WORK PROGRAMME 2009

COOPERATION

THEME 5

ENERGY

(European Commission C(2008)4598 of 28 August 2008)

ANNUAL WORK PROGRAMME

2009

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COOPERATION THEME 5: ENERGY

Overall objective for FP7:

Adapting the current energy system into a more sustainable one, less dependent on imported fuels and based on a diverse mix of energy sources, in particular renewables, energy carriers and non polluting sources; enhancing energy efficiency, including by rationalising use and storage of energy; addressing the pressing challenges of security of supply and climate change, whilst increasing the competitiveness of Europe's industries.

5.1. CONTEXT

The European Strategic Energy Technology Plan (SET-Plan) adopted by the Commission in November 2007 aims to develop a European Area for Energy Research in order to overcome the fragmentation of Energy research in Europe. Although the SET-Plan reaches well beyond its scope, the Framework Programme has to pave the way for its implementation.

Effort in this work programme focuses therefore on technologies identified in the SET-Plan as key challenges for the next 10 years. This means that second generation biofuels (in particular biorefineries), CO2 capture and storage, solar energy, offshore wind and smart electricity grids have an important part. Activities in these areas aim to enable the pooling of resources and skills and ensure coherence and critical mass in European efforts.

In addition one topic directly supports the implementation of a SET Plan action.

- Topic ENERGY.2009.9.1.1 European energy infrastructure networks and systems transition planning

To continue with the objectives of the Framework Programme a topic is dedicated to geothermal research.

SME relevant Research

SME participation is explicitly encouraged when topics are particularly well suited to such firms. Topics open for proposals indicate whether they are appropriate for the participation of SMEs. This is reflected in the evaluation of these topics where preference will be given to proposals with relevant SMEs participation. Four topics can be highlighted in this work programme:

- Topic ENERGY.2009.2.1.1: Efficiency and material issues for thin-film photovoltaics
- Topic ENERGY.2009.3.2.2: Biowaste as feedstock for 2nd generation
- Topic ENERGY.2009.3.3.1: Sustainable Biorefineries
- Topic ENERGY.2009.7.3.2: High density /rapid release energy storage

International cooperation

All activities are open to researchers and research institutions from third countries and strong efforts are made to encourage them to seize this opportunity. Particular attention is paid to support important strategic bilateral agreements and dialogues, as well as multi-lateral co-

operation initiatives, such as the Carbon Sequestration Leadership Forum (CSLF). Several topics have been specifically highlighted as being research areas which are particularly well suited for international cooperation. For these topics, the active participation of a relevant third country partner or partners could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken. These aspects will be considered specifically during the evaluation of all topics concerned by international cooperation. Following bilateral discussions with a number of important third countries the participation of organisations from such countries or group of (China and India, CSLF) is encouraged. Such opportunities, described in detail in the relevant sections, include:

- Topic ENERGY.2009.2.1.1: Efficiency and material issues for thin-film photovoltaics
- Topic ENERGY.2009.3.2.2: Biowaste as feedstock for 2nd generation
- Topic ENERGY.2009.5.1.1: Innovative capture techniques
- Topic ENERGY.2009.5.2.1: Safe and reliable geological storage of CO2
- Topic ENERGY.2009.5.2.2: Towards an infrastructure for CO2 transport and storage

Cross Thematic approaches

A cross sectoral approach is necessary to achieve the breakthroughs needed for the longer term. This is all the more valid in the area of biorefineries where it is necessary to pool together competences and resources in the domain of energy, biotechnologies environment and materials. One important joint call will therefore target these issues with the following topics:

- Topic ENERGY.2009.3.3.1: Sustainable Biorefineries
- Topic ENERGY.2009.3.3.2: Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries

A coordinated approach between the themes concerned has allowed the design of a package aiming to promote a "Sustainable use of the Seas and Oceans". The following topics will be covered in the Energy part of the work programme:

- Topic ENERGY.2009.2.9.1: Deep off-shore multi-purpose renewable energy conversion platforms for wind/ocean energy conversion
- Topic ENERGY.2009.2.9.2: Coordination action on off-shore renewable energy conversion platforms
- Topic ENERGY.2009.3.2.1: Algal and other suitable non-food aquatic biomass feedstock for 2nd generation biofuel production

Theme 2- "Food, Agriculture and Fisheries, and Biotechnology" and Theme 6 – "Environment" also open relevant topics in this work programme.

Dissemination actions

In order to strengthen the diffusion and use of the output of research, the dissemination of knowledge and transfer of results, including to policy makers, is supported. This complements actions in the Intelligent Energy-Europe (IEE) Programme component of the Competitiveness and Innovation Programme (CIP) to support innovation and remove non-technological barriers to the widespread market deployment of demonstrated energy technologies.

Theme specific information

Long and medium term research

The general rule for topic design is a problem solving approach where proposals are sought on the basis of overall performance targets. Only in a limited number of cases are proposals sought for specific technologies. As a general rule, evaluation will take place in two steps with first stage proposals evaluated on the basis of their scientific quality and the retained stage 2 proposals against the entire set of evaluation criteria. For those topics where the scientific aspect is less compelling (coordination and support activities) evaluation will take place in a single step.

Demonstration (including short and medium term research)

Topics are industrially oriented, with a predominant demonstration component (demonstration projects), and, if necessary, with a small part of integrated research components. Proposals will be evaluated in one step against all the evaluation criteria.

Further details are described in the respective guide for applicants for each call.

5.2. CONTENT OF CALLS IN 2009

ACTIVITY ENERGY.1: HYDROGEN AND FUEL CELLS

NOTE: For 2009, the topics in this Activity will be defined and selected in the annual implementation plan of the Joint Technology Initiative (JTI) on fuel cells and hydrogen, established on the basis of Article 171 of the Treaty, which will become operational in 2008. The JTI is an industry led public private partnership which will define and manage a strategic, target-oriented research and development programme to support the broad market introduction of fuel cell and hydrogen technologies.
The JTI content covers fundamental, industrial and applied research as well as demonstration and relevant cross-cutting activities. The detailed programme of activities of the JTI is decided by its Governing Board. Therefore, such activities are not covered within this work programme.

ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION

Research into, development and demonstration of integrated technologies for electricity production from renewables, suited to different regional conditions where sufficient economic and technical potential can be identified, in order to provide the means to raise substantially the share of renewable electricity production in the EU. Research should increase overall conversion efficiency, cost efficiency, significantly drive down the cost of electricity production from indigenous renewable energy resources including biodegradable fraction of waste, enhance process reliability and further reduce the environmental impact and eliminate existing obstacles.

AREA ENERGY.2.1: PHOTOVOLTAICS

Photovoltaics is the most capital-intensive renewable source of electricity. Research will include the development and demonstration of new processes for photovoltaic manufacturing, including the manufacturing of equipment for the PV industry, new photovoltaic-based building elements complying with existing standards and codes and the demonstration of the multiple additional benefits of photovoltaic electricity. Longer term strategies for next-generation photovoltaics (both high-efficiency and low-cost routes) will also be supported.

Topic ENERGY.2009.2.1.1: Efficiency and material issues for thin-film photovoltaics
Content/scope: Thin-film photovoltaics has an inherent low-cost potential because its manufacture requires only small amounts of active materials and it is suited to fully-integrated processing and high throughputs. Research is needed to improve device quality and module efficiency, and to develop a better understanding of the relationship between the deposition processes and parameters, the electrical and optical properties of the deposited materials, and the device properties that result. Key issues to be addressed are improvement of understanding of electronic properties of materials and their interfaces, improvement of the quality and stability of transparent conductive oxides (TCOs), and development of advanced methods for optical confinement. Results should be transferred to production lines by the end of the project.
Funding scheme: Collaborative project

Expected impact: Accelerated market development of cost-effective and more efficient thin-film photovoltaics.
Other information: In order to maximise industrial relevance and impact of the research effort, the active participation of SMEs represents an added value to this topic. This will be reflected in the evaluation. The active participation of relevant Chinese partners could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken; this will also be considered by the evaluators.
Open in call: FP7-ENERGY-2009-1

Topic ENERGY.2009.2.1.2: Solar Photovoltaics: Manufacturing and product issues for thin-film photovoltaics

Content/scope: Demonstration of standard production equipment and better processes to reduce materials and energy use, achieve higher throughputs and yields, increase recycling rates and improve both the environmental profile and the overall economics of thin-film photovoltaics. Quality assurance procedures, in-line monitoring techniques, integration and automation of production and processing steps are also needed to improve production yield and module efficiency and reduce production costs. Equipment manufacturers will play a leading role in this development. Knowledge gained in relevant industries outside PV should be also exploited.
Funding scheme: Collaborative project
Expected impact: Improved productivity parameters (e.g. process yield, throughput) and lower costs leading to accelerated market development and market uptake of cost-effective and more environmentally friendly thin-film photovoltaics
Other information: This topic is coordinated with the parallel research work. The active participation of key industrial partners and technology suppliers is essential to achieve the full impact of the project. This will be considered in the evaluation. The guidelines for demonstration projects figure in the guide for applicants. The industrial partners should include a realistic and convincing market deployment plan with clear roles, tasks and responsibilities of defined partners if the project is successful.
Up to two projects may be funded.
Open in call: FP7-ENERGY-2009-2

Topic ENERGY.2009.2.1.3 Support to the coordination of stakeholders' activities in the field of Photovoltaics

Content/scope: Major stakeholders in the field of Photovoltaics have established the European Photovoltaic Technology Platform in order to foster cooperation in the field and to design and implement a Strategic Research agenda. This process should be supported by appropriate administrative and communication activities. Administrative activities include the organisation and management of workshops, conferences and meetings among stakeholders. Communication activities will focus on facilitating the flow and exchange of information within the Technology Platform, with other relevant Technology Platforms, and externally; on development and maintenance of IT tools, as well as on the preparation of information leaflets, brochures, reports and other relevant documents.

Funding Scheme: Coordination and support action (supporting action)
Expected Impact: A further deepening of the cooperation of relevant stakeholders would contribute to increase the efficiency and competitiveness of research in the field of photovoltaics.
Other Information: Up to one project may be funded. For this topic, the EC contribution will be up to 50% of the total eligible costs of the project for all participants, with a maximum contribution of EUR 500 000 for a period of three years.
Open in call: FP7-ENERGY-2009-3

AREA ENERGY.2.2: BIOMASS

Development should aim at extending applications to a wider range of biomass feedstocks in industrial applications based on innovative conversion systems or innovative integration of existing processes and systems with significant improvement in overall energy efficiency.
Demonstration should aim at medium to large scale applications, covering the whole process chain from sustainable feedstock supply over energy conversion to the recovery of by-products. Preference will be given to the ambitious use of biofuels (solid, liquid or gaseous) with still high exploitation potentials such as forest residues, energy crops, agricultural residues incl. straw, refuse derived fuels etc. Medium- to large scale power generation from organic waste also comprises mass burning of solid municipal waste as well as the separate use of pre-treated and pre-separated municipal waste fractions. Emphasis is put on innovations with high replication potential throughout Europe. Industrial stakeholders relevant for the subsequent market deployment of the innovation are expected to participate.
Demonstration should aim at medium to large scale bio-electricity systems with the feedstock supply based on energy crops or recovered fuels covering the whole process chain from sustainable feedstock supply over energy conversion.

Topic ENERGY.2009.2.2.1: Biomass to electricity from energy crops and recovered fuels

Content/scope: Innovative demonstration of the close linkage and complete supply chain of energy crop plantations (incl short rotation coppice and forestry) and waste recovered fuels in the medium to large scale (> 10 MW) cogeneration plants aiming to the efficient use of natural resources. Only projects that address CHP applications (or other projects addressing additional energy services to the community other than electricity only), will be considered. These should be based on close-coupled energy crop plantations (including sustainable methods, machinery development, drying technologies, efficient conversion technologies etc) and waste separation plants with optimised production processes for energy efficiency.
Funding scheme: Collaborative project
Expected impact: Cost reduction through innovations in technology and plant efficiency. Technological improvements and developments in the overall supply chain of non-traditional biomass and recovered fuels leading to cost and GHG efficient electricity and heat generation.
Other information: Proposals with a high electricity to heat ratio and high overall efficiency (over the whole chain) will receive the highest priority at the evaluation. The guidelines for demonstration projects figure in the guide for applicants. Up to two projects may be funded.
Open in call: FP7-ENERGY-2009-2

AREA ENERGY.2.3: WIND

See AREA ENERGY.2.9: CROSS-CUTTING ISSUES where topics covering both AREA ENERGY.2.3: WIND and ENERGY.2.6: OCEAN are included.

WIND – GRID integration is included in Area 7.1: DEVELOPMENT OF INTER ACTIVE DISTRIBUTION ENERGY NETWORKS

AREA ENERGY.2.4: GEOTHERMAL

Research and development should aim to develop enabling technologies for the exploitation of high-temperature resources, and to prove the feasibility and sustainability of Enhanced Geothermal systems (EGS) technology in representative EU sites. Demonstration projects should aim at improving geothermal reservoir detection technology, increasing the performance of fluid production systems (corrosion and scaling), and increasing the efficiency of electricity generating systems.

Topic ENERGY.2009.2.4.1: Understanding and mitigation of induced seismicity associated with geothermal field development

Content/scope: To develop a better understanding of the mechanisms of induced seismicity linked to the fracturing of deep rocks in EGS – Enhanced Geothermal Systems. To define clear strategies for fluid injection to improve control of the extraction of heat from geothermal reservoirs over a prolonged period.

Funding Scheme: Collaborative project

Expected Impact: Accelerated market development and deployment of EGS through avoidance of technical and social obstacles to the further development of this technique.

Other Information: The active participation of industrial partners involved in the exploitation of EGS is essential to achieving the full impact of the project. This will be considered in the evaluation. Up to one project may be funded.

Open in call: FP7-ENERGY-2009-1

AREA ENERGY.2.5: CONCENTRATED SOLAR POWER

Concentrated solar power (CSP) has much scope for improvements in the optical and thermal efficiency of the solar components, power generation efficiency (including hybridisation with other fuel), and operational reliability.

A large reduction in both capital cost and maintenance cost, together with the improvement of the environmental profile, is necessary to make CSP systems more competitive with conventional electricity sources and other renewables.

Topic ENERGY.2009.2.5.1: Key components for Concentrated Solar Power

Content/scope: Research, development and testing of CSP technologies to improve the efficiency, durability, reliability and environmental profile (including cooling aspects) of selected key components. Research may cover new materials, such as innovative coatings, and the use of nanotechnology. The project shall demonstrate the added value of improving their selected components. Improvements in the environmental profile are expected, especially in the need for cooling water.

Funding scheme: Collaborative Project

Expected impact: Improvements in the performance of key components, in particular at the high end of current temperature ranges, should lead to a substantial reduction in the cost of electricity generation from CSP.

Other information: The active participation of relevant industrial partners is essential to achieving the full impact of the project. This will be considered in the evaluation.

Open in call: FP7-ENERGY-2009-1

AREA ENERGY.2.6: OCEAN

See AREA ENERGY.2.9: CROSS-CUTTING ISSUES where topics covering both AREA ENERGY.2.3: WIND and ENERGY.2.6: OCEAN are included

AREA ENERGY.2.7: HYDRO

In this Area, no topics are open in calls published in this work programme

AREA ENERGY.2.8: INNOVATIVE INTEGRATION OF RENEWABLE ENERGY SUPPLY AND ENERGY EFFICIENCY IN LARGE BUILDINGS AND/OR CONCERTO COMMUNITIES

In this Area, no topics are open in calls published in this work programme

AREA ENERGY.2.9: CROSS-CUTTING ISSUES

This area will cover issues common to the different renewable energy technologies.

Topic ENERGY.2009.2.9.1: Deep off-shore multi-purpose renewable energy conversion platforms for wind/ocean energy conversion

Content/Scope: Deep offshore renewable electricity generation will raise new challenges in maritime planning and permitting in Europe and in the sustainable development of Europe's marine resources. Offshore renewable electricity generation has certain advantages, such as no competition for land use, higher and more predictable wind speeds, and higher ocean power levels. However, costs for deep offshore projects are understandably higher than for onshore or other developments, so research and economies of scale are needed to bring them down to a more competitive level. Research on multiple uses of the sea at the same location shall be carried out: in particular, deep off-shore floating multi-purpose renewable energy production platforms able to host wind/ocean energy converters shall be investigated. The project shall address, inter alia, new platform design, component engineering, risk assessment, spatial planning, platform-related grid connection and possible use of off-shore renewable energy conversion platforms also for non-energy purposes such as environmental measurements.

Funding scheme: Collaborative project

Expected impact: Improve the cost/benefit ratio of the off-shore technologies through multiple use of the infrastructures. This will bring off-shore renewable energy applications closer to the market.

Other Information: The effective involvement of industrial partners active in off-shore developments is essential to achieve the full impact of the project. This will be considered in the evaluation.

Open in call: FP7-ENERGY-2009-1

Topic ENERGY.2009.2.9.2: Coordination action on off-shore renewable energy conversion platforms

Content/scope: The project shall focus on establishing the state of research, technological development and demonstration activities on off-shore renewable energy conversion

platforms and on the definition of strategic priorities, including socio economics aspects, for the development of off-shore renewable energy conversion.
Funding scheme: Coordination and support action (coordinating action)
Expected impact: Improved information exchange and promotion of specific research cooperation in this field between academia and industry, public and private actors.
Other Information: Up to one project may be funded. The review of relevant activities outside the EU, alongside the EU review will be welcomed. Because of the need to have results in time to inform future research policy the maximum duration of the project is considered to be 18 months. The effective involvement of industrial partners active in off-shore developments is essential to achieve the full impact of the project. This will be considered in the evaluation.
Open in call: FP7-ENERGY-2009-1

ACTIVITY ENERGY.3: RENEWABLE FUEL PRODUCTION

Research into, development and demonstration of improved fuel production systems and conversion technologies for the sustainable production and supply chains of solid, liquid and gaseous fuels from biomass (incl. biodegradable fraction of waste). Emphasis should be on new types of biofuels in particular for transport and electricity as well as on new production, storage and distribution routes for existing biofuels, including the integrated production of energy and other added-value products through biorefineries. Aiming to deliver 'source to user' carbon benefits, research will focus on improving energy efficiency, enhancing technology integration and use of feedstock.

AREA ENERGY.3.1: FIRST GENERATION BIOFUEL FROM BIOMASS

In this Area, no topics are open in calls published in this work programme

AREA ENERGY.3.2: SECOND GENERATION FUEL FROM BIOMASS

Second generation biofuels comprise a range of alternatives such as lignocellulosic ethanol, syngas gas based fuels, pyrolysis-oil based biofuels and others. Activities will cover process development and system integration focusing on the conversion process, with a view to improve cost-competitiveness of biofuels while minimising the environmental impact of biofuel production. Results are expected to expand the biomass feedstock available for biofuel production, assisting the take-off of a large biofuel industry while helping to avoid food/fuel competition for the land use.

Topic ENERGY.2009.3.2.1: Algal and other suitable non-food aquatic biomass feedstock for 2nd generation biofuel production

Content/scope: The project shall focus on establishing the state of research, technological development and demonstration activities regarding the exploitation of various algal and other suitable non-food aquatic biomass for energy production, also addressing the full life cycle analysis - from collection to fuel use - in terms of environmental, economic and social sustainability. The review of relevant activities outside the EU, alongside the EU review will be welcomed.
Funding Scheme: Coordination and support action (coordinating action)

Expected Impact: Development of existing and planning of future activities at national and pan-European level and structuring of this field of research which is currently rather scattered.
Other Information: Because of the need to have results in time to inform future research policy the maximum duration of the project is considered to be 18 months. Up to one project may be funded.
Open in call: FP7-ENERGY-2009-1

Topic ENERGY.2009.3.2.2: Biowaste as feedstock for 2nd generation
Content/scope: To use waste as a feedstock for 2nd generation biofuel production. The research activities shall address, depending on the type of biowaste as feedstock, the development of collection systems, sorting, pre-treatment, fuel conversion technologies that are energy efficient, environmentally friendly and cost efficient, and the end-user requirements.
Funding Scheme: Collaborative project
Expected Impact: Development of new energy conversion technologies; better understanding of using biowaste to produce fuel
Other Information: In order to maximise industrial relevance and impact of the research effort, besides research organisations, the active participation of SMEs and private and public communities is seen as essential. This will be reflected in the evaluation. The active participation of relevant Indian partners could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken; this will also be considered by the evaluators.
Open in call: FP7-ENERGY-2009-1

AREA ENERGY.3.3: BIOREFINERY JOINT CALL

Biorefinery is the sustainable processing of biomass into a spectrum of value-added products (chemicals, materials, food and feed) and energy (biofuels, power and heat). By producing multiple bioproducts and bioenergy, a biorefinery takes advantage of components and intermediaries and maximises the value derived from refining operations.
The aim of the joint call is the research, development and integration of innovative technologies to prove the viability related to the entire value chain (biomass production, biomass conversion, safe recycling and/or disposal of waste, conformity of end-products to end-user requirements) of advanced biorefineries. It will be implemented through two topics. The topic "Sustainable Biorefineries" will be targeted at the funding of a limited number of large, multi-disciplinary, collaborative projects addressing bio-products, bio-energy, sustainability and technical and economical viability. The topic "Enhancing exchange of information, synergies and cross-fertilization between projects in the field of Biorefineries" will further seek to promote coordination of on-going research at European and national levels across Biotechnology, Energy, Industrial Technologies and Environment on distinctive features of the biorefinery concept through a single Coordination Action.

Quality proposals with the intended level of integration are expected to achieve a break-through beyond "the business as usual" scenario. Furthermore, proposals shall necessarily include the sustainability assessment of any proposed solution on the basis of a life cycle approach. This shall be developed with the aim to provide a robust scientific basis for policy and decision making at different levels and scales (from production unit to policy development).

Specific information on the joint call evaluation and implementation is provided in the call fiche.

Topic ENERGY.2009.3.3.1: Sustainable Biorefineries

Scope: Development of advanced biorefineries for sustainable processing of biomass into building blocks for the production of bio-based chemicals, materials, second generation biofuels, power and heat. The biorefineries shall demonstrate their performance, sustainability and feasibility at least at pilot scale in an integrated approach. Part of the biorefinery complex that is closer to the market shall be demonstrated at industrial pilot plant scale.

All proposals shall address the entire value chain from biomass feedstock production, logistics and pre-treatment to the development of thermo-chemical and bio-chemical technologies, including bio-technological routes, for the conversion of different types of biomass feedstock into bio-based products and energy. The utilisation and upgrading of residues and process waste streams and the purification and upgrading of the various products into final marketable services to consumers shall also be addressed. Bio-technological tools for the development of new non-food industrial crops and/ or biomass sources as feedstock may be applied. The upgrading and integration of new stable materials as well as of new non-enzymatic high-selective catalysts may be considered. The integration and optimisation aspects of all the main biorefinery sub-systems shall be described and show progress beyond the state-of-the-art.

With regard to sustainability, all proposals shall assess for the entire value chain the environmental, economic and social sustainability, including consequences due to the competition for food and biomass resources, the impact on water use and quality, changes in land-use, soil carbon stock balance and fertility, net balance of greenhouse gases, impact on biodiversity, potential toxicological risks, energy efficiency. Impacts on international and regional dynamics, end-users and consumer needs, investment feasibility may also be considered.

Funding Scheme: Collaborative Project

Expected Impact: Funded projects are expected to demonstrate the capacity of biorefineries to contribute to European competitiveness and wealth by responding to the need for supplying a wide range of bio-based products and energy in an economically, socially, and environmentally sustainable manner. New competences, new job opportunities and new markets are also expected. Furthermore the development of biorefineries is expected to also contribute to the implementation of several EU policies and initiatives, notably the Lead Market Initiative, the SET Plan, and the Energy & Climate Package in general.

Other information: The participation of relevant industrial partners, along with research organisations, SMEs, end-users and civil society organisations is essential to achieve the expected impact. This will be considered in the evaluation. The proposals may consider opportunities of international cooperation and address international integration of value chains, provided that they respond to sustainability criteria.

Open in call: FP7-2009-BIOREFINERY

Topic ENERGY.2009.3.3.2: Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries

Scope: The aim is to promote coordination of on-going research at European and national levels across Biotechnology, Energy, Industrial Technologies and Environment on distinctive features of the biorefinery concept. Information exchange and cross fertilisation may concern any aspect of the feedstock, the conversion and fractionation technologies, the integration of processes and uses of side-streams, the biofuels and the bio-based products, the energy

efficiency, the economic, socio-economic and environmental performance, as well as other sustainability issues (impacts on food production schemes, impact on water use and quality, changes in land-use, access to resources, impact on biodiversity, and the net balance of greenhouse gases). Activities should aim to overcome fragmentation in this multidisciplinary field and develop cross-thematic synergies, identifying gaps and overlaps, defining research priority needs and infrastructure. In addition, activities shall involve dissemination of results.
Funding Scheme: Coordination and support action (coordinating action)
Expected Impact: Significant improvement is expected in the exchange and use of the information available on biorefinery concepts within the thematic projects, in the identification of complementary research results and the cross-fertilisation to make best use of them, and in the synergies between the thematic projects. Significant enhancement is also expected in the cooperation between key researchers and industries that are active in biorefinery research funded by EU and national programmes.
Other information: The consortium should include a balanced partnership from all scientific domains involved (biotechnologies-agriculture-food, energy, environment and industrial technologies) with solid experience and competence in the field and strong project management skills. The partnership should demonstrate the added value of the cross-thematic collaboration in the proposed action. In that respect, the participation of relevant industrial partners is deemed as essential to achieve the expected impact. This will be considered in the evaluation. Networking and exchange activities with relevant international programmes shall be established. Up to one project may be funded.
Open in call: FP7-2009-BIOREFINERY

AREA ENERGY.3.4: BIOFUELS FROM ENERGY CROPS

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.3.5: ALTERNATIVE ROUTES TO RENEWABLE FUEL PRODUCTION

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.3.6: BIOFUEL USE IN TRANSPORT

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.3.7: CROSS-CUTTING ISSUES

Topic ENERGY.2009.3.7.1 Support to the coordination of stakeholders' activities in the field of Biofuels

Content/scope: Major stakeholders in the field of Biofuels have established the Biofuels European Technology Platform in order to foster cooperation in the field and to design and implement a Strategic Research agenda. This process should be supported by appropriate administrative and communication activities. Administrative activities include the organisation and management of workshops, conferences and meetings among stakeholders. Communication activities will focus on facilitating the flow and exchange of information within the Technology Platform, with other relevant Technology Platforms, and externally; on development and maintenance of IT tools, as well as on the preparation of information leaflets, brochures, reports and other relevant documents.

Funding Scheme: Coordination and support action (supporting action)
Expected Impact: A further deepening of the cooperation of relevant stakeholders would contribute to increase the efficiency and competitiveness of research in the field of biofuels.
Other Information: Up to one project may be funded. For this topic, the EC contribution will be up to 50% of the total eligible costs of the project for all participants, with a maximum contribution of EUR 500 000 for a period of three years.
Open in call: FP7-ENERGY-2009-3

ACTIVITY ENERGY.4: RENEWABLES FOR HEATING AND COOLING

Research into, development and demonstration of a portfolio of technologies and devices including storage technologies to increase the potential of active and passive heating and cooling from renewable energy sources to contribute to sustainable energy. The aim is to achieve substantial cost reductions, increase efficiencies, further reduce environmental impacts and optimise the use of technologies in different regional conditions where sufficient economic and technical potential can be identified. Research and demonstration should include new systems and components for industrial applications (incl. thermal sea water desalination), district and/or dedicated space heating and cooling, building integration and energy storage.

AREA ENERGY.4.1: LOW/MEDIUM TEMPERATURE SOLAR THERMAL ENERGY

The focus of the solar thermal area will be on the following topics: i) to develop higher efficiency, and lower cost solar systems with high performing collectors (e.g. using plastic materials with high thermal and optical performances); ii) to develop small scale, high performing, low price, solar thermal cooling systems to meet the increasing demand from the tertiary and household sectors; iii) to demonstrate large scale solar thermal systems for industrial applications and solar heating and cooling as well as for sea water desalination.

Topic ENERGY.2009.4.1.1: Low/medium temperature solar thermal systems for industrial Process Heat
Content/scope: Demonstrate collectors optimised for temperatures in the range of 80 to 250°C and large scale integration of those collectors into existing industrial heat process systems (> 5 MWth). Special efforts should be devoted to define and carry out the strategies and tools to integrate the solar thermal technology into industrial heat demand. Test and validate the complete integration of solar system in the heat management processes. Projects could include a combination of existing low-temperature collectors and novel medium/high temperature collectors in a hybrid system or cascade design.
Funding scheme: Collaborative project ***Expected impact:*** Develop market deployment of the huge potential of solar thermal source for industry heat supply. Demonstrate that solar thermal heating is a secure and reliable complementary supply source to conventional heat production process at acceptable competitive costs.
Other information: The active participation of key industrial partners and technology suppliers is essential to achieve the full impact of the project. This will be considered in the evaluation. The guidelines for demonstration projects figure in the guide for applicants. Up to two projects may be funded.
Open in call: FP7-ENERGY-2009-2

AREA ENERGY.4.2: BIOMASS

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.4.3: GEOTHERMAL ENERGY

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.4.4: INNOVATIVE INTEGRATION OF RENEWABLE ENERGY SUPPLY AND ENERGY EFFICIENCY IN LARGE BUILDINGS AND/OR CONCERTO COMMUNITIES

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.4.5: CROSS-CUTTING ISSUES

The focus of cross-cutting issues will be as follows: i) to develop testing procedures, standards and labels for components and modular systems; ii) to develop cost-efficient and reliable combined RES/RES hybrid systems; iii) to demonstrate new compact and cost effective advanced heat or cold storage systems with higher energy density than water and water/glycol mixtures. Medium-to-long term thermal storage systems and enhanced storage systems in combination with solar thermal power are of particular interest; iv) to pursue comprehensive impact assessments of future developments in the renewables for heating and cooling sector; v) to promote and disseminate innovations in the renewables for heating and cooling sector.

Topic ENERGY.2009.4.5.1: Hybrid systems based on solar thermal heating/ cooling, backed up by biomass or geothermal to compensate heat load intermittence

Content/scope: demonstrate innovative large scale (> 10 MWth) hybrid system combination with compact storage system to achieve close to 100% RES supply. The primary source should be Solar thermal with complementary supply from biomass and/or geothermal heat/cooling load.

Funding scheme: Collaborative project ***Expected impact:*** develop advanced synergies and use complementarities between solar thermal and biomass/ geothermal in order to achieve a close to 100 % RES supply with overall significant cost reduction, increased technology reliability and improved environmental impact from biomass.

Other information: The active participation of key industrial partners and technology suppliers is essential to achieve the full impact of the project. This will be considered in the evaluation. The guidelines for demonstration projects figure in the guide for applicants. Up to one project for Solar Thermal-Biomass and/or up to one project for solar thermal/ Geothermal and/or up to one project for all the three sources together may be funded.

Open in call: FP7-ENERGY-2009-2

ACTIVITY ENERGY.5: CO2 CAPTURE AND STORAGE TECHNOLOGIES FOR ZERO EMISSION POWER GENERATION

Research, development and demonstration of technologies to drastically reduce the adverse environmental impact of fossil fuel use aiming at highly efficient and cost effective power and/ or steam generation plants with near zero emissions, based on CO2 capture and storage technologies, in particular underground storage.

AREA ENERGY.5.1: CO2 CAPTURE

Projects in this area should optimise and develop capture techniques for both green field and retrofit power generation applications.

Topic ENERGY.2009.5.1.1: Innovative capture techniques

Content/scope: Capture is the most costly component of CCS, but has also the most scope for cost reduction. RTD is needed on innovative capture (including oxyfuel) techniques. Proposals could focus on specific solvents/sorbents, components or systems and may include their integration in the power plant (both for new and retrofit applications). Projects need to aim for ambitious and clearly defined objectives, including the contribution to the increase of the overall power plant efficiency.

Funding scheme: Collaborative project.

Expected impact: Progress in this area should result in a significant reduction of the efficiency penalty of CO2 capture for power plants and in a substantial decrease of the cost of capture. This would allow accelerating the commercial deployment of large scale near zero emission power generation technology based on CCS.

Other information: The active participation of relevant partners from the Carbon Sequestration Leadership Forum could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken; this will be considered by the evaluators.

Open in call*:* FP7-ENERGY-2009-1

AREA ENERGY.5.2: CO2 STORAGE

Projects in this area should address the safety of geological CO2 storage at all timescales, the liability issues, for different kinds of CO2 storage underground, e.g. saline aquifers, depleted oil or gas fields, enhanced oil or gas recovery, enhanced coal bed methane.

Topic ENERGY.2009.5.2.1: Safe and reliable geological storage of CO2

Content/scope: One of the prime prerequisites for geological CO2 storage is to provide evidence that it is safe and reliable. RTD is needed on all relevant aspects of safety of geological CO2 storage. Projects could deal with one or all phases of the storage process, and address all relevant timescales for different storage options. RTD should be placed in the context of the accounting techniques and monitoring principles put forward by the Commission Directive on CO2 storage, and should pay due attention to raising public awareness and creating acceptance for geological storage.

Funding scheme: Collaborative project.

Expected impact: A methodical approach to storage safety will provide the analytical base needed for an accountable stewardship for the stored CO2. It is expected that this will build confidence in - and addressing public acceptance of - geological storage as a means to reduce CO2 emissions, allowing the safe and commercial deployment of large scale near zero emission power generation technology based on CCS.

Other information: The active participation of relevant partners from the Carbon Sequestration Leadership Forum could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken; this will need to be considered by the evaluators.
Open in call*:* FP7-ENERGY-2009-1

Topic ENERGY.2009.5.2.2: Towards an infrastructure for CO2 transport and storage
Content/scope: The large scale deployment of CCS involves connecting one or more large stationary CO2 sources to one or more geological storage sites. Optimising transport costs for any given case requires a balanced decision on transport modes and a rigorous matching of CO2 source and sink. Safe transport of CO2 requires that the different components of the infrastructure (e.g. pipeline, ship and equipment materials) are sufficiently advanced to meet safety and environmental requirements. Projects may address transport cost, safety of components or systems, infrastructure lifetime or a combination of these issues.
Funding scheme: Collaborative project with a predominant research component.
Expected impact: progress in this area would allow the safe and commercial deployment of large scale near zero emission power generation technology based on CCS.
Other information: The active participation of relevant partners from the Carbon Sequestration Leadership Forum could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken; this will need to be considered by the evaluators.
Open in call*:* FP7-ENERGY-2009-1

ACTIVITY ENERGY.6: CLEAN COAL TECHNOLOGIES

Research, development and demonstration of technologies to substantially improve efficiency, reliability and cost of coal (and other solid hydrocarbons) fired power plants. This can also include the production of secondary energy carriers (including hydrogen) and liquid or gaseous fuels. “Clean coal” in this context really means a sustainable solid hydrocarbon value chain with a focus on efficient and clean coal utilization, i.e. coal use aiming at zero or significantly reduced emissions by means of enhanced plant efficiency and CO2 capture and storage.

AREA ENERGY.6.1: CONVERSION TECHNOLOGIES FOR ZERO EMISSION POWER GENERATION

Topic ENERGY.2009.6.1.1: Efficiency increases in existing and new build pulverised coal power plants with a view to CCS.
Scope: Development and demonstration of innovative solutions in components and/or overall processes in pulverized coal fired power plants in order to increase their efficiency. Work under this topic could for example address demonstration of new materials/coatings in ultra supercritical conditions.
Funding scheme: Collaborative project
Expected impact: The efficiency of pulverized coal fired power plants needs to be increased to allow for deployment of CCS technologies. Projects under this topic shall go beyond state of the art and contribute to achieve net efficiencies of more than 45% in coal fired power plants using CCS.

Other information: Relevant participation of key industrial partners and technology suppliers is required to achieve the full impact of the project. The guidelines for demonstration projects figure in the guide for applicants.
Up to two projects may be funded.
Open in call**:** *FP7-ENERGY-2009-2*

AREA ENERGY.6.2: COAL-BASED POLY-GENERATION

In this Area, no topics are open in calls published in this work programme.

CROSS-CUTTING ACTIONS BETWEEN ACTIVITIES ENERGY.5 AND ENERGY.6 (Activity ENERGY.5&6)

AREA ENERGY.5&6.1: POWER GENERATION TECHNOLOGIES FOR INTEGRATED ZERO EMISSION SOLUTIONS

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.5&6.2: CROSS CUTTING AND REGULATORY ISSUES

Projects in this area should contribute to address general economic, social, environmental and infrastructural development issues essential to the large scale commercial deployment of CCS technologies. Results should contribute to further development of the proposed_regulatory framework for CCS technology in the EU. Research will also identify, assess and recommend ways to overcome non-technical and non-regulatory barriers to the deployment of CCS as identified in the Communication on supporting early demonstration of sustainable power generation from fossil fuels.

Topic ENERGY.2009.5&6.2.1 Support to the coordination of stakeholders' activities in the field of Zero Emission Energy Production

Content/scope: Major stakeholders in the field of Zero Emission Energy Production have established the ZEP European Technology Platform in order to foster cooperation in the field and to design and implement a Strategic Research agenda. This process should be supported by appropriate administrative and communication activities. Administrative activities include the organisation and management of workshops, conferences and meetings among stakeholders. Communication activities will focus on facilitating the flow and exchange of information within the Technology Platform, with other relevant Technology Platforms, and externally; on development and maintenance of IT tools, as well as on the preparation of information leaflets, brochures, reports and other relevant documents.
Funding Scheme: Coordination and support action (supporting action)
Expected Impact: A further deepening of the cooperation of relevant stakeholders would contribute to increase the efficiency and competitiveness of research in the field of Zero Emission Energy Production.
Other Information: Up to one project may be funded. For this topic, the EC contribution will be up to 50% of the total eligible costs of the project for all participants, with a maximum contribution of EUR 500 000 for a period of three years.
Open in call: FP7-ENERGY-2009-3

ACTIVITY ENERGY.7: SMART ENERGY NETWORKS

To facilitate the transition to a more sustainable energy system, a wide-ranging R&D effort is required to increase the efficiency, flexibility, safety, reliability and quality of the European electricity and gas systems and networks notably within the context of a more integrated European energy market.

AREA ENERGY.7.1: DEVELOPMENT OF INTER-ACTIVE DISTRIBUTION ENERGY NETWORKS

To fully exploit the potential advantages of renewable energies, distributed generation and demand respond techniques it is necessary to re-think the basic philosophy governing the electricity distribution systems. Distributed generation sources must be fully integrated into the distribution system. At the same time, full use must be made of the customers' demand flexibilities, and appropriate economic signals, such as real time pricing, must be developed to exploit these flexibilities. The future active network will efficiently link small and medium scale power sources with consumer demands. Power flow assessment, voltage control, protection and intelligent metering solutions require cost-competitive technologies and new communication systems with more sensors and actuators than presently seen in the distribution systems.

Topic ENERGY.2009.7.1.1: Optimisation of the electricity grid with large scale renewables and storage

Content/scope: Increase the stability and the security of the electricity grid through improvements in power system planning and the management of the grid for an improved matching between supply and demand and addressing all possible bottlenecks; direct and indirect storage should be integrated into the management; prepare the grid for the uptake of a massive amount of all renewable electricity, and mainly large and off-shore wind parks; demonstrate new grid management tools to match the varying supply with a varying demand on an EU-wide scale. Storage may be direct storage of electricity or indirect storage in the system, improved management of existing pump stations, etc. Existing wind production forecasting tools and power planning tools shall be used together with existing grid management tools to ensure best integration with grid connection, its needs and limits; taking into account the best use of high voltage lines.

Funding scheme: Collaborative project ***Expected impact:*** substantial overall improvement of the stability, the security of supply and reduction in the cost of electricity transmission and distribution

Other information: The effective participation of Transmission System Operators (TSOs) as well as of key industrial partners and technology suppliers is essential to achieve the full impact of the project. This will be considered in the evaluation. The guidelines for demonstration projects figure in the guide for applicants.

Up to two projects may be funded.

Open in call: FP7-ENERGY-2009-2

AREA ENERGY.7.2: PAN-EUROPEAN ENERGY NETWORKS

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY 7.3: CROSS CUTTING ISSUES AND TECHNOLOGIES

This activity will cover enabling and emerging technologies and cross-cutting issues, of a technical and non-technical nature, required to support the development of the Smart Energy Networks. It will also address activities of support to the coordination of non-community research programmes.

Topic ENERGY.2009.7.3.1: HTS Devices for Electricity Networks

Contents/scope: High-temperature superconducting (HTS) based devices have the potential to improve the performance, stability, and efficiency of electricity networks. However, cost and reliability of the technology are major barriers to their commercialisation. Projects should focus on developing devices which are most promising for implementation in the next 10 years, and should address both costs and reliability issues.
Funding scheme: Collaborative Project.
Expected impact: Progress in this area should enable the establishment of a market for HTS based devices for electricity networks.
Other information: The proposal should demonstrate the technical and economic potential of the proposed solution compared to competing technologies.
Open in call*:* FP7-ENERGY-2009-1

Topic ENERGY.2009.7.3.2: High density /rapid release energy storage

Content/scope: Research is required on the development of innovative high density energy storage devices with rapid release. The effort should focus on increasing the power density and reducing response time for energy storage, either for stationary or for dual-use (stationary and transport) applications. Technologies covered may include batteries, flywheels and capacitors suitable for applications in the power range of several tens of KW to 1 MW. The aim is to develop integrated systems and components that can be adapted or re-configured to meet the different applications requirements.

Funding scheme: Collaborative Project.

Expected impact: Energy storage is increasingly being recognised as a key element in improving grid reliability and stability in the future electricity delivery system, as well as hybrid drivetrain vehicles. The research and development of cost-effective energy storage systems, based on different technologies, should contribute to the reliability, efficiency, security and environmental impact of these different applications.

Other information: In order to maximise industrial relevance and impact of the research effort, the active participation of SMEs represents an added value to this topic. This will be reflected in the evaluation.

Open in call*:* FP7-ENERGY-2009-1

Topic ENERGY.2009.7.3.3: Strategic impact of the roll-out of electric and plug-in hybrid vehicles on grid infrastructure.

Contents/Scope: Electric and plug-in hybrids vehicle have a significant potential in increasing energy efficiency, the penetration of RES and hydrogen in the transport sector, as well as to contribute to the reduction of CO2 emissions. They are likely to gain a considerable market share in the next ten to twenty years. The large scale introduction of electric and plug-in hybrids will have a major impact on the Smart Electricity Networks, in terms of planning, operation and market functioning.

Proposals should address all effects of the introduction of plug-in hybrids that are directly relevant to the future development of the power system, including planning of electricity generation and transport infrastructure, impact on RES-Electricity integration, system control and balancing, defence and black restart plans, regulatory aspects and potential consequences on market arrangements.

Funding scheme: Collaborative Project.

Expected impact: A methodical approach to the proper evaluation of the impact of electric and plug-in hybrid vehicle on the electricity system will provide the analytical base needed to develop the necessary electricity network related policy and regulations, as well as to properly plan the technical evolution of the required network infrastructure.

Other information:

Open in call: FP7-ENERGY-2009-1

Topic ENERGY.2009.7.3.4 Support to the coordination of stakeholders' activities in the field of Smart Grids

Content/scope: Major stakeholders in the field of Smart Grids have established the European Technology Platform on Electricity Networks of the Future in order to foster cooperation in the field and to design and implement a Strategic Research agenda. This process should be supported by appropriate administrative and communication activities. Administrative activities include the organisation and management of workshops, conferences and meetings among stakeholders. Communication activities will focus on facilitating the flow and exchange of information within the Technology Platform, with other relevant Technology Platforms, and externally; on development and maintenance of IT tools, as well as on the preparation of information leaflets, brochures, reports and other relevant documents.

Funding Scheme: Coordination and support action (supporting action)

Expected Impact: A further deepening of the cooperation of relevant stakeholders would contribute to increase the efficiency and competitiveness of research in the field of Smart Grids.

Other Information: Up to one project may be funded. For this topic, the EC contribution will be up to 50% of the total eligible costs of the project for all participants, with a maximum contribution of EUR 500 000 for a period of three years.

Open in call: FP7-ENERGY-2009-3

ACTIVITY ENERGY.8: ENERGY EFFICIENCY AND SAVINGS

The vast potential for final and primary energy consumption savings and improvements in energy efficiency need to be harnessed through the research into, optimisation, validation and demonstration of new concepts, optimisation of proved and new concepts and technologies for buildings, transport, services, and industry. Large-scale actions may be supported by innovative R&D addressing specific components or technologies. A key aim is the optimisation of the local community energy system, balancing a significant reduction in energy demand with the most affordable and sustainable supply solution, including the use of new fuels in dedicated fleets.

AREA ENERGY.8.1: EFFICIENT ENERGY USE IN THE MANUFACTURING INDUSTRY

The manufacturing industry is consuming large quantities (percentage of primary energy) of energy - electricity, heat, cold, fuels - for the production of industrial and consumer goods; any increase in energy efficiency in the manufacturing processes would deliver significant benefits on security of energy supply as well as reduction of green house gases emissions while reducing the cost of the manufactured goods.

Topic ENERGY.2009.8.1.1: Energy efficiency in energy intensive industry

***Content/scope*:** innovative solutions for significant improvement of energy intensity and CO2 intensity of the processes or reduction of energy and exergy embedded in products in the energy intensive manufacturing industry (such as for example iron and steel; non-metallic minerals; chemical and petrochemical; glass and ceramics, paper and pulp and others). Innovative solutions for overall site/facility management and optimisation through energy and product management systems (use of existing EMS tools). Site optimisation integrating several industries or processes (e.g. petrochemical or chemical complexes; industrial parks,

etc.) is considered as bringing added value to the project. Proposals could include CHP and district heating/cooling systems exchanging waste heat and cold between buildings and processes with overall monitoring and optimised planning or establishment of ESCOs for site optimisation.
***Funding scheme*:** Collaborative project
***Expected impact*:** to move to low carbon manufacturing processes or site/facility management
***Other information*:** The active participation of key industrial partners is essential to achieving the full impact of the project. This will be considered in the evaluation. The guidelines for demonstration projects figure in the guide for applicants. Up to two projects may be funded.
Open in call: FP7-ENERGY-2009-2

AREA ENERGY.8.2: HIGH EFFICIENCY POLY-GENERATION

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.8.3: LARGE-SCALE INTEGRATION OF RENEWABLE ENERGY SUPPLY AND ENERGY EFFICIENCY IN BUILDINGS: ECO-BUILDINGS

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.8.4: INNOVATIVE INTEGRATION OF RENEWABLE ENERGY SUPPLY AND ENERGY EFFICIENCY IN LARGE COMMUNITIES: CONCERTO

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.8.5: INNOVATIVE STRATEGIES FOR CLEAN URBAN TRANSPORT: CIVITAS-PLUS

In this Area, no topics are open in calls published in this work programme.

AREA ENERGY.8.6: SOCIO-ECONOMIC RESEARCH AND INNOVATION

Tenders for Socio-economic research are described in section 5.4 OTHER ACTIONS

AREA ENERGY.8.7: THEMATIC PROMOTION AND DISSEMINATION

In this Area, no topics are open in calls published in this work programme.

ACTIVITY ENERGY.9: KNOWLEDGE FOR ENERGY POLICY MAKING

Development of tools, methods and models to assess the main economic and social issues related to energy technologies. Activities will include the building of databases and scenarios for an enlarged EU and the assessment of the impact of energy and energy-related policies on security of supply, environment, society, competitiveness of the energy industry and issues of public acceptability. Of particular importance is the impact of technological progress on Community policies. Activities will include scientific support for policy development.

AREA ENERGY.9.1: KNOWLEDGE TOOLS FOR ENERGY-RELATED POLICY MAKING

To achieve a sustainable, interconnected European energy system will require massive energy infrastructure change as well as organisation innovation. It will happen over decades, transforming the energy industry and infrastructures, and represent one of the most important investments of the 21st century. Very diverse sectors will be affected, not only energy, environment and transport, but also information and communication technologies, agriculture, competition, trade and others. This will require a multidisciplinary approach to issues that are increasingly interconnected. To plan and develop future infrastructures and policies, it is essential to have a good understanding of the full implications and logistics of new energy technology options.

Topic ENERGY.2009.9.1.1 European energy infrastructure networks and systems transition planning

Scope: In the context of the European Strategic Energy Technology Plan (SET-Plan), the objective is to build the foundations for a durable European 'capacity' to contribute to the process of transition to a low carbon economy. Activities could include: mapping, coordination and networking of on-going activities in Europe relating to low carbon integrated energy systems, energy infrastructure and systems transition analysis and planning; evaluation of existing tools and development of capacity to model the evolution of the European energy system; development of European transition planning techniques and tools; development of a common and transparent assessment framework for benchmarking the potential roll-out of energy technologies; development of a roadmap of activities that will be necessary to provide Europe with the tools necessary to plan and develop future infrastructures and policies; developing the basis of a good understanding of the full implications and logistics of new energy technology options.

Funding Scheme: Coordination and support action (coordinating action and supporting action)

Expected Impact: to contribute, to optimise and harmonise the development of low carbon integrated energy systems across the EU and its neighbouring countries. Better understanding of the overall issue and appropriate techniques and tools would give greater confidence with regard to suitable transition strategies and assist policy makers in making complex and far reaching decisions on a rational basis.

Other Information: up to one Coordinating project may be funded and/or up to one Supporting project. A multi-disciplinary approach is encouraged. A policy on 'open access' to tools and data for the common good should be established. In particular, this activity should interact with the Information System for the European Strategic Energy Technology Plan (SET-Plan) being developed by the Joint Research Centre of the European Commission (JRC). The active participation of relevant partners from neighbouring third countries could

add to the scientific and/or technological quality of the project and/or lead to an increased impact of the work to be undertaken.
***Open in call**:* FP7-ENERGY-2009-3

AREA ENERGY.9.2: SCIENTIFIC SUPPORT TO POLICY

In the context of EU energy policy, aiming to security of supply, sustainability and competitiveness, different levels of analysis are needed to assess the potential of all energy resources, in particular from renewable energy sources, and their impacts. In particular references should be made to the regular Strategic EU Energy Review.

Topic ENERGY 2009.9.2.1 European scientific multidisciplinary "think-tank" to support energy policy and to assess the potential impacts of its measures.

Content/scope: The new integral energy and climate change policy brings many new intellectual challenges, in particular, the need to develop a multidisciplinary approach to issues that are increasingly interconnected. For instance, to achieve the 20% renewables target entirely new approaches and a a paradigm shift on the energy system will be needed. Environmental, economic, technical, trade and legal issues need to be addressed urgently. Similarly new multidisciplinary approaches will be needed regarding energy efficiency, the Internal Energy Market, and oil and gas security stock, but to name a few, are needed.
The 'think tank' will contribute to and enhance the European Union's ability to properly develop these issues in terms of policy research. It should bring together Europe's foremost energy, economic, legal, trade and engineering academics and experts from industry, to support the rapid development of Community policy by providing input to the assessment of potential impacts of policy alternatives and options. The 'think tank' will cooperate with the EU's Joint Research Centre.
The 'think tank' will work on the basis of an annual work plan that anticipates and corresponds with the policy agenda; it could be supported by a network of energy policy research organisations that will analyse the issues in hand, prepare for and stimulate the debate of the 'think tank' and thus enable for and facilitate its ideas and perspectives. It would select a few topics for which it will deliver a 'think tank' report, analysing policy alternatives, against a predefine set of criteria, that in every case will include at least sustainability, security of supply and competitiveness. The 'think tank' may expand its consultation basis via internet to a broader community.
The topics should be developed in the context of the European Strategic Energy Technology Plan (SET plan). The Think Tank will also consider input from other advisory groups (e.g. AGE) for technological issues
***Funding scheme*:** Coordination and support action (coordinating action)
Expected impact: To improve the knowledge support to policy making and assessing policy options.
Other information: Consortium composition could include universities, research centres and industry representative organisations
***Open in call**:* FP7-ENERGY-2009-2

ACTIVITY ENERGY.10: HORIZONTAL PROGRAMME ACTIONS

The topics described in the section have a horizontal character not linked specifically to any particular technology. The challenge for policy-makers in the field of research, technology and innovation, particularly in the Energy context, is the timely identification of new

directions that have a high potential for significant breakthrough and may become tomorrow's energy robust technologies.

Topic ENERGY.2009.10.1.1: Trans-national co-operation among NCPs

Content/scope: Reinforcing the network of National Contact Points (NCP) for the Seventh Framework Programme under the Energy Theme, by promoting trans-national cooperation. The action will focus on identifying and sharing good practices. This may entail various mechanisms such as benchmarking, joint workshops, training, and twinning schemes. Practical initiatives to benefit cross-border audiences may also be included, such as trans-national brokerage events. The specific approach should be adapted to the nature of the theme and to the capacities and priorities of the NCPs concerned. Special attention will be given to helping less experienced NCPs rapidly acquire the know-how accumulated in other countries.

Funding scheme: Coordination and support action (coordinating action)

Expected impact: An improved NCP service across Europe, therefore helping simplify access to FP7 calls, lowering the entry barriers for newcomers, and raising the average quality of submitted proposals. A more consistent level of NCP support services across Europe. More effective participation of organisation from third countries, alongside European organisations, in line with the principle of mutual benefit.

Other information: The Commission may finance one single proposal under this heading for a duration of 36 months. Proposals should include NCPs who have been officially appointed by the relevant national authorities. This is an eligibility criterion. Other participants from the EU and Associated countries are ineligible. If certain NCPs wish to abstain from participating, this fact should be explicitly documented in the proposal. Third countries may be included, where there is mutual benefit.

Open in call: FP7-ENERGY-2009-3

5.3. IMPLEMENTATION OF CALLS

Call title: Energy Call Part 1

Call identifier: FP7-ENERGY-2009-1

Date of publication: 3 September 2008 [1]

Deadline: 25 November 2008 at 17.00.00, (Brussels local time)[2]

Indicative budget [3]: EUR 83 million from the 2009 budget[4,5]

All budgetary figures given in this work programme are indicative. Following the evaluation of proposals the final budget awarded to actions implemented through calls for proposals may vary:

- by up to 10% of the total value of the indicated budget for this call; and
- the repartition of the sub-budgets awarded within this call, following the evaluation of projects, may also vary by up to 10% of the total value of the indicated budget.

Indicative Budget

	Indicative budget[6]
Area Energy.2.1 Photovoltaics Area Energy.2.5 Concentrated Solar Power	EUR 26 million
Area Energy.2.4 Geothermal Area Energy.2.9 Cross cutting Issues Activity Energy.3 Renewable Fuel Production	EUR 22 million
Activity Energy.5 CO2 capture and storage Technologies for Zero emission Power generation	EUR 23 million
Activity Energy.7 Smart energy Networks	EUR 12 million

[1] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[2] At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.
[3] A reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.
[4] Under the condition that the preliminary draft budget for 2009 is adopted without modification by the budgetary authority.
[5] Any savings from previous activities launched under the previous RTD calls in the Energy work programme would be assigned to call FP7-2009-1 subject to a global budgetary commitment in 2008.
[6] A reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.

Topics called:

Activity/ Area	Topics called	Funding Schemes
ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION		
AREA ENERGY.2.1: PHOTOVOLTAICS	ENERGY.2009.2.1.1: Efficiency and material issues for thin film photovoltaics	Collaborative Project
AREA ENERGY.2.4: GEOTHERMAL	ENERGY.2009.2.4.1 Understanding and mitigation of induced seismicity associated with geothermal field development	Collaborative Project
AREA ENERGY.2.5: CONCENTRATED SOLAR POWER	ENERGY.2009.2.5.1: Key components for Concentrated Solar Power	Collaborative Project
AREA ENERGY.2.9: CROSS CUTTING ISSUES	ENERGY.2009.2.9.1: Deep off-shore multi-purpose platforms for wind/ocean energy conversion	Collaborative Project
	ENERGY.2009.2.9.2: Coordination activities on offshore platforms	Coordination and support action (coordinating action)
ACTIVITY ENERGY.3: RENEWABLE FUEL PRODUCTION		
AREA ENERGY.3.2: SECOND GENERATION FUEL FROM BIOMASS	ENERGY.2009.3.2.1: Algal and other suitable non-food aquatic biomass feedstock for 2nd generation biofuel production	Coordination and support action (coordinating action)
	ENERGY.2009.3.2.2: Biowaste as feedstock for 2nd generation	Collaborative Project
ACTIVITY ENERGY.5: CO2 CAPTURE AND STORAGE TECHNOLOGIES FOR ZERO EMISSION POWER GENERATION		
AREA ENERGY.5.1 CO2 CAPTURE	ENERGY.2009.5.1.1: Innovative capture techniques	Collaborative Project
AREA ENERGY.5.2: CO_2 STORAGE	ENERGY.2009.5.2.1: Safe and reliable geological storage of CO2	Collaborative Project
	ENERGY.2009.5.2.2: Towards an infrastructure for CO2 transport and storage	Collaborative Project
ACTIVITY ENERGY.7: SMART ENERGY NETWORKS		
AREA ENERGY 7.3: CROSS CUTTING ISSUES AND TECHNOLOGIES	ENERGY.2009.7.3.1: HTS Devices for Electricity Networks	Collaborative Project
	ENERGY.2009.7.3.2: High density /rapid release energy storage	Collaborative Project

	ENERGY.2009.7.3.3.: Strategic impact of the roll-out of electric and plug-in hybrid vehicles on grid infrastructure	Collaborative project

Eligibility conditions
The eligibility criteria for this call are set out in Annex 2 to the work programme.

Evaluation procedure:
The evaluation shall follow a two-step procedure.

The page limits that apply to proposals submitted under this call are given in the Guide for Applicants and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages in excess of these limits.

The first stage proposal should focus on the S&T content and on clear identification of the intended results, their intended use and the expected impact (economic, social, environmental, etc.). Information on the consortium composition and the estimated financial resources involved should also be provided..

First stage proposals will be evaluated on the basis of their scientific quality. They will be evaluated remotely with the consensus session being held in Brussels. Stage 1 proposals shall be submitted at the closure date mentioned above.

Coordinators of retained proposals in step 1 ('go' proposals) will be invited to submit a complete proposal that will be then evaluated against the entire set of evaluation criteria. The closure date of the second submission will be specified in the invitation to submit the complete proposal. The indicative closure date is 1.04.2009.

The evaluation criteria and subcriteria, together with the selection and award criteria, for the different funding schemes are set out in Annex 2 to this work programme

Proposals will not be evaluated anonymously.

At the Panel stage, proposals with equal overall scores will be prioritised, in contrast to Annex 2, according to their scores for the Quality criterion. If they are still tied, they will be prioritised according to their scores for the Impact criterion.. If any proposals are still tied, then overall work programme coverage will be used to decide the priority order.

Indicative evaluation and contractual timetable:

Evaluation stage 1 proposals: December/January 2009

Evaluation stage 2 proposals: April /May 2009. Evaluation results: estimated to be available within two months after the closure date. A reserve list of projects might be established.

Consortia agreements: Participants in Collaborative Projects are required to conclude a consortium agreement; participants in coordination and support actions are encouraged, but not required, to conclude a consortium agreement

Particular requirements for participation, evaluation and implementation:

For this call, implemented via a two-step procedure, the following criteria and thresholds are applied:

Evaluation criteria and thresholds for stage 1 proposals:

Stage 1 proposals are evaluated on the basis of their **S/T quality**

A list of proposals for 250% of the available budget will be invited to proceed to stage 2. If there is a tie between the proposals with the lowest mark to enter the list of proposals to proceed to stage 2, all those proposals with the same mark will be added to the list.

Evaluation criteria and thresholds for stage 2 proposals:

Stage 2 proposals are evaluated on the basis of the following three criteria: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of half-point scores. Successful proposals must pass the minimum thresholds as follows:

	Minimum threshold
S/T quality	**4/5**
Implementation	**3/5**
Impact	**3,5/5**
Overall threshold required	**12/15**

The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.
The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation. They are summarised in the table below[7]:

Funding scheme	**Minimum conditions**
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Collaborative project for specific international cooperation actions (SICA)	At least 4 independent legal entities. Of these, 2 must be established in different MS or AC. The other two must be established in different international cooperation partner countries.
Coordination and support action (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and support action (supporting action)	At least 1 independent legal entity.

[7] MS = Member States of the EU; AC = Associated country. Where the minimum conditions for an indirect action are satisfied by a number of legal entities, which together form one legal entity, the latter may be the sole participant, provided that it is established in a Member State or Associated country.

The following points will reflected in the evaluation

ENERGY.2009.2.1.1: Efficiency and material issues for thin-film photovoltaics: In order to maximise industrial relevance and impact of the research effort, the active participation of SMEs represents an added value to this topic. The active participation of relevant Chinese partners could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken;

ENERGY.2009.2.4.1: Understanding and mitigation of induced seismicity associated with geothermal field development: The active participation of industrial partners involved in the exploitation of EGS is essential to achieving the full impact of the project.

Topic ENERGY.2009.2.5.1: Key components for Concentrated Solar Power: The active participation of relevant industrial partners is essential to achieving the full impact of the project.

ENERGY.2009.2.9.1: Deep off-shore multi-purpose renewable energy conversion platforms for wind/ocean energy conversion: The effective involvement of industrial partners active in off-shore developments is essential to achieve the full impact of the project.

ENERGY.2009.2.9.2: Coordination action on off-shore renewable energy conversion platforms: The effective involvement of industrial partners active in off-shore developments is essential to achieve the full impact of the project. This will be considered in the evaluation.

ENERGY.2009.3.2.2: Biowaste as feedstock for 2nd generation: In order to maximise industrial relevance and impact of the research effort, the active participation of SMEs represents an added value to this topic. The active participation of relevant Indian partners could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken.

ENERGY.2009.5.1.1: Innovative capture techniques: The active participation of relevant partners from the Carbon Sequestration Leadership Forum could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken

ENERGY.2009.5.2.1: Safe and reliable geological storage of CO2: The active participation of relevant partners from the Carbon Sequestration Leadership Forum could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken

ENERGY.2009.5.2.2: Towards an infrastructure for CO2 transport and storage: The active participation of relevant partners from the Carbon Sequestration Leadership Forum could add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken

ENERGY.2009.7.3.2: High density /rapid release energy storage: In order to maximise industrial relevance and impact of the research effort, the active participation of SMEs represents an added value to this topic.

Call title: Energy Call Part 2

Call identifier: FP7-ENERGY-2009-2

Date of publication: 3 September 2008[8]

Deadline: 29 April 2009 at 17.00.00, (Brussels local time)[9]

Indicative budget[10]: EUR 100 million from the 2009 budget[11]

The final budget awarded to this call, following the evaluation of projects, may vary by up to 10% of the total value of the call.

Activity	Funding Schemes	Indicative Amount (EUR million)
ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION	Collaborative projects	EUR 28 million
ACTIVITY ENERGY.4: RENEWABLES FOR HEATING AND COOLING	Collaborative projects	EUR 15 million
ACTIVITY ENERGY.6: CLEAN COAL TECHNOLOGIES	Collaborative projects	EUR 10 million
ACTIVITY ENERGY.7: SMART ENERGY NETWORKS	Collaborative projects	EUR 35 million
ACTIVITY ENERGY.8: ENERGY EFFICIENCY AND SAVINGS	Collaborative projects	EUR 10 million
ACTIVITY ENERGY.9: KNOWLEDGE FOR ENERGY POLICY MAKING	Coordination and support action (coordinating action)	EUR 2 million

All budgetary figures and in particular the repartition of the sub-budgets awarded within this call are indicative.

[8] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

[9] At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.

[10] A reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.

[11] Under the condition that the preliminary draft budget for 2009 is adopted without modification by the budgetary authority.

Topics called:

Activity/ Area	Topics called	Funding Schemes
ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION		
AREA ENERGY.2.1: PHOTOVOLTAICS	ENERGY.2009.2.1.2 : Solar Photovoltaics: Manufacturing and product issues for thin-film photovoltaics	Collaborative project
AREA ENERGY.2.2: BIOMASS	ENERGY.2009.2.2.1: Biomass to electricity from energy crops and recovered fuels	Collaborative project
ACTIVITY ENERGY.4: RENEWABLES FOR HEATING AND COOLING		
AREA ENERGY.4.1: LOW/MEDIUM TEMPERATURE SOLAR THERMAL ENERGY	ENERGY.2009.4.1.1.: Low/medium temperature Solar thermal systems for industrial Process Heat	Collaborative project
AREA ENERGY.4.5: CROSS-CUTTING ISSUES	ENERGY.2009.4.5.1.: Hybrid systems based on solar thermal heating/cooling, backed up by biomass or geothermal to compensate heat load intermittence	Collaborative project
ACTIVITY ENERGY.6: CLEAN COAL TECHNOLOGIES		
AREA ENERGY.6.1: CONVERSION TECHNOLOGIES FOR ZERO EMISSION POWER GENERATION	ENERGY.2009.6.1.1.: Efficiency increases in existing and new build pulverised coal power plants with a view to CCS	Collaborative project
ACTIVITY ENERGY.7: SMART ENERGY NETWORKS		
AREA ENERGY.7.1: DEVELOPMENT OF INTER-ACTIVE DISTRIBUTION ENERGY NETWORKS	ENERGY.2009.7.1.1.: Optimisation of the electricity grid with large scale renewables and storage	Collaborative project
ACTIVITY ENERGY.8: ENERGY EFFICIENCY AND SAVINGS		

AREA ENERGY.8.1: EFFICIENT ENERGY USE IN THE MANUFACTURING INDUSTRY	ENERGY.2009.8.1.1.: Energy efficiency in energy intensive industry	Collaborative project

ACTIVITY ENERGY.9: KNOWLEDGE FOR ENERGY POLICY MAKING		
AREA ENERGY.9.2: SCIENTIFIC SUPPORT TO POLICY	ENERGY.2009.9.2.1.: European scientific multidisciplinary "think-tank" to support energy policy and to assess the potential impacts of its measures	Coordination and support action (coordinating action)

Eligibility conditions

- The eligibility criteria for this call are set out in Annex 2 to the work programme.

Evaluation procedure:

- The evaluation shall follow a single step procedure.
- The evaluation criteria (including weights and thresholds) and subcriteria, together with the selection and award criteria, for the different funding schemes are set out in Annex 2 to this work programme.
- Proposals will not be evaluated anonymously.
- Ranked lists of proposals will be established for each activity. At the Panel stage, proposals with equal overall scores will be prioritised according to their scores for the Quality criterion. If they are still tied, they will be prioritised according to their scores for the Impact criterion. If any proposals are still tied, then overall work programme coverage will be used to decide the priority order. A reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.

Indicative evaluation and contractual timetable:

Evaluations are expected to be carried out in June 2009. It is expected that the contract negotiations for the short-listed proposals will open by September/October 2009.

Consortium agreements:

Participants in Collaborative Projects are required to conclude a consortium agreement; participants in coordination and support actions are encouraged, but not required, to conclude a consortium agreement.

Particular requirements for participation, evaluation and implementation:
The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation. They are summarised in the table below[12]:

Funding scheme	**Minimum conditions**
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and support action (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and support action (supporting action)	At least 1 independent legal entity.

- Where required in the topic description, "predominant" demonstration component requires that the elements described in section 5.2 are taken into account.
- Where indicated in the topic description that the participation of SMEs represents an added value or they are particularly welcome, the SMEs participation will be considered in the evaluation.

Forms of grant:
The forms of grant and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

[12] MS = Member States of the EU; AC = Associated country. Where the minimum conditions for an indirect action are satisfied by a number of legal entities, which together form one legal entity, the latter may be the sole participant, provided that it is established in a Member State or Associated country

Call title: Energy Call Part 3

Call identifier: FP7-ENERGY-2009-3

Date of publication: 3 September 2008 [13]

Deadline: 25 November 2008 at 17.00.00, (Brussels local time)[14]

Indicative budget [15]: EUR 5.5 million from the 2009 budget[16]

The final budget awarded to this call, following the evaluation of projects, may vary by up to 10% of the total value of the call.

All budgetary figures given in this call are indicative.

Topics called:

Activity/ Area	Topics called	Funding Schemes
ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION		
AREA ENERGY.2.1: PHOTOVOLTAICS	ENERGY.2009.2.1.3 Support to the coordination of stakeholders' activities in the field of Photovoltaics	Coordination and support action (supporting action)
ACTIVITY ENERGY.3: RENEWABLE FUEL PRODUCTION		
AREA ENERGY.3.7: CROSS CUTTING ISSUES	ENERGY.2009.3.7.1 Support to the coordination of stakeholders' activities in the field of Biofuels	Coordination and support action (supporting action)
ACTIVITY ENERGY.5: CO2 CAPTURE AND STORAGE TECHNOLOGIES FOR ZERO EMISSION POWER GENERATION		
AREA ENERGY.5&6.2: CROSS CUTTING AND REGULATORY ISSUES	ENERGY.2009.5&6.2.1 Support to the coordination of stakeholders' activities in the field of Zero Emission Energy Production	Coordination and support action (supporting action)
ACTIVITY ENERGY.7: SMART ENERGY NETWORKS		
AREA ENERGY 7.3: CROSS CUTTING ISSUES AND TECHNOLOGIES	ENERGY.2009.7.3.4 Support to the coordination of stakeholders' activities	Coordination and support action (supporting action)

[13] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

[14] At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.

[15] A reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.

[16] Under the condition that the preliminary draft budget for 2009 is adopted without modification by the budgetary authority.

	in the field of Smart Grids	
ACTIVITY ENERGY.9: KNOWLEDGE FOR ENERGY POLICY MAKING		
AREA ENERGY.9.1: KNOWLEDGE TOOLS FOR ENERGY-RELATED POLICY-MAKING	ENERGY.2009.9.1.1 European energy infrastructure networks and systems transition planning	Coordination and support action (coordinating or supporting action)
ACTIVITY ENERGY 10:HORIZONTAL PROGRAMME ACTIONS		
	ENERGY.2009.10.1.1: Trans-national co-operation among NCPs	Coordination and support action (coordinating action)

Eligibility conditions

The eligibility criteria for this call are set out in Annex 2 to the work programme.

Evaluation procedure:

The evaluation shall follow a single step procedure.

Proposals may be evaluated remotely.

The page limits that apply to proposals submitted under this call are given in the Guide for Applicants and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages in excess of these limits.

The evaluation criteria (including weights and thresholds) and subcriteria, together with the selection and award criteria, for the different funding schemes are set out in Annex 2 to this work programme.

Proposals will not be evaluated anonymously.

At the Panel stage, proposals with equal overall scores will be prioritised according to their scores for the Quality criterion. If they are still tied, they will be prioritised according to their scores for the Impact criterion. If any proposals are still tied, then overall work programme coverage will be used to decide the priority order.

Indicative evaluation and contractual timetable:
Evaluations are expected to be carried out in December/ January 2009. It is expected that the contract negotiations for the short-listed proposals will open by March 2009.

Consortium agreements:
Participants in coordination and support actions are encouraged, but not required, to conclude a consortium agreement.

The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.
The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation. They are summarised in the table below[17]:

Funding scheme	**Minimum conditions**
Coordination and support action (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and support action (supporting action)	At least 1 independent legal entity.

[17] MS = Member States of the EU; AC = Associated country. Where the minimum conditions for an indirect action are satisfied by a number of legal entities, which together form one legal entity, the latter may be the sole participant, provided that it is established in a Member State or Associated country.

Call title: BIOREFINERY Joint Call

Call identifier: FP7-2009-BIOREFINERY

Date of publication: 3 September 2008[18]

Deadline: 2 December 2008 at 17.00.00, Brussels local time[19]

Indicative budget [20],[21]: EUR 57 million from the 2009 budget of which:

- EUR 10 million from Theme 2 – Food, Agriculture and fisheries, biotechnology (KBBE)
- EUR 7 million from Theme 4 – Nanosciences, nanotechnologies, materials and new production technologies (NMP)
- EUR 30 million from Theme 5 – Energy
- EUR 10 million from Theme 6 - Environment.

The final budget awarded to this call, following the evaluation of projects, may vary by up to 10% of the total value of the call.

Topics called:
The Biorefinery topics are evaluated and implemented jointly by the Themes 2, 4, 5, 6 mentioned above. They are identical in each theme. When applying for this call please use one of the activity codes below. Each proposal should be submitted only once.

Activity/ Area	Topics called	Funding Schemes
ACTIVITY KBBE 3: LIFE SCIENCES, BIOTECHNOLOGY AND BIOCHEMISTRY FOR SUSTAINABLE NON-FOOD PRODUCTS AND PROCESSES		
KBBE-2009-3-7-01	Sustainable Biorefineries	Collaborative Project
KBBE-2009-3-7-02	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordinating action)
ACTIVITY NMP 4: INTEGRATION OF TECHNOLOGIES FOR INDUSTRIAL APPLICATIONS		
NMP-2009-4.0-1	Sustainable Biorefineries	Collaborative Project
NMP-2009-4.0-2	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordinating action)
ACTIVITY ENERGY 3: RENEWABLE FUEL PRODUCTION		

[18] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication

[19] At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.

[20] A reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.

[21] Under the condition that the preliminary draft budget for 2009 is adopted without modification by the budgetary authority.

ENERGY.2009.3.3.1	Sustainable Biorefineries	Collaborative Project
ENERGY.2009.3.3.2	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordinating action)
ACTIVITY ENV 3: ENVIRONMENTAL TECHNOLOGIES		
ENV.2009.3.3.2.2	Sustainable Biorefineries	Collaborative Project
ENV.2009.3.3.2.3	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordinating action)

Indicative Budget per topic

	Indicative Budget [22]
Sustainable Biorefineries	EUR 55 million
Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	EUR 2 million

In case the budget of EUR 2 million for the topic 'Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries' cannot be consumed (totally or partially) the remaining budget will be returned to the topic 'Sustainable Biorefineries'.

Eligibility Conditions
The evaluation criteria, together with the eligibility, selection and award criteria, for the different funding schemes are set out in Annex 2 to this work programme

The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation. They are summarised in the table below[23]:

Funding scheme	**Minimum conditions**
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and support action(coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.

Evaluation procedure:

- Proposals will not be evaluated anonymously.
- Proposals will be evaluated remotely with the consensus session being held in Brussels.

[22] A reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.

[23] MS = Member States of the EU; AC = Associated country. Where the minimum conditions for an indirect action are satisfied by a number of legal entities, which together form one legal entity, the latter may be the sole participant, provided that it is established in a Member State or Associated country.

- The page limits that apply to proposals submitted under this call are given in the Guide for Applicants and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages in excess of these limits.

- At the Panel stage, proposals with equal overall scores will be prioritised according to their scores for the S/T Quality criterion. If they are still tied, they will be prioritised according to their scores for the Impact criterion.

TOPIC SUSTAINABLE BIOREFINERIES

The evaluation of the topic *Sustainable Biorefineries* shall follow a two-step procedure. The first stage proposals should focus on the S&T content and on clear identification of the intended results, their intended use and the expected impact (economic, social, environmental, etc.). Information on consortium composition and estimated financial resources involved should also be provided.

First stage proposals will be evaluated on the basis of their S/T Quality and Impact. Stage 1 proposals shall be submitted by the closure date mentioned above.

Coordinators of retained proposals in stage 1 ("go" proposals) will be invited to submit a complete proposal that will be then evaluated against the entire set of evaluation criteria. The closure date of the second submission will be specified in the invitation to submit the complete proposal. The indicative closure date is 05.05.2009.

Hearings may be organised.

Evaluation criteria and thresholds
Stage 1 proposals are evaluated on the basis of their **S/T quality** and **Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

STAGE 1	**Minimum threshold**
S/T quality	**4/5**
Impact	**3/5**
Overall threshold required	**8/10**

Stage 2 proposals are evaluated on the basis of the following three criteria: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

STAGE 2	**Minimum threshold**
S/T quality	**4/5**
Implementation	**3/5**
Impact	**4/5**
Overall threshold required	**12/15**

Indicative Evaluation and contractual timetable

Evaluation stage 1 proposals: remote phase December 2008, consensus phase January 2009

Evaluation stage 2 proposals: remote phase May / June 2009, consensus phase June 2009. Evaluation results: estimated to be available by the end of July 2009. A reserve list of projects might be established.

The following points will be reflected in the evaluation

The participation of relevant industrial partners, along with research organisations, SMEs, end-users and civil society organisations is essential to achieving the expected impact.

TOPIC ENHANCING EXCHANGE OF INFORMATION, SYNERGIES AND CROSS-FERTILISATION BETWEEN PROJECTS IN THE FIELD OF BIOREFINERIES

The evaluation of the topic Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries shall follow a one-step procedure. Proposals shall be submitted by the closure date mentioned above and evaluated against the entire set of evaluation criteria.

Evaluation criteria and thresholds

Proposals are evaluated on the basis of the following three criteria: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

	Minimum threshold
S/T quality	**3/5**
Implementation	**3/5**
Impact	**3/5**
Overall threshold required	**10/15**

Indicative Evaluation and contractual timetable

Evaluations are expected to be carried out in December 2008 and January 2009 (Remote phase December 2008, consensus phase January 2009). It is expected that the contract negotiations for the short listed proposal will open by March 2009.

The following points will be reflected in the evaluation

The participation of relevant industrial partners is deemed as essential to achieving the expected impact.

POINTS RELEVANT TO BOTH TOPICS

Consortia agreements
Participants in Collaborative Projects are required to conclude a consortium agreement prior to grant agreement. Participants in coordination and support actions are encouraged, but not required, to conclude a consortium agreement.

The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme

5.4. OTHER ACTIONS

The activities described in this section fall outside of the mainstream 'calls for proposals' means of implementation of the work programme. Funds will be made available to support the following activities[24]:

- one call for tender.

a) Call for Tender
A call for tender planned for 2009 is shown in the table below:

Subject (Indicative title)	Indicative Budget in Euros	Expected duration	Indicative timetable
Support to Concerto	One contract 5 million	3 years	Third quarter 2009

Its main objectives will be:

- to provide the CONCERTO III projects with technical, political, social and socio-economic support
- To build the bridge between the CONCERTO I and CONCERTO II from FP6 with CONCERTO III from FP7
- To ensure long term monitoring of the energy performance after the end of the contracts of CONCERTO I (+ 5 years) and CONCERTO II (+ 3 years) projects and to link this performance with CONCERTO III projects.
- To maintain the large data base and to deliver the results obtained in real life for future EU policies, directives, etc and as support for national legislation if needed.
- To present the energy performance of the CONCERTO communities, using appropriate performance indicators.
- to develop models of the energy systems in each of the CONCERTO communities, which can predict the impacts of the policies and the demonstration projects which are being implemented, and to compare the predictions with the measured results
- To use the results from these analyses, to compile a set of key recommendations for use by other local communities across the EU.
- To verify the success and problems of the novel financing mechanisms for energy services over a longer period of time
- to analyse the policies and measures being adopted by the CONCERTO communities, and assess their impacts on a coherent and harmonised basis

[24] Funding Scheme Coordination and Support Activity, in accordance with Article 14(b), and (c), 17 and 27(5) of the FP7 Rules for Participation.

b) International Energy Agency

The Commission represents the European Community in the Implementing Agreements (hereinafter 'IAs') concluded under the framework of the International Energy Agency where it participates in activities in certain areas of energy research.

The Commission will make annual financial contributions required by its participation, up to a total amount of EUR 400 000. The annual financial contributions will be paid to the entities responsible for managing the respective agreements. The table below shows only those IAs for which the financial contribution will be paid from the budget of this part of the Cooperation work programme. It is not an exhaustive list of all of the IAs to which the Commission participates.

The Commission may participate in additional activities agreed under the IAs mentioned above or in any other existing or future IA and in any other activities of the IEA where such participation is in the interest of the Community, in line with the objectives and priorities of the present work programme, and within the limits of the budgetary provisions. The table below will be updated in any future modifications of the work programme.

IEA Implementing Agreements financed under the Energy work programme[25]:

Implementing Agreement	Date IA signed by the European Commission	Estimated Annual EC Contribution in nominal currency	Estimated Annual EC Contribution in Euro
IEA Implementing Agreement for Co-operation in the Research and Development of Wind Turbine Systems	Commission signature in 1996. To be renewed in 2008	USD 16 746	EUR 14 000
IEA Implementing Agreement for the Establishment of a Project on Solar Power and Chemical Energy Systems	Commission signature in 1998. Expires in 2011	EUR 5 250	EUR 5 250
IEA Implementing Agreement for a Programme of Energy Technology Systems Analysis	Commission signature in 1980. Expires in 2009	EUR 20 000	EUR 20 000
Programme to Develop and Test Solar Heating & Cooling Systems	Commission signature in 1979. Expires in 2009	USD 8 000	EUR 7 000
IEA Implementing Agreement for a Programme of Research, Development and Demonstration on Bioenergy	Commission signature in 1995. Expires in 2009	USD 68 200	EUR 56 800

[25] As a contribution from the Community in accordance with Article 108 (2) (d) of the Financial Regulations applicable to the General Budget of the European Communities.

Implementing Agreement	Date IA signed by the European Commission	Estimated Annual EC Contribution in nominal currency	Estimated Annual EC Contribution in Euro
IEA Geothermal Implementing Agreement	Commission signature in 1997. Extended until 2012	USD 14 000	EUR 12 000
IEA Implementing Agreement on Photovoltaic Power System Programme	Commission signature in 1992. Extension procedure to 2012 under completion	EUR 8 500	EUR 8 500
IEA Implementing Agreement for the establishment of IEA Coal Research	Commission signature in 1989. Expires in 2008. Extension procedure under way.	GBP 64 300	EUR 95 200
IEA Implementing Agreement for a Co-operative Programme on Technologies Relating to Greenhouse Gases derived from Fossil Fuel Use	Commission signature in 1991.Expires in 2011	GPB 52 500	EUR 78 750
IEA Implementing Agreement for a Co-operative Programme on Ocean Energy Systems (OES)	Commission signature in 2002. Expires in 2011	EUR 10 000	EUR 10 000
IEA Implementing Agreement for Demand Side Management (DSM)	Expires in 2008. Extension procedure under way.	EUR 35 000	EUR 35 000
IEA Implementing Agreement on Efficient Electrical End-use Equipment	To be signed in 2008	EUR 20 000	EUR 20 000

Indicative budget for the Energy Theme for the 2009 work programme[26]

Call/ activity	RTD total Million EUR	RTD 2008 Million EUR	RTD 2009 Million EUR	TREN 2009 Million EUR
FP7-ENERGY-2009-1 [27]	83		83	
FP7-ENERGY-2009-2				100
FP7-ENERGY-2009-3	5.5		5.5	
FP7-ENERGY-2009-BIOREFINERY	15		15	15
General Activities (see Annex 4)	1.7		1.7	0.4
Other				5.2
Monitoring and review costs	0.4		0.4	
Other Actions[28]	0.2		0.2	
Evaluation costs	1.5	1.4 [29]	0.1	2.5
Estimated total budget allocation	107.3	1.4	105.9	123.1

Summary of budget allocation to general activities for 2009 (cf. Annex 4):

[26] Under the condition that the preliminary draft budget for 2009 is adopted without modification by the budgetary authority.

[27] Any savings from previous activities launched under the previous RTD calls in the Energy work programme would be assigned to call FP7-2009-1., this will include an indicative amount of EUR 4 290 000 already identified as savings from these calls.

[28] As set out in Section 5.4 of the work programme.

[29] This budget figure is shown for information only. The budget will be fully committed in 2008.

	DG RTD EUR	DG TREN EUR
Cordis	449362	425 542
Eureka/Research Organisations	13 676	12 951
COST	1 259 162	
ERA NET	7 815	7 401
Total	1 703 016	445 894

All budgetary figures given in this work programme are indicative. Unless otherwise stated following the evaluation of proposals the final budget awarded to actions implemented through calls for proposals may vary:

- by up to 10% of the total value of the indicated budget for each call; and
- any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget.

The final budgets for evaluation, monitoring and review may vary by up to 20% of the indicated budgets for these actions. The final budget awarded for actions not implemented through calls for proposals may vary by up to 10% of the indicated budgets for these actions.