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Building a Europe of Knowledge

**7° PROGRAMA MARCO DE IDT
2007-2013 DG RTD CFP 2007**

ENERGIA

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DG ENERGIA Y TRANSPORTE

New terms in FP7

- 4 Specific Programmes in FP7- Only one in FP6
 - e.g. Cooperation, Ideas, People, Capacities
- Theme
 - e.g. Energy, Transport
- Activity
 - e.g. Renewable electricity generation or Hydrogen and Fuel Cells
- Area
 - e.g. PV, Wind, Biofuels
- Topic
 - project-level subjects in calls for proposals – change each call
- Funding Scheme
 - was Instrument in FP6
 - e.g. Collaborative Project, Network of Excellence

Cooperation specific programme – Energy theme - ten activities

Renewable electricity
generation **DG RTD & TREN**

Renewable fuel production
DG RTD & TREN

Renewables for heating and
cooling **DG TREN**

Smart energy networks
DG RTD & TREN

Energy savings and energy
efficiency (incl CONCERTO &
CIVITAS-Plus) **DG TREN**

CO₂ capture and storage for
zero emission power generation
DG RTD

Clean coal technologies
DG TREN

Hydrogen and fuel cells
DG RTD & TREN

Knowledge for energy policy making
DG RTD & TREN

Horizontal programme actions **DG RTD & TREN**

Energy – key challenges

Global energy demand predicted to increase by 60% over the next 30 years

Finite nature of conventional oil and natural gas reserves

EU energy dependency could rise from 50% to 70% by 2030; volatility of oil prices and geopolitical instability

Over 90% of EU CO₂ emissions causing climate change are attributable to energy

Global energy investments of €12 trillion required up to 2030 – huge market potential, but EU under severe threat from global competitors

Cooperation Theme 5 - Energy

OBJECTIVES:

Diversified energy mix

Energy efficiency & conservation

Low carbon

Less dependence on imported fuels

TO ADDRESS:

Sustainable development

Security of supply

Climate change

Competitiveness

Renewables for heating and cooling

Technologies to increase efficiencies and drive down the costs of active and passive heating and cooling from renewable energy sources, ensuring their use in different regional conditions (e.g. district/dedicated space heating and cooling, building integration, energy storage)

Overall goal for 2010

12% of renewable energy sources in the energy mix

Renewable electricity generation

Technologies to increase overall conversion efficiency, cost efficiency and reliability, driving down the cost of electricity production from indigenous renewable energy sources, including biodegradable waste, and the development and the demonstration of technologies suited to different regional conditions.

Goal for 2010

21% of green electricity

Renewable fuel production

Integrated fuel production systems and conversion technologies: to develop and drive down the unit cost of solid, liquid and gaseous (including hydrogen) fuels produced from renewable energy sources including biodegradable waste, aiming at the cost-effective production, storage and use of carbon-neutral fuels, in particular biofuels for transport and electricity generation.

Goal for 2010

5.75% of alternative transport fuel

Hydrogen and fuel cells

Transport, stationary and portable applications

Critical materials, processes and emerging technologies

Fundamental and applied research and technological development

Large-scale demonstration (“lighthouse”) projects

Hydrogen and Fuel Cell Technology Platform
Possible Joint Technology Initiative

CO₂ capture and storage technologies for zero emission power generation

Fossil fuels in World Primary Energy 80% now, 78-82% (2030)
(IEA)

Aim: reduce adverse environmental impacts of fossil fuel use

Highly efficient power and steam generation with near zero
emissions

Efficient and reliable CO₂ capture and storage technologies:
Particularly underground storage

Decrease cost to <20€/tonne

Capture rates above 90%

Prove the long-term stability, safety & reliability of CO₂ storage

Clean coal technologies

Coal share of World Primary Energy
~25% now, ~20-25% in 2030 (IEA scenarios)

Development and demonstration of clean coal & other solid fuel conversion technologies to:

- significantly increase plant efficiency and reliability
- minimise pollutant emissions
- reduce overall costs
- also produce secondary energy carriers (including H₂) and liquid or gaseous fuels

Complementary to CO₂ capture and storage technologies.

Smart energy networks

To increase the efficiency, flexibility, safety and reliability of the more integrated European electricity and gas networks

Electricity:

Interactive customers/operators network

Large scale integration of RES

Distributed generation: fuel cells, micro-turbines

Innovative ICT solutions, RES storage, power electronics &

High Temperature Superconducting devices

Gas:

Intelligent and efficient gas transport and distribution

Integration of RES technologies

Knowledge for energy policy making

Development of tools, methods and models to assess the main economic and social issues related to energy technologies

Databases and scenarios

Impact of technological progress on EU energy policies
Impact of energy policies and technologies on security of supply, environment, society and competitiveness

Horizontal Programme Actions

European Research Area (ERA) and programme management and coordination

Coordination of FP7 Energy and Member States' and Associated Countries' initiatives using the ERA NET scheme

Trans-national co-operation among NCPs

Monitoring the expected impacts of FP7 Energy projects



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ENERGY
First Calls

Indicative project funding in First Calls

- Collaborative projects
 - Small-medium in DG RTD Call: typically 1-3 M€
 - Large in DG RTD Call: typically 5-8 M€
 - In DG TREN Call: not specified
- Coordination and Support Action
 - CA type: typically 1-2 M€
 - SA type: Typically <1 M€
- NB: **Eligibility Criterion** in DG RTD Call only:
 - Large Collaborative Project > 4 M€
 - Small-Medium Collaborative Project < 4 M€

Renewable Electricity Generation RTD Call

Topic code	Title	Funding scheme
2.1.1	Intermediate band (IB) materials and cells for PV	Small collaborative
2.1.2	Dye-sensitised PV solar cells	Small collaborative
2.1.3	Concentrating photovoltaics: cells, optics, modules	Large collaborative
2.1.4	Research for binary thin-film photovoltaics	Small collaborative
2.1.5	Environmental aspects of photovoltaics	Support action
2.2.1	Advanced gas cleaning technologies for biomass	Small collaborative
2.2.2	Innovative technologies for efficient electricity production in biomass-fired IGCC	Small collaborative
2.2.3	New and improved slagging and corrosion control technologies for large-scale biomass co-firing processes	Small collaborative

Renewable Electricity Generation

RTD Call

Topic code	Title	Funding scheme
2.3.1	Development of components and systems for turbines and wind farms	Large collaborative
2.3.2	External conditions, resource assessment and forecasting for wind energy	Small collaborative
2.3.3	Testing, standards and certification for wind energy systems	Small collaborative
2.4.1	Understanding and Mitigation of Induced Seismicity Associated with Geothermal Field Development	Small collaborative
2.5.1	Key components for CSP	Small collaborative
2.5.2	Using CSP for water desalination (Specific International Cooperation Action)	Support action

Renewable Electricity Generation RTD Call

Topic code	Title	Funding scheme
2.6.1	New components and concepts for ocean energy converters	Small collaborative
2.6.2	A strategy for ocean energy	Coordination action
2.6.3	Pre-normative research for ocean energy	Small collaborative
2.7.1	New or improved hydro components and concepts	Small collaborative
2.7.2	A strategy for hydropower	Coordination action
2.8.1	Solar irradiation resource assessment and forecasting	Support action

Renewable Fuel Production RTD Call

Topic code	Title	Funding scheme
3.2.1	Pre-treatment of lignocellulosic biomass for ethanol production	Small collaborative
3.2.2	New and advanced technologies for hydrolysis and/or fermentation of lignocellulosic biomass	Small collaborative
3.2.3	High purity syngas cleaning technologies for biofuels	Small collaborative
3.2.4	Biological conversion of syngas into liquid biofuels	Small collaborative
3.2.7	Identifying research needs and technological opportunities for biofuels production in Latin America (Specific International Cooperation Action)	Support action

Renewable Fuel Production RTD Call

Topic code	Title	Funding scheme
3.3.1	Forest-based biorefinery	Large collaborative
3.3.2	New uses for glycerine in biorefineries	Small collaborative
3.3.3	Developing biorefinery concepts	Support action
3.5.1	Fuel production using solar radiation (Future and Emerging Technologies topic)	Small collaborative
3.7.1	Harmonisation of biomass resource assessment	Coordination action
3.7.2	Marine biomass	Support action

Hydrogen and Fuel Cells

RTD Call

Topic code	Title	Funding scheme
1.1.1	Basic research for materials and processes for Polymer Electrolyte Membrane Fuel Cells (PEMFC)	Small collaborative
1.1.2	Basic research on materials and processes for High Temperature Fuel Cells (SOFC & MCFC)	Small collaborative
1.1.3	Innovative concepts for fuel cells (Future and Emerging Technologies topic)	Small collaborative
1.2.1	New materials and processes for advanced electrolyzers	Small collaborative
1.2.2	New materials and processes for advanced multi-fuel processors	Small collaborative
1.2.3	Advanced Materials for High Temperature thermo-chemical processes	Small collaborative
1.2.4	Novel nanostructured materials for hydrogen storage	Small collaborative
1.3.1	Pre-normative research to support EU and international regulatory activities	Small collaborative

CO₂ Capture and Storage RTD Call

Topic code	Title	Funding scheme
5.1.1	Advanced pre-combustion capture techniques	Large collaborative
5.1.2	Fluid bed based capture techniques	Small collaborative
5.1.3	Advanced separation techniques	Small collaborative
5.1.4	Separation techniques in gaseous fuel power generation	Small collaborative
5.2.1	Development of a suitable methodology for the qualification of deep saline aquifers for CO ₂ storage	Large collaborative

Cross-cutting actions CCS - Clean Coal RTD Call

Topic code	Title	Funding scheme
5+6.1.1	Feasibility study and development of an integrated solution for a large scale zero emission fossil fuel power plant	Large collaborative
5+6.2.1	Support to regulatory activities for CO ₂ capture and storage	Support action
5+6.2.3	Socio-economic assessment of pathways for the deployment of CCS in Europe	Support action
5+6.2.6	Support to international collaboration in zero emission power generation (Specific International Cooperation Action)	Support action

Smart Energy Networks RTD Call

Topic code	Title	Funding scheme
7.1.1	Develop and validate innovative control strategies and network architectures for active networks with large-scale penetration of renewables sources and distributed generation	Large collaborative
7.1.2	Develop new tools to simulate smart distribution networks	Small collaborative
7.2.1	Simulation and state estimation of smart electricity transmission networks	Large collaborative
7.3.1	Electricity network assets management	Coordination action
7.3.2	The value of innovative storage solutions for smart networks	Small collaborative

Knowledge for Energy Policy Making RTD Call

Topic code	Title	Funding scheme
9.1.1	Energy security of supply	Small collaborative
9.1.2	Energy behavioural changes	Small collaborative
9.1.3	Energy technological foresight and scenario development	Small collaborative
9.1.4	Energy technology transfer (Specific International Cooperation Action)	Small collaborative (SICA)
9.2.1	Energy foresight network	Coordination action

Horizontal Programme Actions

RTD Call

Topic code	Title	Funding scheme
10.0.2	Trans-national co-operation among NCPs	Coordination action
10.0.4	Development of a methodology for monitoring the expected impacts of FP7 Energy projects	Support action

Next Calls

2008-RTD:

- Important topics complementary to those in the first call;
- Areas not well covered by the outcome of the first call;
- Future and Emerging Technologies (FET), ERA-NETs and Specific International Cooperation Actions (SICA)

- 2008-TREN, inter alia:

- "Large-scale Integration of Renewable Energy Supply and Energy Efficiency in Buildings: Eco-Buildings" (Area ENERGY.8.3)
- "Innovative Integration of Renewable Energy Supply and Energy Efficiency in large Communities: CONCERTO" (Area ENERGY.8.4)
- Gas networks (in Activity ENERGY.7)

Other programmes where Energy proposals can be submitted

- **Transport, Nanotech, Biotech Themes**
- **CIP – Intelligent Energy for Europe**
- **RFCS Coal and Steel Programme**
 - Clean Coal, Carbon Capture and Storage
- **IDEAS Specific Programme**
 - European Research Council
 - Frontier research
- **PEOPLE Specific programme**
 - Marie Curie Fellowships and Networks
- **CAPACITIES Specific programme**
 - SMEs
 - Infrastructures
 - ERA NET

European Technology Platforms

- A Technology Platform unites all relevant stakeholders in addressing a particular technological challenge
- Bottom-Up Approach with Industry in Lead
- EU Role: Facilitating and Guiding but not Leading or Owning
- Platforms define a common vision which includes a strategic research agenda and deployment strategy
- Taken into Account in Thematic Priorities of FP7
- Some potential “Joint Technology Initiatives”

Technology Platforms: Key Success Factors

- Industry-driven, competitiveness-focussed process
- Wide stakeholder involvement
- Bottom-up approach
- Private / public collaboration
- Operational focus from early stage
- Coherence in the RTD investments that are made at different levels across Europe
- Coherent approach from initial research through to downstream product and service development
- Education and training programme
- Communication / dissemination actions

Joint Technology Initiatives

- ‘The Community may set up joint undertakings or any other structure necessary for the efficient execution of Community RTD programmes’
- Six Fields Envisaged at this Stage
 - Including **hydrogen and fuel cells**
- Other Fields Possible Subsequently

Energy Technology Platforms

- **Hydrogen and fuel cells**
 - Possible JTI
- **Photovoltaics**
- **Biofuels**
- **SmartGrids**
- **Zero-emission fossil fuel plants**
- **Solar Thermal (TREN)**
- **Wind (TREN)**

Information and other Events

- **7/8 February 2007 Brussels**
NCP and Multiplier Event
- **13/14 February 2007**
FP7 Energy & Transport Information Day Brussels
(Registration open)
- **7 March 2007**
Launch Conference, Brussels
- **Area specific Events will be held in various Member States**



Staying Informed



Research Policy, Energy Research

http://ec.europa.eu/research/energy/index_en.htm
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Energy Policy, Energy Research

Green Paper "A European Strategy for Sustainable, Competitive and Secure

http://ec.europa.eu/energy/index_en.html

http://ec.europa.eu/energy/green-paper-energy/index_en.htm



Competitiveness and Innovation Framework Programme Intelligent Energy-Europe

http://ec.europa.eu/enterprise/enterprise_policy/cip/index_en.htm

http://ec.europa.eu/energy/intelligent/index_en.html



Events

http://cordis.europa.eu/fp7/cooperation/energy-events_en.html

Intelligent Energy



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**Thank you
for your
attention!**

Directorate-General for Research
ENERGY