

WORK PROGRAMME 2011

COOPERATION

THEME 5

ENERGY

(European Commission C(2010)4900 of 19 July 2010)

ANNUAL WORK PROGRAMME 2011

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ANNUAL WORK PROGRAMME
2011 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) aims at accelerating innovation in cutting edge European low carbon technologies to facilitate the achievement of the 2020 targets and the 2050 vision of the Energy Policy for Europe. The SET-Plan is, therefore, focussing, strengthening and giving coherence to the overall energy research effort in Europe. It is thus a major contribution to the "Resource efficient Europe" and "Innovation Union" Flagship Initiatives of the Europe 2020 strategy¹.

The Commission adopted on October 7th 2009 its Communication on Investing in the Development of Low Carbon Technologies ²and has established the SET-Plan as the technology pillar of the EU's energy and climate policy. The Communication calls to focus existing EU Programmes on the SET Plan initiatives and the associated technological road maps for 2010-2020.

By crystallising the vision of all stakeholders concerned around the common objectives constituted by those roadmaps and by ensuring a seamless interaction between research, technology development, demonstration and market, the European Industrial Initiatives will accelerate the development and effective penetration of the technologies needed to fulfil our energy and climate objectives.

The Council and the European Parliament have endorsed that vision, stressing that, "whilst respecting fully their legal bases, the existing EU research and technology programmes in the field of energy and, to the extent possible, other relevant non-thematic EU programmes/initiatives, should support the SET Plan objectives and current and related future initiatives."

The Framework Programme being the main instrument to support the implementation of the SET-Plan, the work programme 2011 therefore pursues and intensifies the focussing on SET plan priorities already undertaken under WP 2009 and 2010 while addressing other priority issues such as energy storage, energy efficiency and solar thermal. Topics support in particular:

¹ COM(2010) 2020

²COM(2009) 519 final, 7.10.2009 – Communication from the Commission to the Council, the European Parliament, the European and Social Committee and the Committee of the Regions: Investing in the Development of Low Carbon Technologies (SET-Plan)

The Electricity Grids Initiative

- ENERGY.2011.7.2-1: Innovative tools for the future coordinated and stable operation of the pan-European electricity transmission system
- ENERGY.2011.7.2-2: Innovative strategies and tools for the reliability assessment of the pan-European electricity transmission network
- ENERGY.2011.7.3-1: Network of projects developing the future European electricity networks
- ENERGY.2011.7.3-2: Storage and balancing variable electricity supply and demand

The Solar Europe Initiative

- ENERGY.2011.2.1-2: Development and up-scaling of innovative photovoltaic cell processes and architectures to pilot-line scale for industrial application, Call with NMP
- ENERGY.2011.2.1-3: Productivity and cost optimization issues for the manufacturing of photovoltaic systems based on concentration
- ENERGY.2011.2.1-4 Development and demonstration of standardized building components
- ENERGY.2011.2.5-1: Thermal energy storage for CSP plants
- ENERGY.2011.2.5-2: Advanced heat transfer fluids for CSP technology

The European Wind Initiative

- ENERGY.2011.2.3-1: Demonstration of innovative off-shore wind electricity generation structure
- ENERGY.2011.2.3.2: Development of design tools for Offshore Wind farm clusters

The European Bioenergy Initiative

- ENERGY.2011.3.7-1: Development of new or improved sustainable bio-energy carriers

The European Industrial Initiative on CCS

- ENERGY.2011.5.1-1: High-efficiency post-combustion solvent-based capture processes.
- ENERGY.2011.5.2-1: Understanding the long-term fate of geologically stored CO₂.
- ENERGY.2011.5&6.2-1: Optimising the integration of CO₂ capture into power plants
- ENERGY.2011.5&6.2-3: Improving efficiencies and reducing GHG emissions through CO₂ capture in industrial applications other than power generation
- ENERGY.2011.5&6.2-3: Support to the European CCS Demonstration Project Network

The European Initiative on Smart Cities

- ENERGY.2011.4.1-3: Materials for thermal storage systems
- ENERGY.2011.4.1-4: Advanced compact storage systems

In addition

- Support to the Polish Presidency Conference on the European Strategic Energy Technology Plan (SET-Plan) is foreseen as a grant to named beneficiary.

To continue with the objectives of the Framework Programme, bearing in mind that several topics cover both energy efficiency and renewables, three topics are dedicated to energy efficiency:

- EeB-ENERGY.2011.8.1-1: Demonstration of very low energy new buildings
- ENERGY.2011.8.1-2 Energy efficiency demonstration in manufacturing industry
- ENERGY.2011.8.1-3: Energy efficiency in low-carbon industrial parks

SME participation in research projects 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 considered in the evaluation of these topics where preference will be given to proposals with relevant SMEs participation. Three topics can be highlighted in this work programme:

- ENERGY.2011.3.7-1: Development of new or improved sustainable bio-energy carriers
- ENERGY.2011.4.1-1: Revisiting solar-thermal systems for using breakthroughs in scientific and technological fields
- ENERGY.2011.10.1-1: Multi-use offshore platforms

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 strategic bilateral agreements and dialogues

One topic in particular has been specifically highlighted as particularly well suited for international cooperation:

- ENERGY.2011.5.2-1: Understanding the long-term fate of geologically stored CO₂

In light of the ongoing strategic dialogue with Japan, the Japan-EU Call on Solar Energy System will in particular for the first time facilitate Japan-EU project mode partnerships supported by two-way mobility of researchers.

It consists of the following topic:

- ENERGY.2011.12-1: Ultra-high efficiency concentration photovoltaics (CPV) cells, modules and systems / EU-Japan Coordinated Call

Following the discussions with Japan and US a pilot activity to support the exchange of researchers with these countries is implemented in the domain of energy research.

- ENERGY.2011.10.2-1: Pilot International Researcher Exchange in the field of energy research (US and Japan)

Cross Thematic approaches

A cross sectoral approach is necessary to achieve the breakthrough needed. This is specifically the case for Photovoltaics where new manufacturing systems can lead to drastic drops in the cost of PV module. A call with NMP therefore addresses this issue:

- ENERGY.2011.2.1-2: Development and up-scaling of innovative photovoltaic cell processes and architectures to pilot-line scale for industrial application, Call with NMP

Contributing to Europe's recovery means addressing urgently important challenges which necessitate a cross thematic approach. The Energy work programme 2011 contributes to supporting the efficient building initiative through the following topic:

- EeB.ENERGY.2011-1: Demonstration of very low energy new buildings

Special attention is paid to encourage pluri-disciplinarity in marine sciences and technologies. Such cross-thematic approach will be addressed through a call entitled 'The ocean of tomorrow: Joining research forces to meet challenges in ocean management' involving various Cooperation Themes (Theme 2 – Food, Agriculture and Fisheries, and Biotechnologies, Theme 5 - Energy, Theme 6 - Environment including climate change and Theme 7 - Transport).

Two specific topics relevant to Energy are the following:

- OCEAN.2011-1: Multi-use offshore platforms
- OCEAN.2011-4: Knowledge-base and tools for regional networks of MPAs, integrated management of activities together with assessment of wind energy potential in the Mediterranean and the Black Sea

Dissemination actions

Open Access Pilot in FP7: Beneficiaries funded partially or entirely by the Cooperation Programme under the Theme ENERGY are required to deposit peer-reviewed articles resulting from projects to an institutional or subject-based repository, and to make their best efforts to ensure open access to these articles within six months.

Socio-economic dimension of research

Where relevant, account should be taken of possible socio-economic impacts of research, including its intended and unintended consequences and the inherent risks and opportunities. A sound understanding of this issue should be demonstrated both at the level of research design and research management. In this context, where appropriate, the projects should ensure engagement of relevant stakeholders (e.g., user groups, civil society organisations, policy-makers) as well as cultivate a multi-disciplinary approach (including, where relevant researchers from social sciences and humanities). Projects raising ethical or security concerns are also encouraged to pay attention to wider public outreach.

Gender dimension

The pursuit of scientific knowledge and its technical application towards society requires the talent, perspectives and insight that can only be assured by increasing diversity in the research workforce. Therefore, all projects are encouraged to have a balanced participation of women and men in their research activities and to raise awareness on combating gender prejudices and stereotypes. When human beings are involved as users, gender differences may exist. These will be addressed as an integral part of the research to ensure the highest level of scientific quality. In addition, specific actions to promote gender equality in research can be

financed as part of the proposal, as specified in Appendix 7 of the Negotiation Guidance Notes [ftp://ftp.cordis.europa.eu/pub/fp7/docs/negotiation_en.pdf]".

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 2011

ACTIVITY ENERGY.1: HYDROGEN AND FUEL CELLS

NOTE: Starting from 2009, the topics in this Activity are defined and selected in the annual implementation plan of the Joint Technology Initiative (JTI) on fuel cells and hydrogen, established on the basis of ex-Article 171 of the TEC (Article 187 TFEU). 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

Research will include the development and demonstration of new processes for photovoltaic manufacturing, including the manufacturing of equipment for the Photovoltaic (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.2011.2.1-1: Ultra-high efficiency concentration photovoltaics (CPV) cells, modules and systems / EU-Japan Coordinated Call

Open in call: FP7-ENERGY-2011-JAPAN

This coordinated call aims to combine technological expertise in Japan and the EU in order to achieve breakthroughs in and accelerate development of CPV technologies. It will build on the respective strengths of Japan and EU in this area.

Contents/scope: Proposed projects will focus on the research and development (R&D) of new concepts and manufacturing processes for very high efficiency CPV devices and on new characterisation techniques suitable for such devices. This will include the development of new material for highly efficient CPV cells and modules.

Thus, any proposal submitted under this Topic will have to address the two following aspects:

- 1) **Development of CPV cells, modules and systems:** Building on existing theoretical analysis and simulations, the proposed projects will focus on R&D on novel materials and new concepts, such as the use of quantum-nanostructures, for III-V-based multi-junction CPV cells, with the aim to achieve 50% conversion efficiency. The reduction of losses due to the move from cells to modules will also be addressed with the aim to achieve module efficiency beyond 35%. The need for the manufacturing of the proposed new CPV cell, modules and systems to be cost-competitive will also be addressed in the proposals.
- 2) **Development of standardized characterisation, testing and evaluation technology:** Proposed projects will have to develop reliable characterisation, testing and evaluation techniques, notably for III-V-materials and quantum- nanostructures, in support of the future qualification and standardisation of the proposed novel CPV cells and modules. This will involve defining and performing testing and evaluation procedures in a round-robin fashion aiming at proposals for international standardization.

The collaboration in the above mentioned areas will also involve an exchange of researchers between Japan and the EU within the project time frame, as a mean of further enhancing the research cooperation between the two sides and thereby further accelerating the development of the CPV technology.

Funding scheme: Collaborative Project

Expected impact: About 80% of current PV production uses wafer-based silicon technology which exhibits a maximum efficiency of about 25%. Today, CPV cells reach efficiencies above 35% without concentration and reach 41.6% with concentration of light. Although considerable progress has already been made in the development and manufacturing of CPV, there are still huge possibilities to further increase their efficiency while reducing their cost. The work described above is expected to accelerate the move to very high efficiency and lower cost CPV technologies.

Additional eligibility criterion: A proposal submitted to the European Commission (EC) will be eligible only if co-ordinated with a Japanese proposal submitted in parallel to the Japanese New Energy and Industrial Technology Development Organization (NEDO). This coordination should be balanced in terms of the R&D efforts deployed by the EU and Japan respectively. Therefore, proposals on either side will contain in their description of work (Part B) the following three parts:

- Part One, describing the scope and content of the intended EU-Japan cooperation, including the common objectives and tasks, work sharing and schedule, foreseen exchange of researchers and related budget. This section will clearly indicate the interdependencies between the R&D activities carried out by the European and Japanese participants respectively, in terms of deliverables, milestones, etc.
- Part Two, describing all activities that will be carried out by the participants in the EU proposal, including deliverables, milestones and budget.
- Part Three, describing all activities that will be carried out by the participants in the Japanese proposal, including deliverables, milestones and budget.

In addition, the submitted proposals will contain a draft coordination agreement between the two consortia.

Additional selection criterion: The added value of this balanced EU-Japan joint effort will be an integral part of the common set of evaluation criteria. Proposed projects will have a maximum duration of 42 months and must end at the latest by February 28th 2015. Proposals will be selected on the condition that their corresponding coordinated Japanese project is also selected for funding by the METI/NEDO

Topic ENERGY.2011.2.1-2: Development and up-scaling of innovative photovoltaic cell processes and architectures to pilot-line scale for industrial application, Call jointly implemented with NMP

Open in call: FP7-2011-NMP- ENERGY

Technical content/scope: Europe is by far the first worldwide market for photovoltaics and is also strongly involved in both innovation and industrial applications in the field. Nevertheless, in order to achieve costs below 1€/Wp, which is required for Grid-parity for photovoltaics, an intensive and constant R&D support is required. Novel cell architectures and new processes should be developed and transferred as fast as possible into industrial applications.

One main challenge in the field is to bring e.g. nanotechnology know-how developed at laboratory scale to industry. Typically, photovoltaic industries use production lines with very large machinery with a continuous flow and are not flexible to implement new ideas.

The projects shall be focused on the scale-up of innovative and laboratory-scale photovoltaic (PV) cell processes to pilot-line-scale for industrial application. Device, process and equipment optimisation to target very high cell and module efficiency, high production throughput have to be considered at the same time. Individual proposals shall address one of the following two baseline processes:

- Innovative thin film processes based on inorganic nanostructured materials deposited on glass, metal sheets or polymers, with new cell configurations obtained through innovative methods, such as PVD, printing, or other.
- Innovative wafer-based silicon processes exploiting new cell architectures and new approaches, such as hetero junctions, rear contact cells, metal wrap through, or other.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the Solar Europe Industrial Initiative and the resulting project(s) will form part of the EII.

Organic PV and concentrating PV (CPV) will not be addressed by this call topic. In particular, CPV will be covered by topic ENERGY.2011.2.1-3. Reducing the environmental impact and cost of the fabrication, taking into account safety issues, and at the same time improving the efficiency of the technology, is a key objective. The proposals shall include a detailed impact analysis of the potential industrial take-up of the new technologies developed in terms of production and market parameters. In particular, a cost analysis for a commercial production plant with annual production of 500 MW for the proposed technologies must be included.

In order to ensure industrial relevance and impacts of the research efforts, the active participation of industrial partners represents an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

Funding Scheme: Large-scale integrating collaborative projects

Additional eligibility criterion: The EU funding requested **must be greater than EUR 4 million.**

Expected impact: (i) Solutions going well beyond the state-of-the-art in terms of cost (target of far below 1 €/Wp) and efficiency; (ii) Stimulation and acceleration of the industrial take-up of promising results beyond laboratory scale; (iii) New competitive industrial processes.

Additional Information: In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

Topic ENERGY.2011.2.1-3: Productivity and cost optimization issues for the manufacturing of photovoltaic systems based on concentration

Open in call: FP7-ENERGY-2011-2

Contents/scope: Demonstrating increased reliability and achieving manufacturing economies of scale are main barriers for concentration-based photovoltaic (CPV) systems. In order to enable large-volume production of the CPV systems and reduce their costs, it is necessary to improve the level of integration of the manufacturing of different system components. The objective of this topic is the development and demonstration of integrated, highly automated, high-yield, high-throughput manufacturing processes of the CPV systems components, from the preparation of the solar cells and the optics to the module and system assembly, including the electronics for power control and in-line monitoring.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the Solar Europe Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project with a predominant demonstration component

Expected impact: Higher reliability, increased system efficiency and lower costs of CPV products to supply the most promising market segments and to overcome the barriers delaying the massive introduction of such systems.

Additional information: This topic is focusing on demonstrating the integration of components manufacturing for CPV systems. The pilot line for innovative PV processes for both thin-film and wafer Si based solar cells is addressed by the topic ENERGY.2011.2.1-2.

The leading role of relevant industrial partners is essential to achieving the full impact of the project.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

It is envisaged that up to two projects could be funded.

Topic ENERGY.2011.2.1-4 Development and demonstration of standardized building components

Open in call: FP7-ENERGY-2011-2

Contents/scope: The objective of this topic is the development and demonstration of standardized building components based on photovoltaics, which comply with existing standards and building codes.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the Solar Europe European Industrial Initiative which aims at extensively integrating PV-generated electricity by a demonstration programme to support the large-scale deployment in typical urban environments. The resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project with a predominant demonstration component

Expected impact:

- Enhanced use of building components based on photovoltaics by architects and builders.
- Improved overall energy performance of the buildings.

Additional information: The building industry should have a leading role in the project, with involvement of architects and testing laboratories. This will be considered in the evaluation. The energy production per unit surface area of the component should be detailed; the component to be demonstrated should be thoroughly tested for the results to be available together with the product; educational material and tools for professionals should also be considered.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

It is envisaged that up to two projects could be funded.

AREA ENERGY.2.2: BIOMASS

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

AREA ENERGY.2.3: WIND

Innovative large scale on and off-shore wind power plants based on improved technologies, more robust, reliable and low-maintenance multi-MW turbines, combined with dependable output forecasting tools as well as with standards and certification schemes should bring wind power to higher levels of market penetration.

Topic ENERGY.2011.2.3-1: Demonstration of innovative off-shore wind electricity generation structure

Open in call: FP7-ENERGY-2011-2

Contents/scope: A strategic objective of the industrial initiative of the SET Plan on wind energy is to enable the exploitation of off-shore resources, including in deep water environments, and to facilitate the grid integration of wind power. Beside the development of the new generation of highly reliable large scale turbines, demonstration of cost competitive concepts for floating structures distant from shore in deep water (> 60 meters) is needed to

extend the exploitation of deep off-shore wind resources and to bring costs for far off-shore wind electricity generation down to a competitive level.

Deep off-shore floating structures hosting multi-MW wind energy converters shall be demonstrated. The projects shall address integrated concepts including large cost-efficient floating structures, multi-MW wind energy converters and related equipment designed for wind farms management and for compliance with easy connectivity to the offshore grid. Demonstration should include access systems and safety aspects, logistics, operation and maintenance issues, installation methods and concepts, environmental impacts, reliability at wind turbine and wind farm level, and cost analysis based on market projections.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Wind Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project with a predominant demonstration component

Expected impact:

- Bring wind energy applications closer to market in diverse European deep off-shore areas.
- Demonstrate potential cost competitiveness of deep offshore systems.

Additional information: The participation of industrial partners active in off-shore developments is essential to achieving the full impact of the project. Industrial partners active in off-shore developments must be involved in the project. This will be considered in the evaluation.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

It is envisaged that up to 2 projects could be funded.

Topic ENERGY.2011.2.3-2: Development of design tools for Offshore Wind farm clusters

Open in call: FP7-ENERGY-2011-1

Content/scope: The expected growth of offshore wind energy is enormous and many new wind parks are planned for the coming years. Experience from the existing wind farms shows the importance of a proper distribution of the wind turbines as well their efficient interconnection within the farm. In addition, bringing wind farms together into clusters toward a wind power plant concept may induce long distance negative interaction between the farms, reducing their expected efficiency.

The objective of this topic is to develop new design tools to optimise the exploitation of individual wind farms as well as wind farm clusters, in view of transforming them into virtual power plants.

Such design tools should integrate:

- Spatial modelling: medium (within wind farms) to long distance (between wind farms) wake effects
- Interconnection optimisation: to satisfy grid connection requirements and provide power plant system service.

- Precise energy yield prediction: to ease investment decisions based on accurate simulations

The project should focus on offshore wind power systems and make optimal use of previously developed models. Validation should be carried out within existing wind farms, but could include advantageously plans for measurement and testing in relation to future large scale offshore wind installations.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Wind Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative project

Expected impact: Funded projects are expected to demonstrate the capability of designing virtual wind power plants composed of wind farms and wind farm clusters while minimizing the negative spatial interactions, improving the overall power quality output and providing confidence in energy yield predictions. Such projects will contribute to the development of offshore wind power as required by the SET-Plan.

Additional Information: Up to two projects focusing on different modelling approaches could be funded. Where relevant, co-ordination with ongoing activities should be considered.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

AREA ENERGY.2.4: GEOTHERMAL

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

See also Area ENERGY 10.2. Other horizontal actions

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.2011.2.5-1: Thermal energy storage for CSP plants

Open in call: FP7-ENERGY-2011-1

Content/scope: Research, development and testing of storage concepts having the potential to provide efficient, reliable, and economic energy storage for CSP plants. Focus is on innovative solutions for the next generation of trough and tower plants. Experimental concept verification in a relevant scale is expected.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the Solar Europe European Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative project

Expected impact: Energy dispatchability is of high importance for CSP commercial deployment in the future and thermal storage is highlighted as a cornerstone for CSP development in the SET Solar EII.

Additional information: The identified storage concept shall have promising prospects for up-scaling to commercial scale. The active participation of relevant industrial partners is essential to achieving the full impact of the project. This will be considered in the evaluation.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

Topic ENERGY.2011.2.5-2: Advanced heat transfer fluids for CSP technology

Open in call: FP7-ENERGY-2011-1

Content/scope: Higher efficiency, lower environmental impact, cost effectiveness and higher performance needs to be achieved. Potential safety aspects are expected to be identified and addressed.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the Solar Europe European Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative project

Expected Impact: Heat transfer fluids with higher operation temperature could use more efficiently the power blocks and reduce the storage cost, as more heat can be stored in the same volume. A successful development would therefore enable a new generation of solar power plants with significantly reduced electricity cost – a major objective of the SET-Plan Solar EII.

Additional information: An industrial partner capable of producing the fluid in sufficient amount to meet the possible future demand is essential to achieving the full impact of the project.

Up to two projects, focusing on different heat transfer fluids, could be funded.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

AREA ENERGY.2.6: OCEAN

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

See CALL 'THE OCEAN OF TOMORROW' under Area ENERGY 10.1

See also Area ENERGY 10.2. Other horizontal actions

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

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

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

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

See Area ENERGY 10.2. Other horizontal actions

Area ENERGY.3.3: Biorefinery

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

AREA ENERGY.3.4: BIOFUELS FROM ENERGY CROPS

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

See Area ENERGY 10.2. Other horizontal actions

AREA ENERGY.3.5: ALTERNATIVE ROUTES TO RENEWABLE FUEL PRODUCTION

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

See Area ENERGY 10.2. Other horizontal actions

AREA ENERGY.3.6: BIOFUEL USE IN TRANSPORT

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

See Area ENERGY 10.2. Other horizontal actions

AREA ENERGY.3.7: CROSS-CUTTING ISSUES

Topic ENERGY.2011.3.7-1: Development of new or improved sustainable bio-energy carriers

Open in call: FP7-ENERGY-2011-1

Content/Scope: A bio-energy carrier is a liquid, solid or gaseous substance that contains bioenergy at a higher density than its originating raw material. Its bioenergy content can be converted into usable renewable energy later on or somewhere else. In this sense, bio-energy carriers are intermediate outputs in a bio-energy value chain which significantly improve the chain performance and in particular logistics.

The topic aims to the development of new or improved, sustainable bio-energy carriers, which are suitable for decentralised, low-cost production, and will improve current practices in transport and storage. The bio-energy carriers shall be easily and economically convertible into final energy products through further processing. Bio-fuels directly usable in the transport sector or hydrogen production are excluded. A variety of biomass feedstocks is expected. All proposals shall establish the feasibility, performance and sustainability of the production technology of bio-energy carriers, including energy efficiency and environmental consequences. A pilot scale testing of this production shall be delivered. The assessment of the environmental, economic and social sustainability for the bioenergy carrier, from biomass production to the final energy product shall be done, including scenarios for final energy products produced from the carrier and for transport distance. A good sustainability assessment will have to include in its environmental analysis 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, etc.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Bioenergy Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative project

Expected impact: The production of bio-energy carriers is expected to foster their utilisation in the bioenergy value chains and contribute to develop the bio-energy market in Europe though significantly improved logistics and reduced costs. Other than their primary use of conversion into usable renewable energy, bioenergy carriers can in any case be utilized in the production of other bio-products, such as bio-chemicals and bio-plastics.

Funded projects are expected to show their capacity to respond to the need for supplying high quality bioenergy carriers in an economically, socially, and environmentally sustainable manner. High quality bioenergy carriers are also expected to contribute to the implementation of EU policies and initiatives notably the SET-Plan and the European Bioenergy Industrial Initiative.

Additional information: Up to three projects focusing on different bioenergy carriers to avoid duplication and maximise impact will be funded. In order to maximise industrial relevance and impact of the research effort, the active participation of relevant industrial partners, including SMEs along with research organisations is seen as essential to achieve the expected impact.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

ACTIVITY ENERGY.4: RENEWABLES FOR HEATING AND COOLING

Research, 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 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.2011.4.1-1: Revisiting solar-thermal systems for using breakthroughs in scientific and technological fields

Open in call: FP7-ENERGY-2011-1

Content/Scope: Building on the long-term experience low temperature solar thermal systems and taking advantage of breakthroughs in scientific and technological fields, notably in material science and ICT, the projects are expected to substantially improve performance, ease of use and penetration of solar thermal systems. The projects are therefore expected to make use of novel materials for the different components in an integrated manner to deliver low cost, high efficiency, reliable and durable intelligent solar thermal systems. This could include but it is not limited to the following:

- Innovative compact storage materials with improved thermo-physical properties including their synthesis and production technologies.

- Multi-functional polymeric and hybrid materials with enhanced solar absorbance, solar control and improved long-term stability.
- Transparent covers and absorber coatings with controllable transmission (heat loss) properties. High reflectance and long life metal based mirror/reflector alternatives to glass.
- Innovative heat transfer fluids and corrosive resistance.

Expected Impact: Better understanding and improved production technologies, including characterisation and test methods, shall lead to high efficiency solar thermal systems that can deliver renewable energy at competitive costs. Novel materials, coatings or glazing will allow innovative collector designs, enhanced functionality and attractive design, with limited heat loss during stagnation periods.

Additional information: In order to maximise industrial relevance and impact of the research effort, the active participation of relevant industrial partners, especially SMEs along with research organisations is seen as essential to achieve the expected impact.

Topic ENERGY.2011.4.1-2: Low/Medium temperature solar thermal systems for industrial process heat

Open in call: FP7-ENERGY-2011-2

Content/scope: The objective is to demonstrate large scale integration of collectors optimised for temperatures in the range of 80 to 120 °C or 80 to 250°C into existing industrial process heat demand (> 1 MWth). Special efforts should be devoted to proceed with an integrated approach combining energy efficiency measures, and advanced solar integration concepts. The project shall test and validate the complete integration of solar system in the heat management processes. The project could include a combination of existing low-temperature collectors with novel medium/high temperature collectors in a hybrid system or cascade design.

Funding scheme: Collaborative Project with a predominant demonstration component

Expected impact:

- Development of market deployment of the huge potential of solar thermal source for industry heat supply.
- Demonstration that solar thermal heating is a secure and reliable complementary supply source to conventional heat production process at acceptable competitive costs.
- The project should act as good examples and/or best practices for specific sectors such as food, beverage, steel, or textile industry.

Additional 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.

It is envisaged that up to three projects could be funded.

Topic ENERGY.2011.4.1-3: Materials for thermal storage systems

Open in call: FP7-ENERGY-2011-2

Content/scope: The objective is to develop new materials or improved existing materials for thermal seasonal storage applications in the range of medium temperatures (between 20 – 100 °C). Thermo-chemical materials should preferably be used. The materials should replace conventional standard water media with energy densities performances significantly above 70 kWh/m³ and hence reduce storage volumes in the range of 3 to 6 compared to existing state of the art systems. The project shall identify and develop characterisation, testing methods for such materials as well as models to simulate and predict properties and behaviours of those materials.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Industrial Initiative on Smart Cities and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project

Expected impact:

- Provide a thorough impulse on knowledge related to fundamental and applied research in this area of storage for multi purpose energy heating cooling applications.
- In the medium term, the new materials should lead to deploy fully cost effective and fully environmentally based renewable energy supply systems.

Additional information: This activity implies gathering of critical mass of research based knowledge (fundamental and applied) with active participation of EU top leading companies and research organisations as well as industrial leading companies in especially chemicals and/or material engineering areas. This will be considered in the evaluation.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

It is envisaged that up to two projects could be funded.

Topic ENERGY.2011.4.1-4: Advanced compact storage systems

Open in call: FP7-ENERGY-2011-2

Content/scope: The objective is to develop and demonstrate novel compact seasonal thermal storage systems for applications in the range of medium temperatures (between 20 – 100 °C) using novel or improved existing materials (see specificities of the topic [reference to be added] on materials for thermal storage systems). The storage system should be demonstrated and evaluated in an integrated way by taking into account the other important elements of the system. More precisely, it should be in connection with the storage device, to liaise with the thermal energy supply, the control and monitoring, the thermal transport components and thermal user.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Industrial Initiative on Smart Cities and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project

Expected impact:

- Provide a thorough impulse on knowledge related to applied and demonstration research in this area of storage for multi purpose energy heating cooling applications.
- In the medium term the new storages should lead to deploy fully cost effective and fully environmentally based renewable energy supply systems.

Additional information This activity implies gathering of critical mass of applied research and demonstration based knowledge (with active participation of EU top leading companies and research organisations as well as industrial leading companies in especially chemicals and/or material and apparatus engineering areas. This will be considered during the evaluation.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

It is envisaged that up to three projects could be funded.

AREA ENERGY.4.2: BIOMASS

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

See Area ENERGY 10.2. Other horizontal actions

AREA ENERGY.4.3: GEOTHERMAL ENERGY

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

See Area ENERGY 10.2. Other horizontal actions

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.

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.2011.5.1-1: High-efficiency post-combustion solvent-based capture processes

Open in call: FP7-ENERGY-2011-1

Content/scope: Post-combustion capture using liquid solvents is a key technology for the early deployment of near-zero emission power generation from fossil fuels, and for the reduction of CO₂ emissions from other large point sources such as cement works and refineries. However, the large volumes of flue gas to be treated result in a significant energy penalty to the plant, and in addition trace impurities in the flue gas reduce the effectiveness of the CO₂ adsorbing processes. Proposals should aim at the development of new solvents which require less energy for regeneration, have improved absorption-desorption performance (e.g. high CO₂ loading, fast reaction kinetics) and have lower sensitivity to the flue gas composition. The proposal should state clearly defined objectives for the reduction of the energy intensity of the capture process. Research should include the improvement and optimisation of the capture process for use in both power plants and other carbon-intensive industries. Environmental aspects, such as reduced water use and (near-)zero release of solvents to the environment should receive particular attention.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Industrial Initiative on CCS and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project

Expected impact: Progress in this area should result in a significant reduction of the energy intensity of the capture process for power plants or other energy-intensive industries, and in a substantial decrease of the environmental impact and the cost of capture.

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.2011.5.2-1: Understanding the long-term fate of geologically stored CO₂

Open in call: FP7-ENERGY-2011-1

Content/scope: Storage efficiency and permanence is a direct function of the diffusion and reactivity of CO₂ in the reservoir. Proposals should aim to increase the understanding of the long-term fate of stored CO₂; mechanisms of leakage through the cap rock and the well should receive particular attention. Research could include issues such as fluid-rock interactions affecting reservoir quality and caprock integrity, reactivity with well cements and the effects on cement mechanical properties, effects of impurities in the CO₂ stream, far-field effects of brine migration, and fault reactivation potential during CO₂ injection.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Industrial Initiative on CCS and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project

Expected impact: Research in this area should provide the necessary insights to support the characterisation and assessment of potential storage sites and their surrounding areas as required in the Directive on geological storage, thus facilitating the large scale deployment of CCS.

Additional information: In order to validate the results of the project, the consortium should aim to establish cooperation with the research carried out in a number of the large-scale CCS demonstration projects including those supported by the European Energy Programme for Recovery (EEPR) and the NER300 of the Emissions Trading Scheme.

The active participation of relevant partners from the Carbon Sequestration Leadership Forum, in particular the U.S. and Canada, could add to the scientific and/or technological excellence of the project(s) and/or lead to an increased impact of the research to be undertaken.

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

Projects in this area should address the necessary research, development and demonstration of conversion technologies required for solid hydrocarbons, such as hard coal, lignite, oil shale, including co-utilisation of biomass, with a view towards zero emission power generation and further advanced efficiency.

Topic ENERGY.2011.6.1-1: Optimisation of IGCC technologies for use with high ash content coal

Open in call: FP7-ENERGY-2011-1

Content/scope: Integrated gasification combined cycle (IGCC) technology is a promising clean coal technology that holds the potential to increase power generation efficiency and reduce carbon dioxide emissions. IGCC technology also has the advantage of reduced water consumption and lower emission levels of particles, heavy metals and sulphur compared with conventional pulverised coal-fired power plants. This makes the technology of interest to large emerging economies such as India that are heavily dependent on the use of domestic coal for their electricity production, and that seek to balance their need for increased electricity output with efforts to control greenhouse gas emissions. However, the most commonly used gasifier for power generation today, the entrained-flow gasifier, is not suitable for Indian-type coal which has both high ash content (40-50%) and high ash fusion temperature. Fluidized-bed or moving-bed gasification technologies appear to be better suited to Indian coal properties - although the high ash content can still cause problems with the gas clean-up - but these technologies are not yet commercial. More research and international knowledge sharing is needed to bring IGCC technology to a wider use in countries with large resources of high ash-content coal, such as India. Proposals should focus on optimising the operating conditions of IGCC technology for high ash-content coal in order to improve the efficiency and reliability of the gasifiers and to allow commercial operation in the near term. Research could address issues such as (but not limited to) gas cleaning, coal particle size fractions, lower gasifier operating temperature, air/oxygen to steam and air/oxygen to coal ratio, residence time in the gasifier, etc.

Funding scheme: Specific International Cooperation Action - Collaborative Project

Expected impact: Developments in this area should facilitate the wider adoption of the more efficient and cleaner IGCC technology in countries that use high ash content domestic coals for electricity generation.

Additional eligibility criterion: This is a Specific International Cooperation Action focused on EU cooperation with India. At least four legal entities must participate, two from EU Member States or Associated Countries, and two from India.

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)**

This section includes areas and topics that are cross cutting between 'CO₂ capture and storage for zero emission power generation' and 'clean coal technologies', which in many ways are complementary activities.

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 address economic, social, environmental and infrastructural development issues essential to the large scale commercial deployment of CCS technologies and/or the deployment of technologies to reduce GHG emissions in the coal sector.

Topic ENERGY.2011.5&6.2-1: Optimising the integration of CO₂ capture into power plants

Open in call: FP7-ENERGY-2011-2

Content/scope: This topic, open to all clean coal and enabling technologies, invites proposals to investigate and demonstrate the optimisation of the integration of the carbon-capture unit into coal and lignite fired power plants. The focus will be on new and retrofit plants, with the aim of significantly reducing the overall efficiency penalty of the combined power plant, capture unit and CO₂ compression unit. Proposals are encouraged to aim for a holistic approach, researching and demonstrating options to introduce efficiency gains, throughout the power plant, capture unit and compression unit. The results shall be demonstrated in state-of-the-art facilities that would enable us to draw conclusions for large-scale power plants. Proposals might also address ways to improve operational flexibility.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Industrial Initiative on CCS, and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative project with predominant demonstration component

Expected impact: Demonstration of overhauled processes and components throughout the power plant, capture unit and compressing unit, leading to significant overall efficiency gains and increased operational flexibility and cost effectiveness.

Additional information: Relevant participation of key industrial partners and technology suppliers is required to achieve the full impact of the project. This will be considered in the evaluation.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

It is envisaged that up to two projects could be funded.

Topic ENERGY.2011.5&6.2-2: Improving efficiencies and reducing GHG emissions through CO₂ capture in industrial applications other than power generation

Open in call: FP7-ENERGY-2011-2

Content/scope: Coal-power plants are an important source of anthropogenic CO₂ emissions. However several other industrial sectors also make intensive use of coal in their manufacturing processes. Some examples are coking plants, the iron & steel making industry, the cement industry and the chemical industry. Projects under this topic should aim at demonstrating promising technologies and processes for reducing CO₂ emissions through CO₂ capture in industries other than electricity production.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Industrial Initiative on CCS and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative project with predominant demonstration component

Expected impact: Significant emissions' reduction, efficiency gains, and CO₂ capture in energy intensive industries.

Additional information: In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

It is envisaged that a maximum of one project could be funded.

Topic ENERGY.2011.5&6.2-3: Support to the European CCS Demonstration Project Network

Open in call: FP7-ENERGY-2011-2

Content/scope: This topic is inviting applications for running a Secretariat for the European CO₂ Capture and Storage (CCS) Demonstration Project Network. The CCS Project Network, launched in autumn 2009, was set up as the world's first network of demonstration projects. It fosters knowledge sharing amongst large-scale European demonstration projects and contributes to raising public understanding of the potential of this technology, for ultimately achieving commercially viable and safe CCS by 2020.

The secretariat will provide the necessary functions to ensure the continued operation of the CCS Project Network while guaranteeing efficiency, reactivity and visibility of the Network, with maximum impact. Typical tasks will include: overall management functions of the Secretariat such as organisation and facilitation of management meetings (including the Advisory Forum), and provision of secretarial support to the Network members and the Steering Committee; handling applications of new members to maintain an open Network of projects that meet the qualification criteria; coordination of CCS demonstration projects to realise the efficiencies of collective action; information and communication activities such as maintenance of a website and timely and accurate presentation of aggregated results and progress of the demonstration projects; participation in international events and overall fostering of international cooperation; and actions to increase public awareness taking into account the need to address the perception of safety, long term liability and environmental impacts of CCS.

A key task is the facilitation of knowledge sharing between members, and from members to stakeholders, including inter alia European governments, the European Commission, industry, the research community, relevant international organisations and civil society. In line with the CCS Project Network Knowledge Sharing Protocol, knowledge sharing should establish an appropriate balance between commercial exploitation and the public good associated with accelerating technology diffusion and development. This task will involve the organisation, management and dissemination of outputs from at least two annual knowledge sharing workshops on different specific themes of common relevance to CCS demonstration and deployment. The management of knowledge by the Secretariat will require an analytical approach that can add value to the raw data, knowledge and experiences arising from projects in order to yield best practices and lessons learned that will accelerate the deployment of CCS in Europe and worldwide. Progress reporting of members should be in addition to knowledge sharing.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Industrial Initiative on CCS, and the resulting project(s) will form part of the EII.

Funding scheme: Coordination and support action (supporting action)

Expected impact: The Secretariat will play a key role in enhancing cooperation between the early players involved in European CCS demonstration projects, facilitate knowledge sharing, identify and report best practices, and promote cross fertilisation of results to maximise their impact on further R&D and policy making.

Additional information: The EU maximum contribution foreseen is not expected to exceed EUR 3 million. The expected starting date of the grant agreement is 01.01.2012, for a duration of 48 months. This will be considered in the evaluation.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

Given the specificity of the tasks to be performed, a maximum of one project can be funded.

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

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

See Also Area 7ENERGY 7.3: CROSS CUTTING ISSUES AND TECHNOLOGIES

AREA ENERGY.7.2: PAN-EUROPEAN ENERGY NETWORKS

Topic ENERGY.2011.7.2-1: Innovative tools for the future coordinated and stable operation of the pan-European electricity transmission system

Open in call: FP7-ENERGY-2011-1

Contents/scope: The aim is to develop a simulation toolbox supporting future co-ordinated operations of the pan-European electricity transmission network where increased uncertainties arising e.g. from the increase in the share of electricity generation from variable renewable sources or from increasing market-based cross border flows will require increased coordination and harmonisation of procedures among transmission network operators.

The project should

- formalise optimization challenges seen by operators on a daily basis into a form that can be addressed by newly available optimization packages;
- test optimised solutions for the maximisation of power transit;
- develop a stochastic approach in the toolbox to consider a large dispersion of the critical optimization variables;
- perform joint tests with a sizeable number of TSOs using their existing operational rules;
- propose converging policies for operational planning tools that will support operational rule harmonization at ENTSO-E level.

This R&D work should provide a toolbox allowing detection of weak points of the pan-European network operating procedures and should propose European-level strategies able to limit the extent and impact of major system disturbances. It should also analyse weak points of reconnection scenarios in the case of restoration from major blackouts.

The toolbox should enable the integration of modules developed in other projects; build on results of earlier projects in the area and integrate new knowledge generated in technology-oriented projects.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Electricity Grids Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project

Expected impact: The work should support the development of pan-European network stability and security strategies to allow robust system operation under narrower stability/security margins. It should also propose defence actions and a set of principles and methods to achieve the European-level coordination of defence plans and black start.

The research will also help determine the type and amount of data that needs to be shared among individual transmission systems and the data that needs to be obtained from market participants (e.g. generators, retailers) in order to implement the above approaches.

Additional Information: This work should be properly coordinated with other R&D projects concerning the planning and operation of the pan-European electricity transmission network. A knowledge sharing approach compatible with the ENTSO-e R&D approach and with that developed in the context of the European Electricity Grids Initiative should be proposed.

Significant Transmission System Operator (TSO) involvement is crucial for maximising the impact of the project.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

Topic ENERGY.2011.7.2-2: Innovative strategies and tools for the reliability assessment of the pan-European electricity transmission network

Open in call: FP7-ENERGY-2011-1

Contents/scope: The aim is to propose, develop and assess new strategies, methods and tools to evolve current security criteria for the future pan-European electricity transmission system without jeopardizing present-day reliability levels.

There is a need to re-evaluate the principle of (n-1) security as the basic principle of transmission network planning and operation, as it is becoming more and more difficult to satisfy in view of the uncertainties linked to the integration of increasing amounts of variable renewable generation and of the difficulty to build new assets.

The work should address questions such as

- What are the options to replace or complement the (n-1)- criterion for the security of pan-European electricity transmission networks?
- What are the risks of departing from the (n-1)-preventive security criterion and can they be tolerated?
- What additional information needs to be exchanged to support the implementation of criteria replacing the (n-1) criterion?
- What are techniques to quantify the impact of such changes?
- What is the impact on other aspects of network operations?

The work should consider probabilistic network analysis methods and propose probabilistic indicators for outage risks.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Electricity Grids Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative Project

Expected impact: The work should result in a number of new options to replace or complement the (n-1) security criterion for design and operation of the pan-European electricity transmission network. It should provide a cost-benefit analysis of the various options and determine the requirements to implement each of the options.

It will contribute to maintaining a high level of short-term security of supply within the pan-European electricity transmission network at a reasonable cost.

Additional Information: This work should be coordinated with other ongoing R&D projects concerning the planning and operation of the pan-European electricity transmission network. A knowledge sharing approach compatible with the ENTSO-e R&D approach and with that developed in the context of the European Electricity Grids Initiative should be proposed.

Significant Transmission System Operator (TSO) involvement is crucial for maximising the impact of the project.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

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.2011.7.3-1: Network of projects developing the future European electricity networks

Open in call: FP7-ENERGY-2011-1

Contents/scope: A major aim of the European Electricity Grids Initiative (EEGI) is to demonstrate the benefits and reduce the costs and risks of deploying future electricity networks by running a coordinated set of R&D and demonstration projects, supported at European or local level.

The project should set-up a vehicle to accompany the implementation of the EEGI. Activities include periodic revisions of the EEGI implementation plan and its interactions with those of other SET Plan initiatives, a mapping of the implementation of state-of-the-art network solutions in Europe, a mapping of RD&D projects in the initiative, the validation of projects' compliance with the EEGI implementation plan, and the assessment of projects' progress using agreed key performance indicators (KPI).

The project should support the elaboration of scaling up and replication plans for the results of RD&D projects in the EEGI, from technical, economic, environmental and regulatory points of view, including those related to the protection of personal data. This includes also specifying a minimum set of information to be collected in the planning and operation of the demonstrators to ensure the evaluation of their replicability; proposing a multi-disciplinary

method for analysing the repeatability and reproducibility of RD&D results; and setting up methods and tools to understand the technical, economic, environmental and regulatory barriers to be overcome in view of the replication at various scales.

The project should propose appropriate knowledge sharing requirements across the full value chain (generators, network operators, retailers and technology providers), facilitate the dissemination of information and best practices both within and outside the initiative, support international cooperation and outreach activities.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Electricity Grids Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Coordination and Support Action

Expected impact: This action will maximise the effectiveness of the EEGI by reinforcing co-operation among key actors of the initiative, increasing the visibility, co-operation and impact of the projects funded at EU and local level, and providing the necessary identity and visibility for the EEGI.

Additional Information: Considering the different maturity of already established coordination mechanisms between network operators in electricity transmission and distribution, the required level of support required by the project for distribution related activities is expected to be substantially higher. Significant commitment of Transmission System Operators (TSO) and Distribution System Operators (DSO) must be demonstrated. Up to one project may be funded.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

Topic ENERGY.2011.7.3-2: Storage and balancing variable electricity supply and demand

Open in call: FP7-ENERGY-2011-2

Contents/scope: Flexible, reliable and low cost energy balancing continues to be a barrier to deployment of most renewable energy technologies. The projects shall demonstrate advanced and cost effective systems which would bridge the source availability and the power demand. The projects should be based on storage devices, flexible generation from renewable sources, ICT tools or grid management systems, alone or in combination. The innovative aspects may be on the technology, the tools or system integration. The projects should improve the energy management addressing several functions to broaden the use of renewable power generation plants also in terms of power quality (security, improved grid interface, etc). The projects should also assess environmental aspects in relation to their proposed solutions. Storage systems (ideal range of GWh) may address large scale centralised renewable energy systems (e.g. large wind parks, etc) or larger systems based on distributed energy supply coupled with many smaller storage systems.

The projects will notably contribute to better transmit and control large amount of powers over long distances, generated from various sources (especially the variable renewable energy sources), with new monitoring and control systems in order to ensure power quality and voltage.

This topic contributes to realising the Implementation Plan (2010-2012) and the Technology Roadmap (2010-2020) of the European Electricity Grids Industrial Initiative and the resulting project(s) will form part of the EII.

Funding scheme: Collaborative projects with a predominant demonstration component

Expected impact:

- Development of simple, reliable, efficient and cost-effective energy balancing systems.
- Simulation tools for energy losses reduction, peak demand response and load control.
- Demonstration of electricity systems with replication potential for all of Europe and enabling substantial renewable energy penetration.

Additional information: The active participation of key industrial partners, DSOs, TSOs, manufacturing and engineering companies (ideally 75% or more of all partners) with significant manpower and budget is essential to achieve the full impact of the project. The project shall contain a demonstration site at industrial scale. Research shall be done on this demonstration site or be directly linked to it. These elements will be considered during the evaluation.

In the framework of the EII a specific monitoring and knowledge sharing mechanism will be established under the auspices of the Commission and the selected projects will be expected to participate.

It is envisaged that up to two projects could be funded.

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 AND BUILDING SECTOR

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 EeB.ENERGY.2011.8.1-1: Demonstration of very low energy new buildings

Open in call: FP7- 2011-NMP-ENV-ENERGY-ICT-EeB

Contents/scope: The objective is to demonstrate in the building sector, high energy efficient innovative technologies and measures resulting in very low energy new buildings. The performance calculation should take into account all types of energy use: consumption for space heating and cooling, water heating, air conditioning, as well as consumption of electricity, including lighting. In any case the total annual energy consumption of the building(s) should not exceed 60 kWh/m²/year (primary energy). Both residential and non-residential buildings are addressed.

A systemic approach is expected in the measures to be taken. All elements and systems of the building that could contribute to a better energy efficiency and sustainability through integrated design and planning should be envisaged, including heat recovery technologies and very efficient water/waste management, enhanced systems for energy behaviour monitoring and demand response and load control systems. Building Information Modelling (BIM) and other methods of integrated project delivery should be used. The project shall use innovation in technology, design, planning, operation and/or systems integration.

The construction should be as cost effective as possible. The return on investment for the energy saving measures should be calculated and presented and should be acceptable under current market standards.

The project could contain a single building or a number of buildings, located in one or more countries. In the latter case, the added value of the joint demonstration effort should be clearly described. The effort and budget should be balanced as much as possible amongst project partners. The CO₂ and energy savings should be calculated and compared to standard buildings in the respective country.

Detailed information should be provided on the building(s) design, envelope and its/their future energy use. The energy efficiency measures to be applied should also be described extensively. The gross floor area of the building(s) should be specified together with the targeted annual energy use per m² (kWh/m²/year, broken down by space heating, cooling, domestic hot water heating, electricity (including lighting) consumption etc.).

Additional accompanying measures affecting the future operation of the building (e.g. behavioural changes, post occupancy evaluation, active training of the occupants, training of professionals and architects in view of the replication of the project in other European regions) should be clearly addressed. Social and economic issues should also be addressed. Buildings utilising thermal masses through their architecture while being of high aesthetic quality that people like to live and work in should be envisaged.

The project should have a high potential of replication contributing to large scale market deployment before 2020. An ambitious dissemination and market deployment programme should be included in the proposal. The detailed metering/monitoring programme should last at least for one year, however, longer term commitment and programmes of the building operators (e.g. in continuous monitoring and/or guarantees of performance to the tenants) would give an added value to the proposal.

Funding scheme: Collaborative Project with predominant demonstration component

Expected impact:

- Large scale market deployment of very low/zero energy buildings before 2020.
- Cost effective highly energy efficient practices and techniques.
- Acceleration of the market uptake of the most innovative ICT tools for efficient buildings Management.
- Creation of best practice examples for the construction sector based on innovation and competitiveness, with benefits for the inhabitants and the environment.
- Contribution to raise the performance standards and regulations on European, national and local level, in the construction industry and building sector, through the best practice examples.

Additional information: In addition to the ambitious energy efficiency target mentioned above, a significant share of energy supplied by renewable energies integrated into the buildings would give an added value to the proposal during the evaluation.

In addition to the detailed description of the buildings and the measures to be taken, it is strongly suggested for participants to complete and include in the proposals the Building Energy Specification Tables (BEST) summarizing this information for every type of building proposed. The template for the BEST table can be downloaded from the following web address:ftp://ftp.cordis.europa.eu/pub/fp7/docs/wp/cooperation/energy/e_best_2010_en.xls

Successful proposals will be asked to follow a common monitoring data structure, using a common methodology, in order to feed the relevant Commission data bases (e.g. CONCERTO data base).

The form of grant applied is based on additional energy efficiency measures in buildings. The grant will always be composed of a combination of: the typical reimbursement of eligible costs, and flat rate financing determined on the basis of scale of unit costs only for the building-related demonstration activities part of the buildings. The scale of unit cost for European Union financial contribution is fixed at EUR 100 /m² eligible costs and thus EUR

50 /m² European Union contribution. The amounts determined on the basis of the scale of unit costs are reimbursed by applying the upper funding limits specified in Article II.16 of the model grant agreement. Therefore, the reimbursement rate will be up to 50%, i.e. EUR 50/m². The eligible costs per m² for the building demonstrated in the project(s) are fixed costs. The total of European Union financial contribution based on scale of unit costs may not exceed EUR 6 million.

The evaluation of the proposals will also take into account the degree of excellence and innovation of the technology used and the most cost effective practices (euros/efficiency gain; euros/CO₂ reduction, kWh/m²/year saved). For this reason, the above figures should be indicated in the proposal.

Priority will be given to buildings the typology and use of which could be representative for large geographical areas in Europe.

It is envisaged that up to five projects could be funded.

Topic ENERGY.2011.8.1-2: Energy efficiency demonstration in manufacturing industry³

Open in call: FP7-ENERGY-2011-2

Contents/scope: The objective is to demonstrate innovative industrial processes and/or their substitution or redesign, with substantial potential for actual energy savings and aiming at processes and products with low carbon footprint.

Full-scale industrial demonstration projects are expected, that can be applied safely under industrial conditions and thereafter deployed systematically in a short time, with a view to achieve an effective reduction of energy use.

Pilot Demonstration will need to be carried out at a scale that makes it possible to estimate operating conditions at full commercial scale with confidence. The new processes/sub-processes can be based on using any major carbon-lean energy sources, sustainable biomass, renewable energy source and/or carbon-free electrical power.

Research may be integrated into existing commercial plants or full-scale demonstration projects if derived from the needs of the project

All proposals should develop and demonstrate results by mean of a system as a precise procedure for monitoring energy and CO₂ accounting (use of innovative Energy Management System tools). Such system is desirable to comply with the reference document on the general principles of monitoring linked to the implementation of the Integrated Pollution Prevention and Control (IPPC) Directive and regarding the Best Available Techniques and associated monitoring (see <http://eippcb.jrc.es/reference/mon.html> for further details).

Proposals should quantify foreseen global net reductions of energy consumption, reductions in resources use, raw materials and/or waste production for the entire area affected. To assess the robustness of results achieved, the proposals should include a standardized system for energy and CO₂ accounting over the whole life cycle from production over use and recycling, as well as developing the necessary tools and related activities for auditing, instrumentation for monitoring, control and follow up of the implementation. The proposal should identify key performance indicators (KPI) in the processes addressed to quantitatively demonstrate the results achieved in the situation pre- and post- modification.

³ It would cover cement, steel, aluminium, petrochemical or pulp sector, but is not limited to these sectors.

Funding scheme: Collaborative Project with a predominant demonstration component

Expected impact: Significant CO₂ reduction component attributed to the improved processes, with the development of technology-led processes to make breakthrough CO₂ cuts possible.

Additional information: The proposals are encouraged to follow the criteria and/or solutions for Best Available Techniques, expressed and stated along the reference documents (see BREF codes and reference documents in <http://eippcb.jrc.es/reference/>).

The active participation of key industrial partners with significant manpower and budget is essential to achieving the full impact of the project. This will be considered in the evaluation.

It is envisaged that up to two projects could be funded.

Topic ENERGY.2011.8.1-3: Energy efficiency in low-carbon industrial parks

Open in call: FP7-ENERGY-2011-2

Contents/scope: The objective is to launch a concerted action on future models for Low Carbon Industrial Parks. Innovative site optimisation integrating several industries or processes (e.g. cement, iron and steel, aluminium, pulp and paper, petrochemical or chemical complexes; low carbon industrial parks systems, large-scale transport infrastructure nodes, such as ports and airports...), using innovative energy management systems and ICT tools, enhanced demand response and load control systems, storage systems, CHP and/or district heating/cooling systems exchanging waste heat and cold between buildings and processes with overall monitoring and optimised planning or establishment of activities for site optimisation, proposing new business models regionally or locally adapted.

The project shall build upon best available knowledge of today, through a cooperation of at least 3 existing industrial parks in 3 countries. These existing industrial parks shall serve as a model for best available energy service management. The project shall develop typologies, identify problems (also possibly including socio economic barriers) and work out potential solutions that are realistic under today's and tomorrow's energy situation. New further improved models shall be developed.

Funding scheme: Co-ordination and Support Action (Coordinating Action)

Expected impact:

- Develop a future model for Industrial Parks, propose a definition on what is to be included and assess the benefits to be expected with its wide implementation.
- Attract the attention of main industrial players to innovation and new technologies available to boost the performance of their manufacturing sites and/or complexes.
- Bring to the forefront sustainability criteria to launch Integral Energy Plans and the establishment of activities such as ESCOs for site optimisation, proposing new business models regionally or locally adapted.

Additional information: The active participation of key industrial partners, DSOs ESCOs or engineering companies (ideally 75% or more of all partners) with significant manpower and budget is essential to achieving the full impact of the project. This will be considered in the evaluation. It is envisaged that up to two projects could be funded.

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

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

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 EU policies. Activities will include scientific support for policy development.

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

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

AREA ENERGY.9.2: SCIENTIFIC SUPPORT TO POLICY

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

ACTIVITY ENERGY.10: HORIZONTAL PROGRAMME ACTIONS

The topics described in the section have a horizontal character not linked specifically to any particular technology.

AREA ENERGY.10.1 'THE OCEAN OF TOMORROW' - JOINING RESEARCH FORCES TO MEET CHALLENGES IN OCEAN MANAGEMENT

Oceans offer opportunities for sustainable economic development. However, human activities are exerting increasing environmental pressure on the oceans, threatening marine ecosystems and sustainable maritime activities. In particular, the growing demand for maritime transport, offshore energy, tourism, coastal development, resource extraction, fisheries and aquaculture, may have a major impact on the marine environment.

The European Union has taken up this challenge and established a new integrated maritime policy, of which the "European Strategy for Marine and Maritime Research"⁴ is a fundamental part. The strategy highlights the importance of integration between established marine and maritime research disciplines in order to reinforce excellence in science and to reconcile the growth of sea-based activities with environmental sustainability.

The aims of the call are to improve our understanding and the predictive capacity of marine ecosystems' response to a combination of natural and anthropogenic factors, while fostering innovations to make the most of sea resources. It will thus contribute to implement the Marine Strategy Framework Directive and to respond in a coherent and integrated way to the EU Grand challenges, such as global warming, tightening supply of energy, water or food security. It is also in line with the new strategy for Europe EU 2020 which recognises that the only way to deliver new sources of growth and sustainable jobs is through research and innovation.

The partly regional focus of the call on the Mediterranean Sea and the Black Sea reflects the huge sustainability challenges in these two sea basins. It is in line with the Council conclusions on the "European Strategy for Marine and Maritime Research", which invite to put a particular emphasis on the Mediterranean and Black Sea basins. It also supports the objectives of the communications "Towards an Integrated Maritime Policy for better governance in the Mediterranean"⁵ and "Black Sea Synergy"⁶.

Research addressed in the call will be of cross-thematic nature, integrating in a coherent way marine and maritime research domains in order to reach an impact that a single theme of the Cooperation programme could not attain on its own.

⁴ COM (2008) 534 final of 3.9.2008 - Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions: "A European Strategy for Marine and Maritime Research: A coherent European Research Area framework in support of a sustainable use of oceans and seas".

⁵ COM (2009) 466 of 11.9.2009 - Communication from the Commission to the Council and the European Parliament: "Toward an Integrated Maritime Policy for better governance in the Mediterranean".

⁶ COM (2007) 160 of 11.4.2007 - Communication from the Commission to the Council and the European Parliament: "Black Sea Synergy – a new regional cooperation initiative".

The call is implemented through four different topics, out of which two of generic nature and two of particular relevance to the Mediterranean and the Black Sea: topic 1: "Multi-use offshore platforms"; topic 2: "Marine microbial diversity – new insights into marine ecosystems functioning and its biotechnological potential"; topic 3: "Assessing and predicting the combined effects of natural and human-made pressures in the Mediterranean and the Black Sea in view of their better governance" (SICA); topic 4: "Knowledge-base and tools for regional networks of MPAs, integrated management of activities together with assessment of wind energy potential *in the Mediterranean and the Black Sea* (SICA).

A multi-disciplinary approach and a multi-sectoral partnership are considered essential to achieving the expected impacts. All topics have been designed to secure a substantial involvement of industrial partners, SMEs and relevant end-users.

OCEAN.2011-1: Multi-use offshore⁷ platforms

Call: FP7-OCEAN-2011

Increasingly, energy, fisheries and transport infrastructures are being established offshore. Facilities such as offshore wind farms may occupy large areas and compete with other users of the maritime space. Offshore platforms that can combine many functions within the same infrastructure could offer significant benefits in terms of economics, optimising spatial planning and minimising the impact on the environment.

This topic aims to develop novel innovative designs for multi-use offshore platforms and assess the technical, economical and environmental feasibility of constructing, installing, operating, servicing, maintaining and decommissioning together with the related transport aspects. The platforms shall target ocean renewable energy and in particular offshore wind, aquaculture and the related transport maritime services.

The work shall determine the optimal locations for multi-use offshore platforms taking into account renewable (in particular wind) energy resources, appropriate aquaculture, transport issues, and other platform-related activities including accessibility and possible use as offshore terminals. Model validations should be employed on several sites using field measurements. In determining locations, the following should be taken into account:

- Ocean renewable energy resources and seabed characteristics;
- Hydrodynamic dispersion models;
- Hydrodynamic conditions for logistic, transport and installation purposes;
- Impact analysis on the environment, social acceptance and other users (e.g. vibrations, noise, radar interference, shipping, tourism, fishing).

Innovative designs for multi-use offshore platforms shall be developed that allow optimal coupling of the various activities and services. Research shall include safe, efficient installation, operation maintenance and monitoring (including possibly remotely) together with specialised transportation to optimise efficiency, operation and installation.

Designs of large structures shall be developed that allow coupling of ocean renewable energy with aquaculture, off shore transport facilities, environmental monitoring and other relevant activities. These should lead to optimised spatial use and improved economic viability.

⁷ "Offshore" is considered to be "out of sight" from the coast.

Physical modelling shall be employed at an appropriate scale for experimental validation of the proposed platforms.

Research into relations between the combined activities shall in particular address the interaction between wind energy and other platform users, innovative containment systems and related technology for optimal aquaculture operation, the development of transport solutions for optimised installation, maintenance, operation and services to shipping (breakwater, terminals etc). Compatibility of current aquaculture equipment and techniques (handling, husbandry, feeding, etc) with establishment on a multi use platform and possible innovations should also be considered.

An assessment of the economic viability and value to the various stakeholders shall be undertaken. This shall include consideration of costs for construction, operation, servicing and decommissioning. This assessment should include a comparison to non multi-use platforms.

The project shall include a comprehensive environmental impact methodology and assessment, including a comparison to non multi-use solutions.

When appropriate, knowledge shall be drawn from pre-existing research and data.

Funding scheme: Collaborative Project

Additional eligibility criteria: The requested European Union contribution shall not exceed EUR 14 000 000.

Additional information:

Up to 3 projects may be funded under the total budget of the topic (EUR 14 000 000) in order to allow various designs to be tested while maintaining critical mass and ensure complete coverage of the topic.

The multi-disciplinary approach of the research undertaken is essential to address the topic. It will be considered during the evaluation of the criterion related to "S/T quality".

The multi-sectoral composition of the partnership and the participation of industrial partners and relevant end-users, in particular SMEs, are essential for the implementation of the project. It will be considered during the evaluation of the criterion related to "Implementation".

Expected impacts:

- Contribution to the target of 20% share of wind energy in the final EU electricity consumption by 2020,
- Contribution to the growth of aquaculture industry and to increasing food needs and food security,
- Contribution to the increase of employment level (new job opportunities) in the shipbuilding, energy and fisheries sector,
- New emerging green technologies and global competitiveness of the European industries,
- Contribution to the low carbon economy,
- Strengthen the role of the European maritime transport sector within offshore energy and fisheries developments. Facilitate more efficient eco-friendly transport operations.

OCEAN.2011-2: Marine microbial diversity – new insights into marine ecosystems functioning and its biotechnological potential

Call: FP7-OCEAN-2011

The sequencing of environmental samples from marine environments allows investigations on microbial diversity and their functions at molecular level, leading to a better understanding and prediction of the marine microbial influence on biogeochemical cycles and hence on climate change and to the exploitation of its potential for biotechnological applications. This is why nowadays massive output of sequencing efforts of marine environmental samples e.g. ocean sampling expeditions, are flooding databases. To interpret these data in their environmental context is a prerequisite to being able to transform the wealth of sequenced data into biological understanding. However, analysis and interpretation of these data, especially metagenomic data, requires tools that are very poorly developed so far.

The focus of research should be on the development of new bioinformatic approaches in the marine environment field that will enable microbial (e.g. viruses, bacteria, archaea and protists) data exploitation, integration and accessibility for researches and different users worldwide. It should focus on standardization, processing, integration of heterogeneous data sources, annotation, interpretation of the metagenomics data taking into account their environmental context (biogeochemical and oceanographic data) and should link environmental studies with laboratory experiments so that hypothesis can be tested and unknown genes and/or biochemical pathways can be assigned a function. The complex problem of IPR issues related to the exploitation and protection of marine resources as well as outreach activities including training of researchers should also receive due consideration.

Funding scheme: Collaborative Project (large scale integrating project)

Additional eligibility criteria: The requested European Union contribution shall not exceed EUR 9 000 000.

Additional information:

A maximum of one project may be funded.

The multi-disciplinary approach of the research undertaken is essential to address the topic. It will be considered during the evaluation of the criterion related to "S/T quality".

The multi-sectoral composition of the partnership and the participation of industrial partners and relevant end-users, in particular SMEs, are essential for the implementation of the project. It will be considered during the evaluation of the criterion related to "Implementation".

Expected impacts:

- Better understanding of the complexity of microbial communities and their role on climate change, the parameters driving the functioning of marine ecosystems and reveal new exciting activities with potential industrial use,
- Contribution to the improvement of environmental bioinformatics capacity building in Europe and overcome fragmentation resulting from the very fast developments in sequencing, bioinformatics, and molecular ecology,
- Enabling integration with oceanographic research on earth observation and monitoring (e.g. GMES, GEOSS and Emodnet) and other EU funded related activities,
- Contribution to the increase of the interoperability and data quality and facilitate novel applications in the field of blue biotechnology,

- Contribution to the improvement of the protection of genetic resources and the sustainable use of marine resources by advancing new IPR approaches.

OCEAN.2011-3: Assessing and predicting the combined effects of natural and human-made pressures in the Mediterranean and the Black Sea in view of their better governance

Call: FP7-OCEAN-2011

The capacity of the Mediterranean and the Black Sea to provide goods and services to their surrounding populations may be compromised in the near future if anthropogenic and natural pressures are not considered in connection with the natural sensitivities and capacities of the marine environment in an integrated, ecosystem-based way. An integrated approach for governance in the Mediterranean and in the Black Sea basins is therefore needed.

The overall objectives of the project are to promote sustainable well-coordinated research efforts in order to characterise patterns of pressure in environmental and socio-economic terms on the Mediterranean and the Black Sea and to develop a framework for future implementation of adaptive policies and management schemes, while fostering international cooperation with neighbouring countries.

Firstly, the project will develop expert systems in order to address the objectives of the topic, making the best use of the available observational and monitoring capability currently deployed in both basins. In particular it should take advantage of and be built on systems such as the ones currently deployed through the Global Monitoring for Environment and Security (GMES) and the Group on Earth Observations (GEO) initiatives. The project should also take into consideration the European Marine Observation and Data Network (EMODNET) and the Data Collection Framework (DCF) in fisheries. Where needed, the project should fill short term data gaps and propose options to fill gaps on a continuous basis in the long term. This will include making more compatible the role of existing and future research vessel (i.e. a new multipurpose mobile platform for environmental data collection) with the current effort to monitoring systematically the environmental status of the Mediterranean and the Black Sea conditions through an integrated observing system.

Secondly, the project shall build an integrated knowledge-base for understanding the patterns of anthropogenic and natural pressures in the Mediterranean and in the Black Sea. In particular, it should develop the science-base needed to understand how the natural land-ocean processes that are characteristic of semi-enclosed basins (peculiar role of air-sea fluxes and fresh water fluxes, specific water mass ventilation rates, hydraulic control of flows across straits) and the anthropogenic processes (effects of large cities, coastal development, pollution, recreational activities, fishing and aquaculture activities) interact in these two basins.

Thirdly, the project shall provide a scientific rationale for a basin-wide promotion of the principles and objectives put forward in the Marine Strategy Framework Directive (MSFD) in close collaboration with the neighbouring countries in order to achieve Good Environmental Status (GES). It should be built upon existing models, in particular those developed under GMES, improve prediction and management of key anthropogenic and natural processes and their impacts in the Mediterranean and the Black Sea.

The project shall cover both Mediterranean and Black Sea basins and foster international cooperation. It will aim to build scientific capacity in the countries bordering the Mediterranean Sea and the Black Sea to strengthen European efforts to address the

environmental challenges faced in the two semi-enclosed seas, jointly with neighbouring countries.

Finally, the project will develop a small research and survey vessel concept to be used for coastal areas, estuaries, as well as port areas, navigation channels. The innovative research content concerns a small vessel with low draft that can operate with very precise innovative dynamic positioning, novel propulsion in shallow waters and normal sea states. As well as being suitable for a wide range of research related users, the vessels will address the needs to survey, accurately and efficiently shallow water navigation channels, an important navigation safety issue for shipping, particularly in areas with shifting sands.

Funding scheme: Collaborative Project (large scale integrating project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries.

Additional eligibility criteria:

- The requested European Union contribution shall not exceed EUR 13 000 000.
- SICA - Minimum number of participants: 3 from different Member States or Associated countries and 4 from different ICPC, among which at least 2 from the Mediterranean Partner Countries and at least 2 from the ICPC countries of the EU Black Sea Synergy⁸.

Additional information: A maximum of one project may be funded. The project must equally address both the Mediterranean and the Black sea basins. It may include one sub-project for the Mediterranean and one for the Black Sea; but with a strong interlink between the two (e.g. for modelling) and a common approach for the development of the small research and survey vessel.

The project should be in line with the requirements of the Inspire directive and data sharing principles of the GEOSS initiative.

The multi-disciplinary approach of the research undertaken is essential to address the topic. It will be considered during the evaluation of the criterion related to "S/T quality".

The multi-sectoral composition of the partnership and the participation of industrial partners and relevant end-users, in particular SMEs, are essential for the implementation of the project. It will be considered during the evaluation of the criterion related to "Implementation".

Expected impacts:

- Reinforcing the scientific knowledge base, including in the regions out of the EU where this knowledge base remains poor, in order to understand and manage the impact of global changes on the Mediterranean and the Black Sea marine ecosystems and thereby contribute to their sustainable development;
- Clarifying challenges related to the definition and implementation of basin wide Good Environmental Status in accordance with the MSFD;
- Contributing to building science-based basin scale management strategies and informing policy makers at national, EU, regional and International levels. Evaluating the various options for sustaining these tools on the long term;
- The project should be in line with EU and international policies such as: MSFD, GMES, GEOSS, Common Fisheries Policy (CFP), Integrated Maritime Policy, and the regional sea conventions;

⁸ COM (2007) 160: Armenia, Azerbaijan, Georgia, Moldova, Russia, Ukraine

- Enable advanced marine transport technology to accurately and efficiently locate in normal seas a vessel that can research and survey in shallow waters;
- Reinforcing international cooperation and interactions between scientists throughout the two geographic areas and spreading knowledge to decision makers.

OCEAN.2011-4: Knowledge-base and tools for regional networks of MPAs, integrated management of activities together with assessment of wind energy potential in the Mediterranean and the Black Sea

Call: FP7-OCEAN-2011

Due to the specific nature of the Mediterranean and Black Sea and the rapid expansion of sea-based activities, there is a need to create new knowledge to support the development of decision maker's tools for optimizing the management of human activities, within an integrated coastal and marine space system.

The objective of the project is to build up scientific basis firstly for establishing regional or sub-regional wide networks of marine protected areas (MPAs) for conservation and better management of marine living resources, secondly for assessing offshore wind energy potential while evaluating possible synergies and conflicts of use with other marine activities.

Research on MPAs will concern the establishment of scientific guidelines, criteria, models and tools for the design, mapping, management, monitoring and control of regional or sub-regional networks of MPAs including deep-sea habitats and areas beyond national jurisdictions. These networks of MPAs should respond to clearly established objectives, from protecting biodiversity (strict reserves) to achieving a sustainable exploitation of aquatic living resources by preserving nursery grounds and juveniles (restricted areas).

The focus will be on the identification of priority areas in both basins through a hierarchical approach based on ecological and socio-economic criteria in underrepresented or poorly studied areas and ecosystems (e.g. the high seas and the deep seas). Sizing, spacing and ecological connectivity and interdependency between sites will be studied for optimal maintenance of species populations and biodiversity (spill over effect), considering possible genetic exchange, larval behaviour patterns and larval dispersal and making the best use of molecular science and multidisciplinary approaches between marine genomics and ecosystem science. Habitat discontinuity and fragmentation, physical oceanography should also be considered. The development of management strategies for implementing the regional networks such as regulation measures to limit and ban certain practices, dynamic closures, legal issues for managing trans-boundary areas and high seas MPAs are key elements of the project. The project should also promote innovative communication strategies between scientists, managers, fishermen, shippers, NGOs, potential users and public at large.

Research on wind energy will provide a scientific basis for assessing off-shore wind potential in the Mediterranean and the Black Sea, focusing on areas already identified as promising with respect to wind regimes. The project should assess the potential for offshore wind power production based on the use of existing models. It will also evaluate potential conflicts with other uses of the space (MPAs, maritime transport, on shore large desalination plants, dredging, fishing, aquaculture, sub-sea cables, pipelines, tourism, etc). The project should deliver scientific guidelines for an enriched "wind atlas" for decision-makers and planners.

Moreover the project shall launch two pilot studies, at least one in the Mediterranean and one in the Black Sea, addressing the establishment of regional networks of MPAs, also combining if possible wind energy development, and considering all the possible conflicts from other

maritime activities. The pilot studies should address selected areas within regions or sub-regions of the Mediterranean Sea and the Black Sea as defined in the Marine Strategy Framework Directive⁹. The project should reinforce capacity building in support to international cooperation by transferring and making compatible methods across the two basins and by promoting common rules and practices in particular with non EU countries from Balkans, Southern Mediterranean and Eastern Europe bordering the two seas.

Funding scheme: Collaborative Project (large scale integrating project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries.

Additional eligibility criteria:

- The requested European Union contribution shall not exceed EUR 9 000 000.
- SICA - Minimum number of participants: 3 from different Member States or Associated countries and 4 from different ICPC, among which at least 2 from the Mediterranean Partner Countries and at least 2 from the ICPC countries of the EU Black Sea Synergy¹⁰.

Additional information:

A maximum of one project may be funded.

The multi-disciplinary approach of the research undertaken is essential to address the topic. It will be considered during the evaluation of the criterion related to "S/T quality".

The multi-sectoral composition of the partnership and the participation of industrial partners and relevant end-users, in particular SMEs, are essential for the implementation of the project. It will be considered during the evaluation of the criterion related to "Implementation".

Expected impacts:

- Improved methods and tools for developing holistic planning and integrated management approaches and practices for the implementation of regional or sub-regional networks of Marine Protected Areas and the assessment of offshore wind energy potential in the Mediterranean Sea and the Black Sea,
- Reinforcing international cooperation and interactions between scientists and marine space users throughout the two geographic areas and spreading knowledge to decision makers,
- Demonstrating the feasibility and possible synergy between regional networks of MPAs and offshore wind sites through the launching of two pilot studies, at least one in the Mediterranean and one in the Black Sea, with the participation of the industry,
- Supporting maritime spatial planning¹¹ and the development of an Integrated Maritime Policy in the Mediterranean and Black Sea basins,
- Contributing to fulfil international/regional conventions and agreements e.g. Convention on Biological Diversity, UN World Summit on Sustainable Development

⁹ The 4 sub-regions of the Mediterranean Sea are (i) the Western Mediterranean Sea; (ii) the Adriatic Sea; (iii) the Ionian Sea and the Central Mediterranean Sea; (iv) the Aegean-Levantine Sea.

¹⁰ COM (2007) 160: Armenia, Azerbaijan, Georgia, Moldova, Russia, Ukraine

¹¹ COM (2008) 791 of 25.10.2008 - Communication from the Commission "Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU".

- Plan of Implementation, as well as, EU regulations and policies regarding the implementation of regional or sub-regional networks of MPAs.

AREA ENERGY 10.2 OTHER HORIZONTAL ACTIONS

Topic ENERGY.2011.10.2-1: Pilot International Researcher Exchange in the field of energy research (US and Japan)

Open in call: FP7-ENERGY-2011-EXCHANGE

Contents/scope: There is an increasingly strategic need to support international cooperation in energy research, including in the activities of the SET-Plan.

Accordingly, this pilot action aims to promote international cooperation through establishing a dual mechanism to support the *reciprocal* exchange of research staff between:

- European and US energy research entities;
- European and Japanese energy research entities.

This action will provide support to *European energy research entities* in order to establish or reinforce long-term research cooperation through a reciprocal programme of exchange of researchers for short periods.

The staff to be exchanged should be 'seconded' (i.e. maintain their salary in their institution of origin, and have the right to return), so as to guarantee full re-integration and the positive recognition of the mobility experience, thus maximising the benefit of this action for long term cooperation. The grant agreement will be concluded with the participants located in the Member State or Associated country, while the other members of the partnership are defined as partner organisations.

This pilot scheme aims to support a *balanced* exchange of researchers between participating entities, with the EU, US and Japan respectively funding the mobility costs of their 'outgoing' researchers. Staff exchange programme will be for a maximum of 4 years with a maximum duration of the individual staff exchange of 1 year.

The fixed EU contribution is 2000 EUR per exchanged staff member per month. This amount should cover the cost of travel and subsistence of the exchanged staff. Networking actions, management costs and overheads related to the execution of the exchange may also be included in the contribution.

Funding scheme: Support for training and career development of researchers

Additional Eligibility Criteria: In addition to minimum eligibility criteria, proposals must contain partners from either the US or Japan. The potential participants in this action are energy research entities from the EU, US and Japan. These will form a *partnership* that will implement a *reciprocal exchange programme*, by seconding and/or hosting eligible researchers. A *partnership agreement* in this action shall be established either on the one hand between a *consortium* of a at least two independent participants established in at least two different EU Member States or Associated Countries, and one or more *partner organisation(s)* located in the US or on the other between a *consortium* of a at least two independent participants established in at least two different EU Member States or Associated Countries, and one or more *partner organisation(s)* located in Japan.

Expected impact: The main objective of this action is to reinforce the international cooperation dimension of EU energy research policy, through the creation of reciprocal exchanges programmes between the EU and the US and the EU and Japan. In addition, in order to achieve maximum impact, it is expected that the value gained by each researcher exchange will be disseminated amongst all consortia partners.

Additional information:

The Exchange programmes should support the activities of the Energy theme of the Cooperation Programme.

A maximum of two projects can be funded between EU and US entities and a maximum of two projects can be funded between EU and Japanese entities.

Topic ENERGY.2011.10.2-2: Supporting the coordination of national research activities of Member States and Associated States in the field of GEOTHERMAL energy (ERA-NET)¹²

Open in call: FP7-ERANET-2011-RTD

Content/scope: The objective of the ERA-NET scheme is to step up the cooperation and coordination of research programmes in the field of geothermal energy at national level in the Member or Associated States through the networking of research and other geological programmes. This is aimed at the development and implementation of joint programming and opening of joint calls. Objectives will be to create an EU geothermal database for geothermal resource assessments and co-ordination of national activities and databases in geology, geochemistry and geophysics.

Proposed coordination activities: This ERA-NET is expected to go beyond the level of cooperation and integration already achieved e.g. by broadening partnerships and/or by integrating relevant new partners with a good geographic balance and complementing ongoing EERA activities. It will support the creation of a EU geothermal database for geothermal resource assessment by co-ordinating and integrating national information, activities and databases.

Coordination activities have to focus on implementation of commonly agreed objectives and joint activities and funding of joint trans-national research actions

Funding scheme: Coordination and Support Action (coordinating action)

Additional eligibility criteria: As for other ERA-NET actions, this topic is mainly addressed to bodies managing or financing national research and innovation programmes, and not for research performers. A complete description of the eligibility criteria is provided in Annex IV of this work programme

Expected impact: This coordination is expected to enhance synergies and overcome fragmentation in the geothermal energy research area and complement the EERA activities on geothermal energy. Joint programming activities between Member States involved in the project are expected to arise naturally.

¹² See Annex IV to this workprogramme for a complete description of the ERA-NET scheme

Topic ENERGY.2011.10.2-3: Supporting the coordination of national research activities of Member States and Associated States in the field of OCEAN energy (ERA-NET)¹³

Open in call: FP7-ERANET-2011-RTD

Content/scope: The objective of the ERA-NET scheme is to step up the cooperation and coordination of research programmes in the field of ocean energy at national level in the Member or Associated States through the networking of organisations involved in the support to Ocean Energy research and development. This is aimed at the development and implementation of joint programming and opening of calls.

Proposed coordination activities: This ERA-NET is expected to build upon and draw lessons from the various experiences gathered and work done in the framework of ocean energy in Europe, in order to identify the most relevant research activities to be undertaken beyond the national level.

Coordination activities will therefore encompass all the steps of an ERA-NET (Information exchange, definition, preparation and implementation of research activities funding of joint trans-national research actions). This ERA-NET is expected to implement at least 1 joint call per year.

Funding scheme: Coordination and Support Action (coordinating action)

Additional eligibility criteria:

As for other ERA-NET actions, this topic is mainly addressed to bodies managing or financing national research and innovation programmes, and not for research performers. A complete description of the eligibility criteria is provided in Annex IV of this work programme

Expected impact: Ocean energy R,D&D activities are carried out separately in several Member States. The coordination offered by this ERA-NET will enhance synergies and raise the scattered profile of a sector having difficulties to build a mature industrial and commercial status.

¹³ See Annex IV of this workprogramme for a complete description of the ERA-NET scheme

5.2. IMPLEMENTATION OF CALLS

Call title: Energy Call Part 1

- **Call identifier:** FP7-ENERGY-2011-1
- **Date of publication:** 20th July 2010 ¹⁴
- **Deadline:** 16 November 2010 at 17.00.00, (Brussels local time)¹⁵
- **Indicative budget ¹⁶:** EUR 74 million from the 2011 budget¹⁷

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
ENERGY.2.5: CONCENTRATED SOLAR POWER ENERGY 4.: RENEWABLES FOR HEATING	EUR 18 million
ENERGY 2.3: WIND	EUR 5 million
ENERGY.3: RENEWABLE FUEL PRODUCTION	EUR 15 million
ENERGY.5: CO ₂ CAPTURE AND STORAGE TECHNOLOGIES FOR ZERO EMISSION POWER GENERATION ENERGY.6: CLEAN COAL TECHNOLOGIES	EUR 16 million
ENERGY.7: SMART ENERGY NETWORKS	EUR 20 million

¹⁴ The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

¹⁵ The Director-General responsible may delay this deadline by up to two months.

¹⁶ 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.

¹⁷ Under the condition that the draft budget for 2011 is adopted without modification by the budgetary authority.

- **Topics called:**

Activity/ Area	Topics called	Funding Schemes
ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION		
AREA ENERGY.2.3: WIND	ENERGY.2011.2.3-2: Development of design tools for Offshore Wind farm clusters	Collaborative Project
AREA ENERGY.2.5: CONCENTRATED SOLAR POWER	ENERGY.2011.2.5-1: Thermal energy storage for CSP plants	Collaborative Project
	ENERGY.2011.2.5-2 Advanced heat transfer fluids for CSP technology	Collaborative Project
ACTIVITY ENERGY.3: RENEWABLE FUEL PRODUCTION		
AREA ENERGY.3.7: CROSS-CUTTING ISSUES	ENERGY.2011.3.7-1: Development of new or improved sustainable bio-energy carriers	Collaborative Project
ACTIVITY ENERGY.4: RENEWABLES FOR HEATING AND COOLING		
AREA ENERGY.4.1: LOW/MEDIUM TEMPERATURE SOLAR THERMAL ENERGY	ENERGY.2011.4.1-1: Revisiting solar-thermal systems for using breakthroughs in scientific and technological fields	Collaborative Project
ACTIVITY ENERGY.5: CO₂ CAPTURE AND STORAGE TECHNOLOGIES FOR ZERO EMISSION POWER GENERATION		
AREA ENERGY.5.1 CO₂ CAPTURE	ENERGY.2011.5.1-1: High-efficiency post-combustion solvent-based capture processes.	Collaborative Project
AREA ENERGY.5.2: CO₂ STORAGE	ENERGY.2011.5.2-1: Understanding the long-term fate of geologically stored CO ₂ .	Collaborative Project
ACTIVITY ENERGY.6: CLEAN COAL TECHNOLOGIES		
AREA ENERGY.6.1: CONVERSION TECHNOLOGIES FOR ZERO EMISSION POWER GENERATION	ENERGY.2011.6.1-1: Optimisation of IGCC technologies for use with high ash content coal	Collaborative project for specific international cooperation action (SICA)
ACTIVITY ENERGY.7: SMART ENERGY NETWORKS		
AREA ENERGY.7.2: PAN-EUROPEAN ENERGY NETWORKS	ENERGY.2011.7.2-1: Innovative tools for the future coordinated and stable operation of the pan-European electricity transmission system	Collaborative Project

	ENERGY.2011.7.2-2: Innovative strategies and tools for the reliability assessment of the pan-European electricity transmission network	Collaborative Project
AREA ENERGY 7.3: CROSS CUTTING ISSUES AND TECHNOLOGIES	ENERGY.2011.7.3-1: Network of projects developing the future European electricity networks	Coordination and Support Action

- **Eligibility conditions**

The eligibility criteria for this call are set out in Annex 2 to the work programme and in the Guide for Applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

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 below¹⁸:

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.

Additional eligibility criteria

Collaborative project for specific cooperation Action (SICA) dedicated to international cooperation partner countries	At least 4 independent legal entities. Of these, 2 must be established in different MS or AC. The other 2 must be established in different provinces, oblasts, republics or states of India.
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- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**

- The evaluation criteria are set out in Annex 2 to the work programme.

¹⁸ 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.

- Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout 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 exceeding these limits.

The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).

- A two stage submission and evaluation procedure will be used.

Evaluation criteria and thresholds for stage 1 proposals:

The first stage proposal should focus on the S&T content and on clear identification of the intended results. Information on the consortium composition and the estimated financial resources involved should also be provided.

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

	Minimum threshold
S/T quality	3/5

A list of proposals for 250% of the available budget will be invited to proceed to stage 2 at the condition that they reach the minimum threshold as above. 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.

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 stage 1 ('go' proposals) will receive an invitation to submit their full proposal instead of an Evaluation Summary Report. The complete proposal will then be 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 26.04.2011

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 procedure for prioritising proposals with equal scores is described below

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.

Topic ENERGY.2011.2.3.2: Development of design tools for Offshore Wind farm clusters: Up to two projects could be funded taking into account the complementarities of possible modelling approaches

Topic ENERGY.2011.2.5-2: Advanced heat transfer fluids for CSP technology: Up to two projects, focusing on different heat transfer fluids, could be funded.

Topic ENERGY.2011.3.7-1: Development of new or improved sustainable bio-energy carriers: Up to three projects focusing on different bioenergy carriers to avoid duplication and maximise impact will be funded.

Topic ENERGY.2011.7.3-1: Network of projects developing the future European electricity networks:

Up to one project may be funded.

Additional information related to the evaluation of the criterion 'Implementation' can be found in the topic descriptions under the heading 'Additional information'.

Proposals will not be evaluated anonymously.

- **Indicative evaluation and contractual timetable:**

- Evaluation stage 1 proposals: December 2010/January 2011
- Evaluation stage 2 proposals: May/June 2011. 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.

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

- **Flat rates to cover subsistence costs:**

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

- **Dissemination:** Grant agreements of projects financed under this call for proposals will include the special clause 39 on the "Open Access Pilot in FP7". Under this clause, beneficiaries are required to make their best efforts to ensure free access to peer-reviewed articles resulting from projects via an institutional or subject-based repository.

Call title: Energy Call part 2

- **Call identifier:** FP7-ENERGY-2011-2
- **Date of publication:** 20th July 2010¹⁹
- **Deadline:** 07 April 2011 at 17.00.00, Brussels local time²⁰
- **Indicative budget:** EUR 137 million ²¹

Activity	Indicative Amount (EUR million)
ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION	52
ACTIVITY ENERGY.4: RENEWABLES FOR HEATING AND COOLING	20
CROSS-CUTTING ACTIONS BETWEEN ACTIVITY 5 and 6.	20
ACTIVITY ENERGY.7: SMART ENERGY NETWORKS	30
ACTIVITY ENERGY.8 ENERGY EFFICIENCY	15

The budget for this call is indicative. The final budget awarded to actions implemented through calls for proposals may vary:

- The final budget of the call 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 for the call.

¹⁹ The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

²⁰ The Director-General responsible may delay this deadline by up to two months.

²¹ Under the condition that the draft budget for 2011 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.2011.2.1-3: Productivity and cost optimization issues for the manufacturing of photovoltaic systems based on concentration	Collaborative Project with a predominant demonstration component
	ENERGY.2011.2.1-4: Development and demonstration of standardized building components	Collaborative Project with a predominant demonstration component
AREA ENERGY.2.3: WIND	ENERGY.2011.2.3-1: Demonstration of innovative off-shore wind electricity generation structure	Collaborative Project with a predominant demonstration component
ACTIVITY ENERGY.4: RENEWABLES FOR HEATING AND COOLING		
AREA 4.1: LOW/MEDIUM TEMPERATURE SOLAR THERMAL ENERGY	ENERGY.2011.4.1-2: Low/Medium temperature solar thermal systems for industrial process heat	Collaborative Project with a predominant demonstration component
	ENERGY.2011.4.1-3: Materials for thermal storage systems	Collaborative Project
	ENERGY.2011.4.1-4: Advanced compact storage systems	Collaborative Project
CROSS-CUTTING ACTIONS BETWEEN ACTIVITIES ENERGY.5 AND ENERGY.6 (ACTIVITY ENERGY.5&6)		
AREA 5&6.2: CROSS-CUTTING AND REGULATORY ISSUES	ENERGY.2011.5&6.2-1: Optimising the integration of CO ₂ capture into power plants	Collaborative Project with a predominant demonstration component
	ENERGY.2011.5&6.2-2: Improving efficiencies and reducing GHG emissions through CO ₂ capture in industrial applications other than power generation	Collaborative Project with a predominant demonstration component
	ENERGY.2011.5&6.2-3: Support to the European CCS Demonstration Project Network	Coordination and support action (Supporting Action)

ACTIVITY ENERGY.7: SMART ENERGY NETWORKS		
AREA ENERGY 7.3: CROSS-CUTTING ISSUES AND TECHNOLOGIES	ENERGY.2011.7.3-2: Storage and balancing variable electricity supply and demand	Collaborative Project with a predominant demonstration component
ACTIVITY ENERGY.8: ENERGY EFFICIENCY AND SAVINGS		
AREA 8.1: EFFICIENT ENERGY USE IN THE MANUFACTURING INDUSTRY AND BUILDING SECTOR	ENERGY.2011.8.1-2: Energy efficiency demonstration in manufacturing industry	Collaborative Project with a predominant demonstration component
	ENERGY.2011.8.1-3: Energy efficiency in low-carbon industrial parks	Coordination and Support Action (Coordinating Action)

- **Eligibility conditions:**

- The general eligibility criteria are set out in Annex 2 to this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

Funding scheme	Minimum conditions
Collaborative Projects	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Coordination and Support Actions (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC
Coordination and Support Actions (supporting action)	At least 1 independent legal entity.

- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**

- The evaluation criteria and scoring scheme are set out in annex 2 of the work programme.

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

- Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout 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 exceeding these limits.

The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).

- The evaluation shall follow a single stage procedure.
- Where mentioned in the topic description, "predominant demonstration component" refers to the elements described in the Guide for Applicants.
- The procedure for prioritising proposals with equal scores is described below:

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.

Additional information related to the evaluation of the criterion 'Implementation' can be found in the topic descriptions under the heading 'Additional information'.

- **Indicative timetable:** Evaluations are expected to be carried out in May 2011. It is expected that the negotiations with the proposals of the main list will open by July 2011, in view of signing the Grant Agreements by January 2012.
- **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.
- **The forms of grants and maximum reimbursement rates** which will be offered are specified in Annex 3 to the Cooperation work programme.
- **Flat rates to cover subsistence costs:** In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

- **Dissemination:** Grant agreements of projects financed under this call for proposals will include the special clause 39 on the "Open Access Pilot in FP7". Under this clause, beneficiaries are required to make their best efforts to ensure free access to peer-reviewed articles resulting from projects via an institutional or subject-based repository.

Call title: Call implemented jointly by Theme 4 – NMP - Nanosciences, Nanotechnologies, Materials and new Production Technologies and Theme 5 - ENERGY

- **Call identifier:** FP7-NMP-ENERGY-2011
- **Date of publication:** 20/07/2010²²
- **Deadline:** 25 November 2010 - at 17.00.00 (Brussels local time)²³
- **Indicative budget^{24,25}:** EUR 25 million of which EUR 15 million from Theme 4 – NMP and EUR 10 million from Theme 5 – Energy.

- **Topic called**

THEME/ACTIVITY	TOPIC IDENTIFIER	FUNDING SCHEME
ACTIVITY 4.1: NANOSCIENCES AND NANOTECHNOLOGIES		<i>Large-scale integrating Collaborative Projects</i>
NMP-ENERGY-2011.1.2-1	Development and up-scaling of innovative photovoltaic cell processes and architectures to pilot-line scale for industrial application	
<u>ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION</u>		
ENERGY- 2011.2.1-2	Development and up-scaling of innovative photovoltaic cell processes and architectures to pilot-line scale for industrial application	

The topic is evaluated and implemented jointly with Theme 5 (ENERGY). It is identical to both themes. Hence each proposal must be submitted only once, either for topic **NMP-ENERGY-2011.1.2-1**, or topic, **ENERGY- 2011.2.1-2** but not both. When applying for this call please use only one of the activity codes above.

- **Eligibility conditions:**

For Large-scale integrating Collaborative Projects the minimum conditions to participate are: at least 3 independent legal entities, each of which is established in a Member State or Associated Country, and no 2 of which are established in the same Member State or Associated Country.

²² The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

²³ The Director-General responsible may delay this deadline by up to two months.

²⁴ The budget for this call is indicative. The final budget of the call may vary by up to 10% of the total value of the indicated budget for the call.

²⁵ Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority.

In addition to the general eligibility criteria, which are given in Annex 2 to the work programme, for the Large-scale integrating collaborative projects, the EU funding requested **must be greater than EUR 4 million**.

Please note that the financial resources mobilised within a project will be assessed during the evaluation against the real work to be carried out in the project.

- **Evaluation procedure:**

A single-stage submission procedure will be followed. Proposals may be evaluated remotely.

The evaluation criteria (including thresholds) and sub-criteria together with the eligibility, selection and aware criteria for the different funding schemes are set out in annex 2 to this work programme.

In order to ensure the industrial relevance and impact of the research effort, the active participation of industrial partners represents an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

See also Annex 2: Eligibility and evaluation criteria for proposals

In contrast with Annex 2, at Panel stage, the priority order of the proposals with equal overall scores will be established in accordance with 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. If proposals are still tied, they will be prioritised on the basis of the work programme coverage.

A reserve list will be constituted if there is 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 during the months of January/February 2011. It is expected that the contract negotiations for the short-listed proposals will be opened in March 2011.

- **Forms of grant and maximum reimbursement rates** for projects funded through the Cooperation work programme are given in Annex 3 of this work programme.

- **Use of flat rates for subsistence costs:**

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

Call title: ENERGY - EU Japan Call

- **Call identifier:** FP7-ENERGY-2011-JAPAN
- **Date of publication:** 20 July 2010²⁶
- **Deadline:** 25th November 2010 at 17.00.00 (Brussels local time)²⁷ and, for the coordinated project funded by the Japanese authorities, on 25th November 2010 at 17.00.00 (Japanese time), according to the respective requirements of the European Commission and the (METI)/(NEDO)
- **Indicative budget**²⁸: EUR 5 million from the 2011 budget²⁹.
All budgetary figures given in this work programme are indicative. 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.
An equivalent budget for the call is expected from the Japanese METI/NEDO.
- **Topic called:**

Activity/ Area	Topics called	Funding Schemes
ACTIVITY ENERGY.2: RENEWABLE ELECTRICITY GENERATION		
AREA ENERGY.2.1: PHOTOVOLTAICS	ENERGY.2011.2.1-1: Ultra-high efficiency concentration photovoltaics (CPV) cells, modules and systems / EU-Japan Coordinated Call	Collaborative Project

The coordinated call EU-Japan foresees to lead to the funding of coordinated projects, each consisting of one project financed by the European Union and another by the METI/NEDO. Two calls are published - one by the European Commission according to European rules and the other by the Japanese Authorities under the Japanese rules, the relevant procedures being harmonised and synchronised to the best extent possible.

Eligibility conditions

- The eligibility criteria for this call are set out in Annex 2 to the work programme. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

²⁶ The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

²⁷ The Director-General responsible may delay this deadline by up to two months.

²⁸ A reserve list will be constituted if there is a sufficient number of good quality proposals. It will be used if extra budget becomes available.

²⁹ Under the condition that the draft budget for 2011 is adopted without modification by the budgetary authority.

- The minimum number of participating legal entities required for this call is summarised in the table below³⁰:

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.

Additional eligibility criterion

A proposal submitted to the European Commission (EC) will be eligible only if co-ordinated with a Japanese proposal submitted in parallel to the Japanese New Energy and Industrial Technology Development Organization (NEDO). This coordination should be balanced in terms of the R&D efforts deployed by the EU and Japan respectively. Therefore, proposals on either side will contain in their description of work (Part B) the following three parts:

- Part One, describing the scope and content of the intended EU-Japan cooperation, including the common objectives and tasks, work sharing and schedule, foreseen exchange of researchers and related budget. This section will clearly indicate the interdependencies between the R&D activities carried out by the European and Japanese participants respectively, in terms of deliverables, milestones, etc.
- Part Two, describing all activities that will be carried out by the participants in the EU proposal, including deliverables, milestones and budget.
- Part Three, describing all activities that will be carried out by the participants in the Japanese proposal, including deliverables, milestones and budget.

In addition, the submitted proposals will contain a draft coordination agreement between the two consortia.

- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

Evaluation procedure

- The evaluation criteria and scoring scheme are set out in annex 2 of the work programme

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

³⁰ 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.

Overall threshold required	10/15
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- Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout 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 exceeding these limits.

The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).

- A single-stage submission and evaluation procedure will be used.

- Proposals will not be evaluated anonymously.

- The procedure for prioritising proposals is described below:

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.

The proposals will be evaluated by a joint panel of European and Japanese experts.

Additional information related to the evaluation of the criterion 'Implementation' can be found in the topic description under the heading 'Additional information'.

- **Indicative evaluation and contractual timetable:**

Evaluations are expected to be carried out in December 2010 (remotely - individual) and in January 2011 (Consensus and panel phase of the evaluation will all be carried out within one week in Brussels or Tokyo). It is expected that the negotiations for the short listed proposals will open by April 2011. Negotiations will be carried out in parallel by the European Commission and METI/NEDO in order to have a simultaneous start of the respective grant agreements.

- **Consortium agreements:**

Participants in the EU Collaborative Project are required to conclude a consortium agreement prior to grant agreement.

- **Coordination agreements:**

Participants in the EU Collaborative Project are required to conclude a coordination agreement with the participants in the coordinated project funded by the METI/NEDO.

- **Other points**

Forms of grant and maximum reimbursement rates for projects funded through the Cooperation work programme are given in Annex 3 of this work programme.

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

- **Dissemination:** Grant agreements of projects financed under this call for proposals will include the special clause 39 on the "Open Access Pilot in FP7". Under this clause, beneficiaries are required to make their best efforts to ensure free access to peer-reviewed articles resulting from projects via an institutional or subject-based repository.

Call title: Energy International Research Staff Exchange Scheme

- **Call identifier:** *FP7-ENERGY-2011-EXCHANGE*
- **Date of publication:** 20 July 2010¹⁷
- **Deadline:** 16 November 2010 at 17.00.00, Brussels local time¹⁸
- **Indicative budget:** *EUR 3 million* of the 2011 budget¹⁹.
- All budgetary figures given in this work programme are indicative. The final budget awarded to this call, following the evaluation of proposals, may vary up to 10% of the total value of this call.
- **Topics called:**

Activity/ Area	Topics called	Funding Schemes
ACTIVITY ENERGY.10: HORIZONTAL PROGRAMME ACTIONS		
AREA ENERGY.10.2: OTHER HORIZONTAL ACTIONS	ENERGY.2011.10.2-1: Pilot International Researcher Exchange in the field of energy research (US and Japan)	<i>Support for training and career development of researchers</i>

Eligibility conditions

- The general eligibility criteria are set out in Annex 2 to the Work Programme and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
- The minimum number of participating legal entities required for this call is summarised in the table below:

Funding Scheme	Minimum conditions
Support for training and career development of researchers	Consortia composed of at least two independent " <i>research organisations</i> " established in at least two different Member States or Associated countries, and one or more " <i>research organisation</i> "s located in either the US or Japan.

Additional Eligibility Requirements:

In addition to minimum eligibility criteria, proposals must contain partners from either the US or Japan. The potential participants in this action are energy research entities from the EU, US and Japan. These will form a *partnership* that will implement a reciprocal *exchange programme*, by seconding and/or hosting eligible researchers. A *partnership agreement* in this action shall be established either on the one hand between a *consortium* of at least two independent participants established in at least two different EU Member States or Associated

¹⁷ The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

¹⁸ The Director-General responsible may delay this deadline by up to two months.

¹⁹ Under the condition that the draft budget for 2011 is adopted without modification by the budgetary authority.

Countries, and one or more *partner organisation(s)* located in the US or on the other between a *consortium* of a at least two independent participants established in at least two different EU Member States or Associated Countries, and one or more *partner organisation(s)* located in Japan.

For full details concerning these conditions you must refer to the core text of the work programme and the guide for applicants.

Evaluation procedure

Proposals will be evaluated in line with the Commission 'Rules on Submission of Proposals and the Related Evaluation, Selection and Award Procedures'.

A proposal that contravenes fundamental ethical principles, fails to comply with the relevant security procedures, or which does not fulfil any other of the conditions set out in the specific programme, the work programme or in the call for proposals shall not be selected. Such a proposal may be excluded from the evaluation, selection and award procedures at any time. Details of the procedure to be followed are given in the Commission rules mentioned above.

In accordance with article 15 of the rules for Participation for the 'Cooperation' specific Programme proposals are evaluated on the basis of the following three criteria: (i) S/T quality, (ii) Implementation, (iii) Impact.

Note: Evaluation scores will be awarded for each of the criteria, and not for the sub-criteria. Each criterion will be scored out of 5.

The evaluation criteria and scoring scheme are set out in the table below.

1. Scientific and/or technological excellence (relevant to the topics addressed by the call) (award)	2. Quality and efficiency of the implementation and the management (selection)	3. The potential impact through the development, dissemination and use of project results (award)
Soundness of concept and quality of objectives	Appropriateness of the management structure and procedures Quality of relevant experience of the individual participants	Contribution, at the European [and/or international] level, to expected impacts listed in the work programme under relevant topic/activity
Objective and relevance of the joint exchange programme	Quality and mutual benefit of the transfer of knowledge	Relevance of the proposed partnership to the area of collaboration and for the ERA
Scientific quality of the partners	Adequacy and role of staff exchanged with respect to the transfer of knowledge	Potential to develop lasting collaboration with eligible Third country partners.
Complementarities/synergies between the partners	Capacities (expertise/human resources/facilities/infrastructure) to achieve the objectives of the	

	planned cooperation	
	Appropriateness of the plans for the overall management of the exchange programme	

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	4/5
Implementation	3/5
Impact	2/5
Overall threshold required	12/15

- Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS. The experts will be instructed to disregard any pages exceeding these limits.
- The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
- A single-stage submission and evaluation procedure will be used.
- Proposals will not be evaluated anonymously.
- Proposals will be evaluated remotely.
- The procedure for prioritising proposals with equal scores is described in annex 2 of this work programme.
- A maximum two projects could be funded between EU and US entities and a maximum two projects could be funded between EU and Japanese entities.

Indicative evaluation and contractual timetable:

- Evaluation results are estimated to be available within 6 months after the deadline for submission.
- Grant agreement signature: expected from within 9 months after the deadline for submission.

Consortia agreements: Participants in actions resulting from this call are required to conclude a consortium agreement.

Forms of grants and maximum reimbursement rates:

The fixed EU contribution is 2000 EUR per exchanged staff member per month. This amount should cover the cost of travel and subsistence of the exchanged staff. Networking actions,

management costs and overheads related to the execution of the exchange may also be included in the contribution.

Further details on the forms of grants and maximum reimbursement rates which will be offered are specified in the call topic and the guide for applicants.

Additional point to be considered

A maximum of two projects can be funded between EU and US entities and a maximum of two projects can be funded between EU and Japanese entities.

Dissemination:

Grant agreements of projects financed under this call for proposals will include the special clause 39 on the "Open Access Pilot in FP7". Under this clause, beneficiaries are required to make their best efforts to ensure free access to peer-reviewed articles resulting from projects via an institutional or subject-based repository.

Call title: "The ocean of tomorrow"

- **Call identifier:** FP7-OCEAN-2011
- **Date of publication**³¹: 20 July 2010
- **Deadline:** 18 January 2011 at 17.00.00, Brussels local time³²
- **Indicative budget**³³: EUR 45 million from the 2011 budget of which:
 - EUR 14 million from Theme 2 – Food, Agriculture and Fisheries, and Biotechnology (KBBE)
 - EUR 5 million from Theme 5 – Energy
 - EUR 16 million from Theme 6 – Environment (including climate change)
 - EUR 10 million from Theme 7 – Transport (including Aeronautics)

The budget for this call is indicative. The final budget awarded to actions implemented through this call for proposals may vary:

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

- **Topics called**

The four topics of 'The ocean of tomorrow' call are implemented jointly by the Themes 2, 5, 6 and 7 mentioned above and have identical descriptions under each Theme.

³¹ The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

³² The Director-General responsible may delay this deadline by up to two months.

³³ Under the condition that the draft budget for 2011 is adopted without modification by the budgetary authority.

Theme / Activity / Area implementing jointly 'The ocean of tomorrow' Location of the call and topics descriptions	Topics called	Funding Scheme
Theme 2 – Food, Agriculture and Fisheries, and Biotechnology Area 2.1.5 Call "The ocean of tomorrow"– Joining research forces to meet challenges in ocean management Theme 5 – Energy Area ENERGY.10.1 Call "The ocean of tomorrow" – Joining research forces to meet challenges in ocean management	OCEAN.2011-1 Multi-use offshore platforms	Collaborative Project Max requested EU contribution per proposal: EUR 14 000 000
Theme 6 – Environment (including climate change) Area 6.2.2.2 Call "The ocean of tomorrow" – Joining research forces to meet challenges in ocean management	OCEAN.2011-2 Marine microbial diversity – new insights into marine ecosystems functioning and its biotechnological potential	Collaborative Project (large scale integrating project) Max requested EU contribution per proposal: EUR 9 000 000
Theme 7 – Transport (including Aeronautics) Activity 7.2.8 Call "The ocean of tomorrow" - Joining research forces to meet challenges in ocean management	OCEAN.2011-3 Assessing and predicting the combined effects of natural and human-made pressures in the Mediterranean and the Black Sea in view of their better governance	Collaborative Project (large scale integrating project) for specific cooperation actions (SICA) dedicated to international cooperation partner countries Max requested EU contribution per proposal: EUR 13 000 000
	OCEAN.2011-4 Knowledge-base and tools for regional networks of	Collaborative Project (large scale integrating project)

	MPAs, integrated management of activities together with assessment of wind energy potential in the Mediterranean and the Black Sea	for specific cooperation actions (SICA) dedicated to international cooperation partner countries Max requested EU contribution per proposal: EUR 9 000 000
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• **Eligibility conditions**

- The general eligibility criteria are set out in Annex 2 to this work programme, and in the Guide for Applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

The following additional eligibility criterion applies in this call:

The requested EU contribution shall not exceed the indicative budget for the topic chosen (see table displayed above).

- Standard minimum number of participating legal entities for all funding schemes used in the call, in line with the Rules for Participation:

Funding scheme	Minimum conditions
Collaborative Project	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC

- **For the following topics, additional eligibility criteria apply, over and above the criteria stated above:**

TOPICS	Particular requirements
OCEAN.2011-3: Assessing and predicting the combined effects of natural and human-made pressures in the Mediterranean and the Black Sea in view of their better governance	SICA - Minimum number of participants: 3 from different Member States or Associated countries and 4 from different ICPC, among which at least 2 from the Mediterranean Partner Countries and at least 2 from the ICPC countries of the EU Black Sea Synergy ³⁴
OCEAN.2011-4: Knowledge-base and tools for regional networks of MPAs, integrated management of	

activities together with assessment of wind energy potential in the Mediterranean and the Black Sea	
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- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure**

- The evaluation criteria and scoring scheme are set out in Annex 2 to the work programme.
- Proposal page limits: applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.

The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).

The Commission will instruct the experts to disregard any pages exceeding these limits.

- The evaluation shall follow a single stage evaluation procedure. Proposals will be evaluated remotely with the consensus session being held in Brussels.
- The result of the evaluation will be one ranked list per topic. The number of proposals that can be funded per topic is limited as follows:

Topic number	Indicative budget per topic	Maximum number of proposals
OCEAN.2011-1	EUR 14 000 000	Up to three projects may be funded.
OCEAN.2011-2	EUR 9 000 000	Up to one project may be funded.
OCEAN.2011-3	EUR 13 000 000	Up to one project may be funded.
OCEAN.2011-4	EUR 9 000 000	Up to one project may be funded.

A reserve list of projects will be established to be used in case the negotiation for entering into a grant agreement fails.

Evaluation criteria and threshold:

Proposals are evaluated on the basis of the following three criteria: 1. S/T quality; 2. Implementation; 3. Impact. For each criterion marks 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

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.

The following points will be reflected in the evaluation:

- The multi-disciplinary approach of the research undertaken is essential to address the topic. It will be considered during the evaluation of the criterion related to "S/T quality".
- The multi-sectoral composition of the partnership and the participation of industrial partners and relevant end-users, in particular SMEs, are essential for the implementation of the project. It will be considered during the evaluation of the criterion related to "Implementation".

- **Indicative evaluation and contractual timetable**

- Evaluation results: four months after the relevant deadline mentioned above.
- Grant agreements signature: it is estimated that the first grant agreements related to this call will come into force at the end of 2011.

- **Consortia agreements**

Participants are required to conclude a consortium agreement prior to grant agreement.

- **The forms of grant and maximum reimbursement rates** which will be offered are specified in Annex 3 to the Cooperation work programme.
- **Flat rates to cover subsistence costs:** In accordance with Annex 3 to this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

Public-Private Partnership "Energy-efficient Buildings" – Cross-Thematic call implemented between NMP, ICT, ENERGY, and ENVIRONMENT (including Climate Change)

Call title: "Energy-efficient Buildings" - 2011

- Call identifier: FP7-2011-NMP-ENV-ENERGY-ICT-EeB
- Date of publication: 20 July 2010³⁵
- Deadline: 2 December 2010³⁶ at 17.00.00 (Brussels local time).
- Indicative budget^{37,38}: EUR 85.5 million from the 2011 budget of which:
 - EUR 40 million from Theme 4 – Nanosciences, Nanotechnologies, Materials & New Production Technologies
 - EUR 20 million from Theme 3 – Information and Communication Technologies (ICT)
 - EUR 20 million from Theme 5 – Energy
 - EUR 5.5 million from Theme 6 – Environment (including Climate Change)
- **Topics called:**

Activity/ Area	Topics called	Funding Schemes	Budget (Million EUR)
NMP – Nanosciences, nanotechnologies, Materials and new Production			
EeB.NMP.2011-1	Materials for new energy efficient building components with reduced embodied energy	<i>Collaborative Projects (Large-scale projects)</i>	39
EeB.NMP.2011-2	New efficient solutions for energy generation, storage and use related to space heating and domestic hot water in existing buildings		
EeB.NMP.2011-3	Energy saving technologies for buildings envelope retrofitting		
EeB.NMP.2011-4	Geo-cluster approach to support European energy-efficiency goals	<i>Coordination and Support Actions (coordinating action)</i>	1 ³⁹
Environment (including Climate Change)			
EeB.ENV.2011.3.1.5-1	Technologies for ensuring, monitoring and/or controlling a high quality indoor environment ⁴⁰ particularly in relation to	<i>Collaborative Projects (small or medium-scale focused research project)</i> ⁴¹	5

	energy efficient buildings		
EeB.ENV.2011.3.1.5-2	Operational guidance for Life Cycle Assessment studies of the Energy Efficient Buildings Initiative	<i>Coordination and Support Actions (supporting action)⁴²</i>	0,5
Energy			
EeB.ENERGY.2011.8.1-1	Demonstration of very low energy new buildings	<i>Collaborative Projects⁴³</i>	20
ICT – Information and Communication Technologies			
EeB-ICT-2011.6.4	ICT for energy-efficient buildings and spaces of public use - a) targeted outcome	<i>Collaborative Projects (STREP only)</i>	19
EeB-ICT-2011.6.4	ICT for energy-efficient buildings and spaces of public use - b) targeted outcome	<i>Coordination and Support Actions (CSA)</i>	1

- **Eligibility conditions**

The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

The minimum number of participating entities required, for all funding schemes, is set out in the Rules for Participation: For Collaborative projects, the minimum condition shall be the participation of 3 independent legal entities, each of which is established in a Member State or Associated Country and no two of which are established in the same Member State or Associated Country.

For Coordination and Support Actions, the minimum conditions shall be:

- Coordination and Support Actions – **coordinating actions**: at least 3 independent legal entities, each of which is established in a Member State or Associated Country, and no 2 of which are established in the same Member State or Associated Country.
- Coordination and Support Actions – **supporting actions**: at least 1 independent legal entity.

- **Additional eligibility criteria**

For the following topics, implemented via large scale integrating projects: the **EU funding requested must be greater than EUR 4 million**:

- **EeB.NMP.2011-1** Materials for new energy efficient building components with reduced embodied energy;
- **EeB.NMP.2011-2** New efficient solutions for energy generation, storage and use related to space heating and domestic hot water in existing buildings;
- **EeB.NMP.2011-3** Energy saving technologies for buildings envelope retrofitting.

For the following topic, implemented via small or medium-scale focused research projects:
EU funding requested must not exceed EUR 2.5 million:

- **EeB.ENV.2011.3.1.5-1** Technologies for ensuring, monitoring and/or controlling a high quality indoor environment⁴⁴ particularly in relation to energy efficient buildings.

For the following topic, implemented via coordination and support action (supporting action):
EU funding requested must not exceed EUR 0.5 million:

- **EeB.ENV.2011.3.1.5-2** Operational guidance for Life Cycle Assessment studies of the Energy Efficient Buildings Initiative.

For the ICT topic **EeB-ICT-2011.6.4**, each proposal must indicate the type of funding scheme used - CA or SA for Coordination and Support Actions. See Appendix 2 to the ICT chapter of the Cooperation work programme for further details.

- **Evaluation procedure**

A one-stage submission procedure will be followed.

Proposals will be evaluated in a single-step procedure. Proposals could be evaluated remotely with the consensus sessions being held in Brussels.

Each Theme will be responsible for its own budget and for the implementation of the respective call topics. This includes drawing up ranking lists per Theme and subsequent negotiation and follow-up of the grant agreements resulting from the proposals selected under the respective call topics.

For this call the following criteria and thresholds are applied: **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	3/5
Implementation	3/5
Impact	3/5
Overall threshold required	10/15

Further information on elements to be taken into account in the evaluation is given under the respective topic descriptions.

See also Annex 2: Eligibility and evaluation criteria for proposals and priority order for proposals with the same score⁴⁵.

Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.

- **Indicative evaluation and contractual timetable:**

Evaluation of proposals: January 2011. It is expected that the grant agreement negotiations for the shortlisted proposals will start as of March 2011.

- **Consortia agreements**

Consortia agreements are required for *all* actions.

- **Particular requirements for participation, evaluation and implementation:**

As a result of the evaluation, a ranked list of proposals retained for funding will be drawn up by each Theme as well as a reserve list of proposals that may be funded in case budget becomes available during negotiations.

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

For topic **EeB.ENERGY.2011.8.1-1** the following applies:

- Successful proposals will be asked to follow a common monitoring data structure, using a common methodology, in order to feed the relevant Commission data bases (e.g. CONCERTO data base).
- The form of grant applied for 'Energy efficiency in Buildings' is based on additional energy efficiency measures in buildings. The grant will be composed of a combination of:
 - the typical reimbursement of eligible costs, and
 - flat rate financing determined on the basis of scale of unit costs for the demonstration part of the project.
- For the flat rate financing, the unit value for the European Union's financial contribution is fixed at EUR 100 /m² eligible costs and thus to a European Union contribution of EUR 50 /m².
- The total of the European Union financial contribution based on flat rate financing may not exceed EUR 6 million.
- The evaluation of the proposals will also take into account the degree of excellence and innovation of the technology used and the most cost effective practices (euros/efficiency gain; euros/CO₂ reduction, kWh/m²/year saved). For this reason, the above figures should be indicated in the proposal.

- **Use of flat rates for subsistence costs:**

For topics EeB.NMP.2011-1, EeB.NMP.2011-2, EeB.NMP.2011-3, EeB.NMP.2011-4, EeB.ENV.2011.3.1.5-1, EeB.ENV.2011.3.1.5-2 and EeB.ENERGY.2011.8.1-1 and in accordance with Annex 3 to this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

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 ⁴⁶. Funds will be made available to support the following activities

- Contributions to the IEA
- Grants to named beneficiaries
- Expert appointment
- Evaluation, monitoring and review

a) International Energy Agency

The Commission represents the European EU 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 EU, 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 programme⁴⁷⁴⁸:

Implementing Agreement	Date IA signed by the European Commission	Estimated Annual EU Contribution in nominal currency	Estimated Annual EU Contribution in Euro (Exchange rate 16/02/2010)
IEA Implementing Agreement for Co-operation in the Research and Development of Wind Turbine Systems	Commission signature in 1996. Extended until 2013.	EUR 14 250	14 250

Implementing Agreement	Date IA signed by the European Commission	Estimated Annual EU Contribution in nominal currency	Estimated Annual EU Contribution in Euro (Exchange rate 16/02/2010)
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	5 250
Programme to Develop and Test Solar Heating & Cooling Systems	Commission signature in 1979. Extended until 2013	EUR 5 100	5 100
IEA Implementing Agreement for a Programme of Research, Development and Demonstration on Bioenergy	Commission signature in 1995. Extended until 2014.	USD 68 200	EUR 43 200
IEA Geothermal Implementing Agreement	Commission signature in 1997. Extended until 2012.	EUR 10 300	10 300
IEA Implementing Agreement on Photovoltaic Power System Programme	Commission signature in 1992. Extended until 2012.	EUR 8 500	8 500
IEA Implementing Agreement for the establishment of IEA Coal Research	Commission signature in 1989. Extended until 2013.	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.	GBP 56 500	EUR 65 150
IEA Implementing Agreement for a Co-operative Programme on Ocean Energy Systems (OES)	Commission signature in 2002. Expires in 2011.		

b) Grants to named beneficiaries

Support to the Polish Presidency Conference on the European Strategic Energy Technology Plan (SET-Plan).

Poland will be organising the 'EU Technology Summit The conference will take place in Poland during the Polish presidency.

The EU contribution will be implemented as a grant to a named beneficiary, funding scheme: *Coordination and support action (supporting action)*. It will be evaluated in accordance with the standard FP7 evaluation criteria (including weight and thresholds) and sub-criteria, together with an eligibility, selection and award criteria for the funding scheme as set out in Annex 2 of this work programme.

Funding scheme: Coordination and Support Action. (supporting action) – grant to a named beneficiary

Additional information : The EU contribution will not represent more than 50% of the total cost of the conference and is limited to a maximum of EUR 175 000.

The named beneficiary for this grant is:

Institute of Fundamental Technological Research
Polish Academy of Science
5B, Pawińskiego Str.
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c) External expertise

- Group(s) of external experts for policy relevant analyses and forward looking reflection on energy research. Group(s) of external experts will be established to provide analyses of past activities in policy relevant areas and to advise on or support the design and implementation of EU Research Policy. The indicative budget for this activity is EUR 100.000.

Funding scheme: *Coordination and Support Action (supporting action), expert appointment letters*

d) Evaluation Monitoring and reviews

The indicative budget for evaluation of proposals is EUR 2 400 000 while the budget for the monitoring, reviewing and auditing of projects is foreseen to be EUR 1 800 000.

Funding scheme: expert appointment letters

Indicative budget for the Energy Theme for the 2011 work programme⁴⁹

Call/ activity	DG RTD EUR million	DG ENER EUR million
FP7-ENERGY-2011-1	73	1
FP7-ENERGY-2011-2		137
FP7-OCEAN-2011	5	
FP7-ENERGY-2011-JAPAN	5	
FP7-ENERGY-2011-EXCHANGE	3	
FP7-ENERGY-NMP-2011	10	
FP7-2011-NMP-ENV-ENERGY-ICT-EeB		20
FP7-ERANET-2011-RTD	4	
General Activities (see Annex 4)	1.81	2.59
Other actions:		
• Evaluations	0.9	1.5
• Monitoring, reviews and audits	0.3	1.5
• Contribution to IEA IAs	0.20	0.2
• Named beneficiary (SET-Plan conference)		0.18
• External expertise	0.1	
Total Other actions	1.50	3.38
Estimated total budget allocation	103.31	163.97

Summary of budget allocation to general activities for 2011 (cf. Annex 4):

	DG RTD EUR	DG ENER EUR
CORDIS*	279.289	293.052
Eureka/Research Organisations	12.374	12.983
Non-university RPO	10.606	11.129
COST	1.482.650	2.245.958
Strat. Oriented Support actions	21.212	22.257
Experts	3.535	3.710
Total	1.809.666	2.589.088

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.

* This amount is reserved to support the CORDIS activities in 2011. The exact content of the CORDIS activities in 2011 will be specified through an update of Annex 4 to the Cooperation work programme at a later stage.