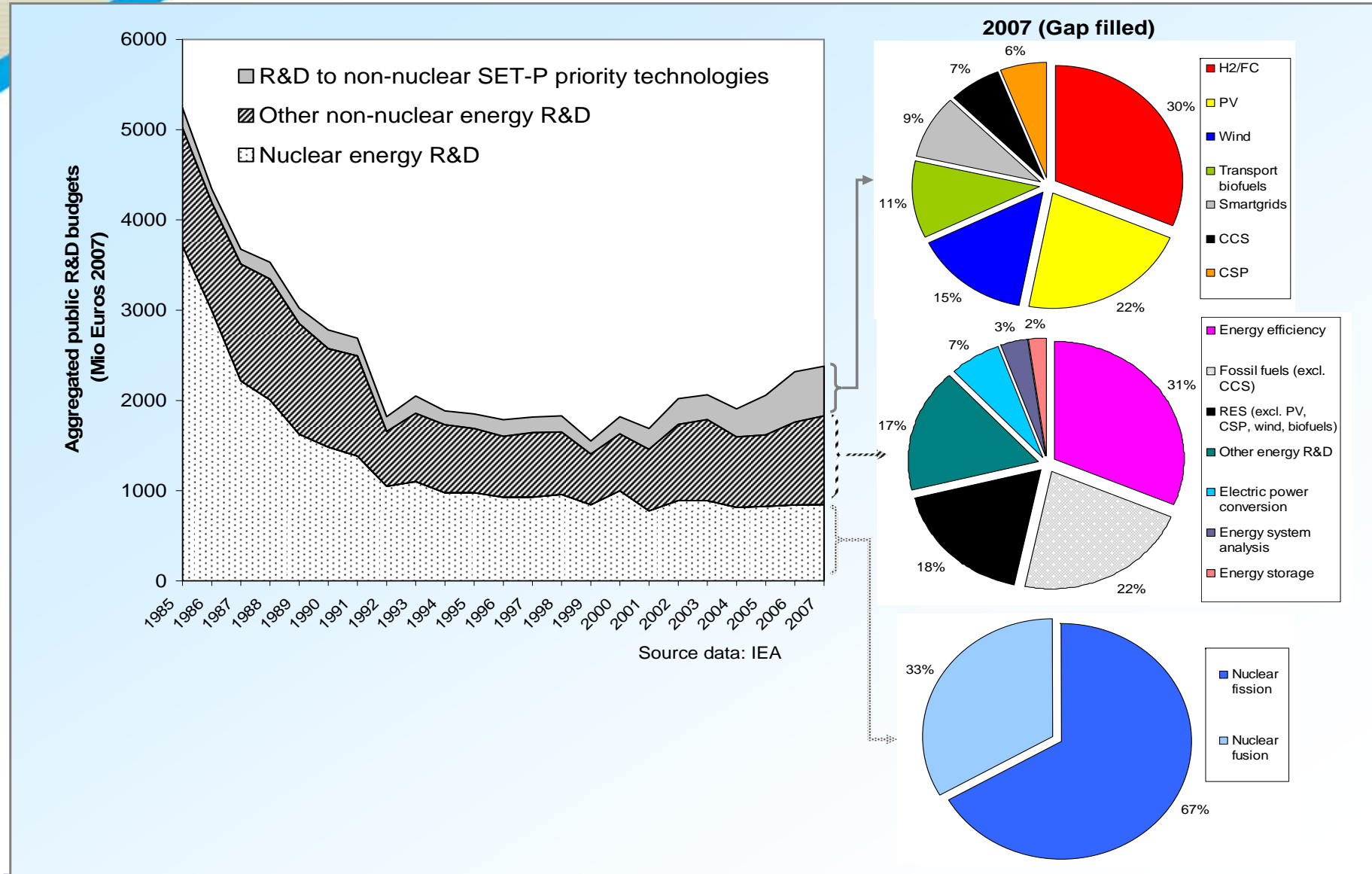




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EU Investment trends in energy





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Instruments for funding research

– European Economic Recovery Plan (EERP):

- Under FP7 Cooperation subprogramme
- Public/Private/Partnerships (PPPs)
- 3 Themes:

– Green cars

- » Dir. Transport
- » 1 000 M€



http://ec.europa.eu/research/transport/info/green_cars_initiative_en.html

– Energy Efficient Buildings (EeB)

- » Dir. NMP
- » 1 000 M€



http://ec.europa.eu/research/industrial_technologies/lists/energy-efficient-buildings_en.html

– Factories of the future

- » Dir. NMP
- » 1 200 M€

http://ec.europa.eu/research/industrial_technologies/lists/factories-of-the-future_en.html



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Instruments for funding research

3. Competitiveness and Innovation Framework Programme (CIP):

- <http://ec.europa.eu/cip/>
- 2007 – 2013
- 3 621 M€
- Three programmes:
 - The Entrepreneurship and Innovation Programme (EIP): DG Enterprise and Industry
 - The Information Communication Technologies Policy Support Programme (ICT-PSP): DG Information Society and Media
 - The Intelligent Energy Europe Programme (IEE): DG Energy





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Instruments for funding research

4. NER300:

- DG Climate Action
- Commercial demonstration projects in CCS (8) and Innovative Renewables (34)
- 300 M EU Emission Allowances from the New Entrance Reserve (NER) – European Emissions Trading System (ETS)





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Instruments for funding research

- **8 CCS projects, of which:**
 - Min 1 Max 3 in the following categories: pre-combustion, post-combustion, oxy-fuel and industrial applications
 - Min 3 with saline aquifers & Min 3 with depleted hydrocarbons reservoirs
 - Min size threshold: 250 MW. Min capture efficiency: 85%.
- **34 RES projects, of which:**
 - 9 Bio-energy
 - 5 CSP
 - 3 PV
 - 6 Wind
 - 4 Geothermal
 - 3 Ocean
 - 1 Hydro
 - 3 Distributed Renewables Management (SmartGrids)



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Instruments for funding research

5. Research Fund for Coal and Steel:

- DG RTD
- http://cordis.europa.eu/coal-steel-rtd/home_en.html
- Annual (Bottom-up and priorities)
- About 55 M€ / year



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The Research Fund for Coal and Steel

ECSC: From the past...

- 1952: ECSC* Treaty (50 years)
- Expired in July 2002
- Assets left: ~ 1600 M€



* ECSC: European Coal and Steel Community



...to the present: RFCS

- 2001: Treaty of Nice
- To transfer the ECSC assets to the European Community
- To create the
RFCS: 1 Feb 2003



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WHAT is the RFCS Programme?

A research fund with a budget of ~55 M€/year...

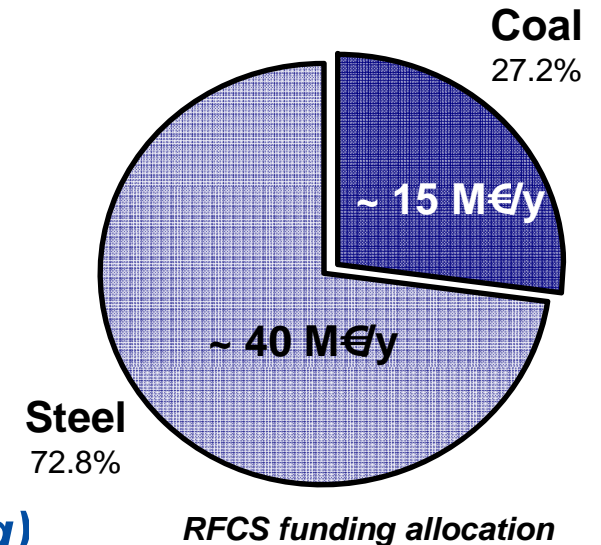
Promoting industrial research

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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COAL: Programme Research Objectives

Management of external dependence on energy supply

Improving the competitive position of Community Coal

Health and Safety in Mines

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



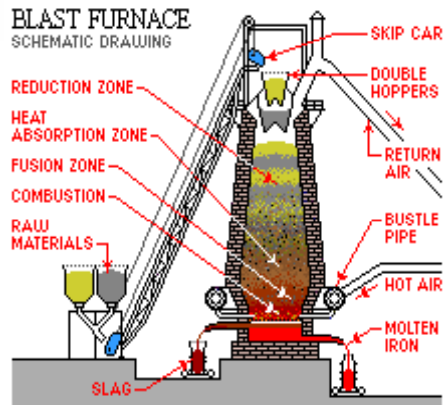
Coal means: Hardcoal - Lignite - Coke - Oil shales



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STEEL: Programme Research Objectives



Conservation of resources
and improvement of
working conditions



New and improved
steelmaking
and finishing
techniques

RTD and the utilisation
of steel





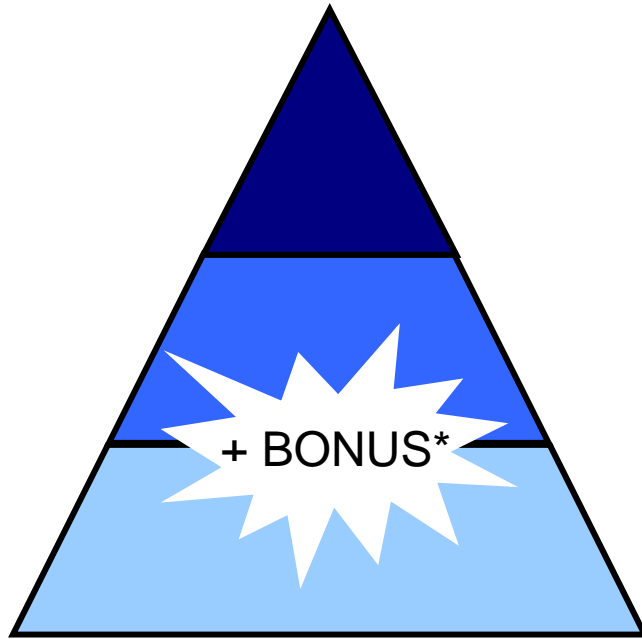
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RFCS



Selected proposal



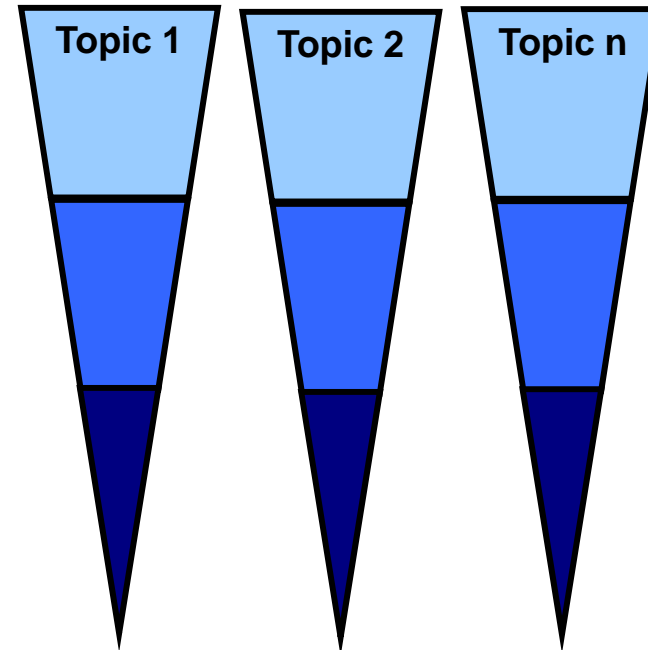
Research Objectives
(multiannual)

Proposal selection process

FP



Call for proposal
(annual)



Selected proposal

* for proposals addressing an annual priority





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Annual Priorities COAL 2010

SOURCING



- Automation or process optimisation
- Geomechanics
- Safety (ventilation)

CONVERSION



- Coal gasification
- Coal carbonisation
- Coal preparation

BONUS

COMBUSTION



- Technological improvements targeting enhanced efficiency of coal fired power plants.
- Novel CO2 capture technologies for retrofitting to existing coal power plants.
- Pilot project validation of emerging and innovating technologies leading to efficiency improvements and CO2 capture



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Annual Priorities STEEL 2010

- Life cycle optimisation of steel solutions for energy efficient buildings
- Safety of steel pipelines or steel components for cost efficient standard (oil and/or natural gas) and/or not standard fluid transportation
- New heat resistant steels and their life assessment criteria
- Wind energy (gears, guidelines or pre-normative for new applications of steel)

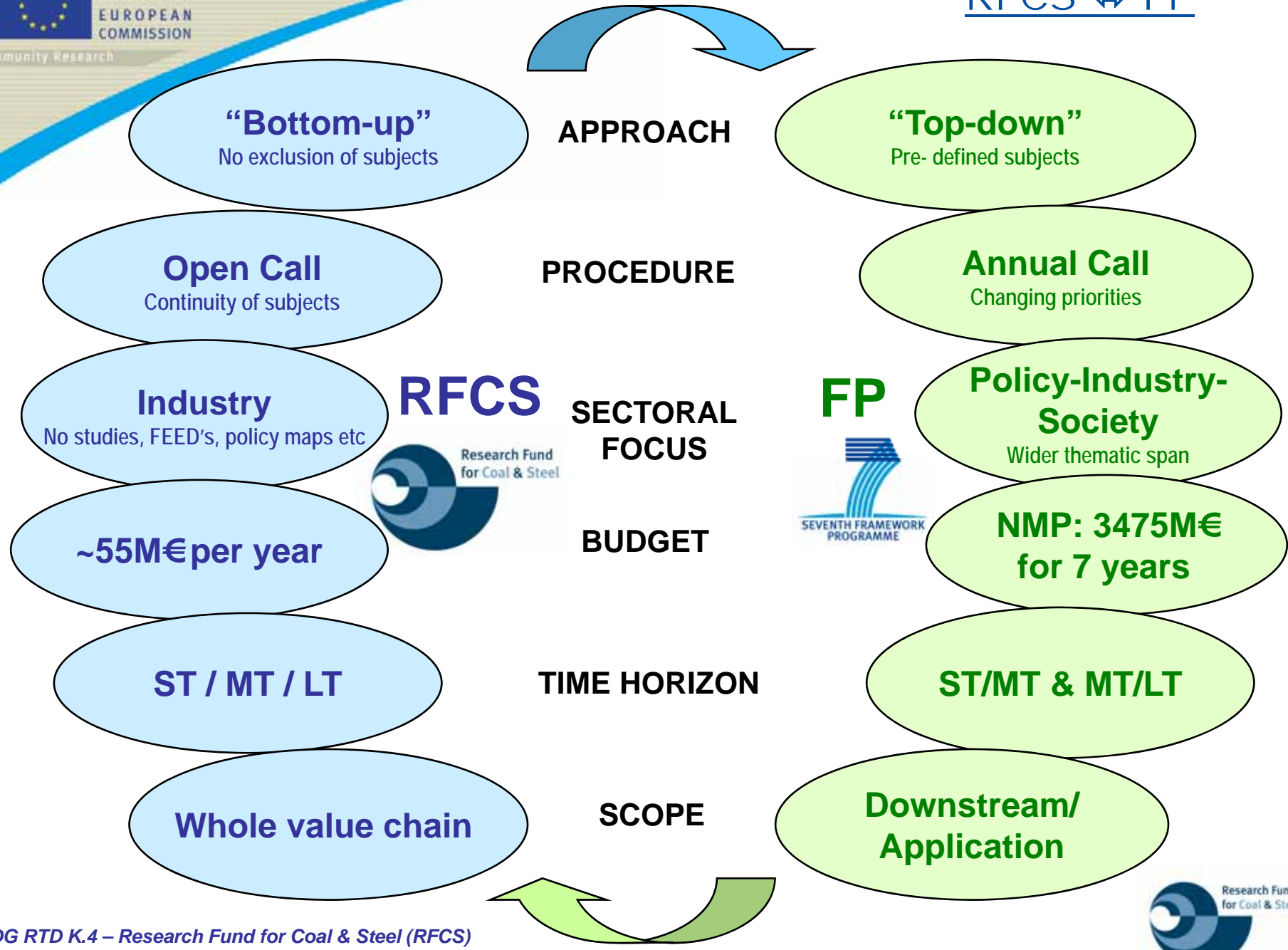




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RFCS ↔ FP





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6. European Investment Bank:

1. Risk Sharing Finance Facility (RSFF) for Research Development and Innovation
2. Marguerite Equity Fund for Renewables
3. NER-300 for CCS and Renewals
4. EIF/ CIP for Innovative SMEs



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Future Instruments for funding research

7. SET-Plan:

- <http://setis.ec.europa.eu/>

- Additional public and private investment necessary for achieving the 2020 targets has been estimated at around 50 000 M€ for the next ten years (EP calls for an extra 2 000 M€ per year)

- **Public (EU)/Public (MS)/Private/Partnerships (PPPPs)**

- Implementation:

- **European Energy Research Alliance (EERA)**

- **European Industrial Initiatives (EII)**





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Future Instruments for funding research

- European Energy Research Alliance:



- An alliance of key research institutes.
- Participation is open to all institutes that can bring in resources.
 - A number of joint programming activities are proposed in the areas of wind, solar, CCS, biofuels, geothermal, materials for nuclear energy, etc.
 - There are already established joint programs funded by the involved institutes themselves (with their own resources).



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Future Instruments for funding research

- Six new European Industrial Initiatives (EII):
 - European Wind Initiative
 - Solar Europe Initiative
 - Bio-energy Europe Initiative
 - European Electricity Grid Initiative
 - European CO2 capture, transport and storage initiative
 - Sustainable fission initiative (Gen IV)
- A seventh European Industrial Initiative:
 - Smart cities (energy efficiency rather than energy production)
- Two illustartive examples:
 - Joint Technology Initiative on Hydrogen and Fuel Cells
 - ITER (Fusion)



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Conclusions

- Many instruments exist for financing research and development in Europe
- More funds could become available notably for topics devoted to energy and climate change
- Steel industries and research centres may benefit from these instruments
- Each instrument has got its own rules of participation and selection criteria
- A careful reading of the calls for proposals has to be performed before submitting a project to be financed