


## 2012 Energy Call Priorities

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## Overview

- Work programme structure
- Funding schemes
- 2012 Energy Calls
- Key messages
- Further information

## Work Programme structure

**Topic description**

Topic ENERGY.2012.4.1.1: Research and development for medium temperature range solar collectors (100-250°C)

**Open in call:** FP7-ENERGY-2012-1

**Content/Scope:** Increasing the temperature range of collectors up to 250°C would open the way for industrial use of solar thermal energy, encompassing power generation, heating and cooling. The projects will develop innovative concepts and technologies to extend the working temperature range of solar collectors up to 250°C, to keep collector efficiency above 50%, to reduce heat losses and optimise energy output of collectors for industrial use.

**Funding Scheme:** Collaborative project

**Implementation/management:** The active participation of key industrial partners and technology suppliers is essential to form a multisectorial, multidisciplinary consortium able to promote the innovative results of the projects and to achieve the full impact of the project at European level.

**Expected Impact:** Expanding the temperature range in which solar collectors can be efficiently used will result in novel devices for power generation, heating and cooling. The technology is generic and hence a large economic impact and significant contributions to decarbonising our economy by replacing fossil fuels with an increased use of solar power are expected.

**Funding scheme specification**



**Topic number**

**Topic title**

**Call reference**



**Expected participation**

**Expected impact of project**

## Funding schemes

- **Collaborative project (CP)**
  - research or demonstration projects
  - developing new knowledge, new technology, products
  - expected to last typically two to five years, however there is no formal minimum or maximum duration
- **Coordination and support action (coordination type) (CSAC)**
  - fund work to coordinate research activity and policy
  - expected to have a duration of typically two to four years, however there is no formal minimum or maximum duration
- **Coordination and support action (supporting type) (CSAS)**
  - aimed at contributing to the implementation of the Framework Programmes
  - can involve single organisation only
  - expected to be shorter than coordinating actions from several months to two to four years, however there is no formal minimum or maximum duration



## Call summary

FP7 Calls to be launched 20<sup>th</sup> July 2011 (total of 297M€ budget)

- **FP7-ENERGY-2012-1** – 12 activities, 141M€, 2 stage submission for CPs, first stage deadline 25<sup>th</sup> Oct 2011. Single stage submission for CSAs, deadline 25<sup>th</sup> Oct 2011
- **FP7-ENERGY-2012-2** – 5 activities, 81M€, single stage submission, deadline 8<sup>th</sup> March 2012
- **FP7-2012-ENV-ICT-ENERGY-NMP-EeB** – 1 activity in Energy Work Programme, 35M€, single stage submission, deadline 1<sup>st</sup> December 2011
- **FP7-ENERGY-SMARTCITIES-2012** – 2 activities, 40M€, single stage submission, deadline 1<sup>st</sup> December 2011

FCH Call launched on 3<sup>rd</sup> May 2011 (109M€ budget)

- **FCH-JU-2011-1** – 5 areas, single stage submission, deadline 18<sup>th</sup> August 2011

## Energy Topics 2012-1

**FP7-ENERGY-2012-1 (DG RTD) 141M€**



**Collaborative projects**

- Stage 1 – by 25<sup>th</sup> October 2011 (10 pages plus 2 pages on consortium)
- Stage 1 evaluated on S/T Quality only
- Proposals representing 250% of budget taken to stage 2
- Stage 2 deadline of 3<sup>rd</sup> April 2012, full proposal, assessed for S/T Quality, Implementation, Impact

**Coordination and support actions**

- Full proposal by 25<sup>th</sup> October 2011



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## Energy Topics 2012-1

**Renewable Electricity Generation (19M€)**



- **2.1 PV** – Reliable, cost-effective, highly performing PV systems – CP – projects to address cost, performance functionality, reliability and lifetime at system level through integrated testing, monitoring and performance modelling. Up to 2 projects may be funded.
- **2.5 CSP** - Research, development and testing of solar dish systems – CP – applied research, development and testing to reduce operation and maintenance costs and increase system reliability and life-time. Storage system linkage viability can be developed if considered beneficial. Up to 2 projects may be funded. SME participation encouraged. Funded projects will become involved in EU/China collaborative activity in this area.
- **2.5 CSP** – Hybridisation of CSP with other energy sources – CP – different configurations can be considered to increase efficiency, power availability, flexibility, dispatchability, energy storage etc. At least pre-industrial scale. Up to 1 project may be funded. Active participation from Mediterranean Partner Countries.

## Energy Topics 2012-1

**Renewable Electricity Generation (16M€)**

- **2.3 Wind** – Innovative wind conversion systems (10-20 MW) for offshore applications – CP – particular focus on substantially reducing wind turbine head mass as well as marine-compatible substructures including floating platforms. Development will allow deployment of wind energy devices from shallow to deep waters.
- **Complementary topic on cost-effective materials for wind turbine blades in NMP Call**






## Energy Topics 2012-1

**Other renewables topics (17M€)**

- **2.9 Cross-cutting issues** – Power generation in the low temperature range – CP – focus on innovative systems such as binary plants and/or installations based on low enthalpy resources suitable for commercial scale power production. Expected to significantly broaden potential of geothermal resources and other low enthalpy resources. Up to 2 projects may be funded.
- **3.2.1 Second generation fuel from biomass** – Biofuels from microalgae or macroalgae – CP – focus on processing systems to convert microalgae or macroalgae into either an intermediate energy carrier or in biofuels ready for use. Combine algae production and conversion specialists. Aim to achieve optimum overall energy and mass balances. Can be hand-in-hand with work on optimisation of algae strains. Research may consider exploitation of co-products but this is not primary aim. Up to 2 projects may be funded. SME participation encouraged.



Topics covered by 17M€ budget continued on next slide

## Energy Topics 2012-1

**Other renewables topics**



- **4.1.1 Low/Medium Temperature Solar Thermal Energy** – Research and development for medium temperature range solar collectors – CP – extend working temperature range of solar collectors up to 250°C, to keep collector efficiency over 50%, to reduce heat losses and optimise energy output of collectors for industrial use. Also consider manufacturing issues. Active participation from Mediterranean Partner Countries.
- **8.1.1 Energy efficiency** – Next generation heat pump technologies – CP – using alternative refrigerants (e.g. Natural refrigerants), sorption heat pump technologies and high power heat pumps. Also investigate heat pumps combined with other renewable energies and storage. Up to 2 projects may be funded. SME participation encouraged.

## Energy Topics 2012-1

**Fuel for air transport (10M€)**



- **3.2.2 Second generation fuel from biomass** – Development and testing of advanced sustainable bio-based fuels for air transport – CP – demonstrate the production of biofuels suitable for aviation at large enough scale and through long production runs. Target best possible sustainable feedstock and second generation conversion processes and building where relevant on existing plants. Flight testing shall be carried out. Also investigation of complete engine fuel system, health and safety issues and logistics. Up to 1 project may be funded.

## Energy Topics 2012-1

**CO<sub>2</sub> capture and storage (21.5M€)**

- **5.2 CO<sub>2</sub> storage** – sizeable pilot tests for CO<sub>2</sub> geological storage – CP – tests to validate and improve model predictions of behaviour of injected CO<sub>2</sub>. Injection should be at meaningful scale to allow extrapolation of results to industrial scale storage operations. Proposals should demonstrate how plan to obtain any necessary leases and licences and how intend to engage with local community. EU contribution per project shall not exceed 9M€. Up to 2 projects may be funded. Substantial % of funding expected to come from third parties.
- **5.2 CO<sub>2</sub> storage** – Impact of the quality of CO<sub>2</sub> on transport and storage behaviour – CP – techno-economic assessment of the impact of impurities on fluid properties, phase behaviour and chemical reactions in transport pipelines and storage infrastructure and storage site integrity. Prenomative research component to form basis of classification of impurities. Active participation of partners from Carbon Sequestration Leadership Forum, in particular US, Canada and China could add to S&T excellence of the project.






## Energy Topics 2012-1

**Smart Energy Networks (30.5M€)**

- **7.1 Development of inter-active distribution energy networks** – integration of variable distributed resources in electricity distribution networks - CP - provide recommendations as well as scalable and replicable solutions for the technical, regulatory and economic challenges of integrating a very large share of distributed renewable generation units in distribution networks while maintaining reliable and high quality power, with particular emphasis on medium-scale resources. **Significant DSO involvement is crucial.**
- **7.1 Development of inter-active distribution energy networks** – enhancing electricity networks through use of distributed intelligence - CP - provide recommendations as well as scalable and replicable solutions for the application of advanced distributed sensors, monitoring and control systems to increase the intelligence of electricity distribution networks. **Significant DSO involvement is crucial.**



Topics covered by 30.5M€ budget continued on next two slides

## Energy Topics 2012-1

**Smart Energy Networks**



- **7.1 Development of inter-active distribution energy networks** – Empowering smart customers to participate in active demand and electricity supply system efficiency - CP - investigate barriers, opportunities and solutions for the active participation of users in active demand and in energy efficiency of the overall electricity system. Emphasise the socio-economic aspects of demand participation and should investigate customer behaviour for different classes of users such as residential and small commercial/industrial users. **Facilitate deployment of active demand programmes in Europe.**

## Energy Topics 2012-1

**Smart Energy Networks**



- **7.2 Pan-European energy networks** - Planning for European Electricity Highways to ensure the reliable delivery of renewable electricity and pan-European market integration – CP- develop methods and tools to support the planning of these highways, based on various future power system scenarios, including for back-up and balancing generation and storage capacities, and develop options for a pan-European grid architecture under different scenarios, taking into account benefits, costs and risks for each. **Participation of at least 3 European TSOs is an eligibility criterion for maximising the impact of the project.**
- **7.3 Cross cutting issues and technologies** – Facilitating the deployment of safe stationary batteries - CP - focus on safety aspects of Li-ion batteries with a cell size larger than 10 Ah and in a system larger than 1 MWh. The work should take account of international activities in the field of standardisation. **Funded projects will be encouraged to link to Japanese projects.**

## Energy Topics 2012-1

**Future Emerging Technologies (24M€)**

- **10.2 Future Emerging Technologies** – Emerging ideas – CP- this topic is designed to provide reward for "high risk / high impact" approach and to vigorously promote multi-disciplinarity. Research should focus on novel technologies and novel materials for energy applications, should have tangible objectives, go beyond conventional paths, and be highly innovative and very ambitious. **Not blue sky research.** Projects should try reaching clearly defined scientific goals and/or creating a new basic technology. **Clear demonstration of potential impact required at stage 1.** High-tech SMEs participation is encouraged. **Max EU contribution is 3M€**






## Energy Topics 2012-1

**Coordination and support actions (3M€)**

- **5&6 Clean coal and CCS** - Support to the coordination of stakeholders' activities in the field of Zero Emission Energy Production – CSAS - activities include the organisation and management of workshops, conferences and meetings among stakeholders as well as on the preparation of information leaflets, brochures, reports and other relevant documents for the ZEP European Technology Platform. **Up to 1 project may be funded, max 50% contribution to eligible costs to max of 500,000€ for 3 year period.**
- **7.3: Smart Grids** – Networking of national R&D and demonstration projects on smart metering infrastructure and data processing - CSAC- support the interaction among national projects preparing the deployment of smart meters in the context of the 3<sup>rd</sup> internal energy market package, and in particular, elaborate an in-depth comparison among different solutions for smart metering infrastructure and smart meter data processing being tested in demonstration projects in Europe.



Topics covered by 3M€ budget continued on next slide

## Energy Topics 2012-1

**Coordination and support actions**

- **7.3 : Smart Grids** – Support to the coordination of stakeholders activities in the field of Smart Grids - CSAC- administrative activities including the organisation and management of workshops, conferences and meetings among stakeholders for the European Technology Platform on Smart Grids. **Up to 1 project may be funded, max 50% contribution to eligible costs to max of 500,000€ for 3 year period.**






## Energy Topics 2012-1

**Key elements of all topic descriptions**

- The active participation of key industrial partners and technology suppliers is often required
- Proposals will have to include a clear plan for the exploitation of the scientific and technical results.

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## Energy Topics 2012-2

**FP7-ENERGY-2012-2 (DG ENER) 81M€**

- Single stage submission by 8<sup>th</sup> March 2012
- Focus on short-term research and demonstration (typically 70% of project budget) i.e. predominant demonstration component
- Projects should be led by appropriate industry
- Must deliver large impact for 2020 objectives – convincing impact plan, high replication/deployment potential

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## Energy Topics 2012-2

**Renewable Electricity Generation (24M€)**

- **2.1 PV** – Demonstration of smart multi-functional PV modules – CP – the demonstration of an innovative multi-functional PV modules embedding the required functions may require the introduction new production steps in the already proven manufacturing processes. The demonstration phase follows the equally important development phase. A field demonstration of grid-connected PV systems based on multi-functional PV modules to measure the advantages of the new configurations should also be envisaged. **Up to 2 projects may be funded.**
- **2.3 Wind** – Demonstration of innovative designs to reduce fatigue loads and improve reliability of multi-MW turbines – CP – main goal of the project will be to upgrade existing reliability engineering methodologies to large wind turbine systems and demonstrate their effects during operation. The projects could address different types of climatic conditions and geographical locations in order to demonstrate improved reliability and availability under such operating conditions. **Up to 2 projects may be funded.**

Topics covered by 24M€ budget continued on next slide

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## Energy Topics 2012-2

**Renewable Electricity Generation**

- **2.6 Ocean** – Demonstration of first ocean energy farms – CP – demonstrating the manufacturing and the deployment of ocean energy farms for electricity generation, in real sea environments, with an installed capacity of 3MW or over. The energy farms should be composed of several devices of the same type, serving as a reference to facilitate bankability of similar projects in the future. The ocean systems should be connected to the electricity grid. **Up to 2 projects may be funded.** Applicants should be able to demonstrate a past record of success with deployment of large scale technology in the real sea environment and prove their ability to obtain necessary leases and licenses for project delivery.

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## Energy Topics 2012-2

**Renewable Fuel Production (35M€)**

- **3.2 Second Generation Fuel from Biomass** – Pre-commercial industrial scale demonstration plant on lignocellulosic ethanol – CP – support the construction of the first pre-commercial plant on lignocellulosic ethanol based on sustainable biomass resources including waste streams. The call aims at industrially led projects with minimum installed production capacity of 60,000 tons per year. The proposals should address the complete value chain including the supply chain of the sustainable biomass resource and the eventual use of the biofuel in the market wherever appropriate. **Up to 2 projects may be funded.** Applicants must demonstrate that by the time of the submission of their application (deadline of the call) they have been operating demonstration scale plants with minimum installed production capacity of 4,000 tons per year or have such plants under construction with planned commissioning the latest by 31/12/2012.
- **Also topic on development of new or improved logistics for lignocellulosic biomass harvest, storage and transport in KBBE Call for Proposals**

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## Energy Topics 2012-2

**Carbon Capture and Storage (22M€)**

- **5 & 6 Power Generation Technologies for Integrated Zero Emission Solutions** – Pilot plant-scale demonstration of advanced post-combustion CO<sub>2</sub> capture processes with a view to integration in fossil fuel power plants – CP – further develop and demonstrate advanced post-combustion CO<sub>2</sub> capture processes, already tested but not yet fully validated, with a view to their implementation and integration with fossil-fuelled power generation. Also open to proof of reliability of innovative, next-generation CO<sub>2</sub> post-combustion and to the novel use of known technologies.
- **5 & 6 Power Generation Technologies for Integrated Zero Emission Solutions** – Pilot plant-scale demonstration and integration of emerging and new combustion technologies – CP – aims to conduct research and demonstrate inherent CO<sub>2</sub> separation technologies based on Chemical Looping Combustion and realise their integration in to an industrial pilot plant for the reduction of efficiency penalties and costs. **The demonstration should ideally be performed at a scale in the order of 10 MW to enable conclusions to be drawn about large-scale plant implementation.**

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## Energy Topics – EeB

**FP7-2012-ENV-ICT-ENERGY-NMP-EeB 35M€**

- Joint Call from NMP, ICT, Energy, Environment
- Single stage submission by 1<sup>st</sup> December 2011
- 7 topic areas of which one is in Energy Work Programme
- Collaborative projects
- Annex 5 of Work Programme has details of all topics

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## Energy Topics – EeB

**EEB.ENERGY.2012.8.8.3 35M€**

**Demonstration of nearly Zero Energy Building Renovation for cities and districts**

- Objective is to renovate a district of existing buildings in support of the Smart Cities initiative. Mixed building stock but focus on retrofit of residential buildings with high replicability
- Focus on efficiency, with acceptable ROI for energy saving measures
- Aim to show benefits of working at scale
- High replication potential: expect replication at city level with refurbishment at twice EU average and contribution to large scale deployment by 2020
- 35M€ total funding for call – expect 3-4 projects with 10-12 cities in total

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## Energy Topics – EeB

**Zero Energy Building Renovation – further info**

- **Systemic approach** - all elements/systems for better energy efficiency & sustainability through integrated design & planning e.g. heat recovery technologies, efficient water/waste management, enhanced systems for energy behaviour monitoring & demand response & load control systems
- Innovative technology and integration
- Detailed information at proposal stage e.g. building design, current/future energy use, energy efficiency measures; gross floor area specified with targeted annual energy use per m<sup>2</sup> by energy type
- Building information modelling and integrated project delivery
- Accompanying measures – consider operation of building and replication

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## EEB - Environment (including climate change)

**Concepts and solutions for improving energy efficiency of historic buildings at district level**

- Objective is to develop new concepts, technologies and systems for improved energy and resource efficiency for significant groupings of old houses/historic buildings.
- Proposals will target the rehabilitation of historic buildings to make them highly resource and energy efficient by improving architectural components, thermal insulation, air conditioning and ventilation, heating, lighting, etc.
- 1 Collaborative Project to be funded (large scale integrating project)
- Indicative budget 5M€



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## Other Topics – EEB

- **Interaction & integration** between buildings, grids, heating & cooling networks, & energy storage & energy generation systems
- **Systemic Approach for retrofitting existing buildings**, including envelope upgrading, high performance lighting systems, energy-efficient HVAC systems and renewable energy generation systems
- **Development and validation of new 'processes and business models'** for the next generation of performance based energy-efficient buildings integrating new services
- Nanotechnology based approaches to **increase the performance of HVAC systems**
- **Novel materials for smart windows** conceived as affordable multifunctional systems offering enhanced energy control

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## FP7-ENERGY-SMARTCITIES

**FP7-ENERGY-SMARTCITIES-2012 40M€**

- Single stage submission by 1<sup>st</sup> December 2011
- Part of the SET-Plan Smart Cities and Communities Initiative
- Initiative encompasses a broad range of energy related topics such as energy efficiency, energy networks and renewable energy production as well as other urban issues in the area of for electricity, heating and cooling, transport, waste and water management

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## FP7-ENERGY-SMARTCITIES-2012

### Smart Cities and Communities (40M€)

- **Strategic sustainable planning and screening of city plans – CSAC** – aims at i) creating the models for strategic sustainable planning by addressing the efficiency of energy flows across various sectors in various types of cities across Europe and ii) supporting cities with the development of ambitious and innovative projects embedded in comprehensive urban planning. **The successful project(s) will gather cities with proven credible and ambitious targets and innovative planning, while finding the optimal mix of all these measures and indicating the time line, the costs and pay-back periods. Looking for 3-5 projects i.e. 10-15 cities.**
- **Large scale systems for urban area heating and/or cooling supply – CP** – demonstrate technically and economically innovative concepts of urban heating or cooling systems. **The successful project(s) should address energy efficiency integration of city districts with industrial parks. Looking for 2-3 projects i.e. 6-9 cities.**

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## Key messages

- Understand Work Programme structure and read content carefully
- Make sure you have the correct Guide for Applicants (Call plus funding scheme)
- Make contact with EU Energy Focus team
- Make contact with Commission Scientific Officers
- Research previously funded projects and read Technology Platform reports

**The EU Energy Focus team can advise you in all of these areas.**

## Further information

### Cordis website

<http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=UserSite.FP7CallsPage#Energy>

[http://cordis.europa.eu/fp7/find-doc\\_en.html](http://cordis.europa.eu/fp7/find-doc_en.html)

### Factsheets (available shortly after Call launch)

- Call summary
- Guide to the documents
- FAQs