

# Forest-Based Sector

## Technology Platform



## Topics of Interest for Forest-based Sector Stakeholders



## Important notice and disclaimer

This text is an overview of the most relevant topics for the forest-based sector within the Work Programme 2014-2015 of Horizon 2020 of the European Union, as perceived by the FTP Management Team.

It is composed of excerpts copied from the European Commission's Participant Portal:

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html> and particularly [https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/master\\_calls.html](https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/master_calls.html).

Most of these calls are open, but many are "forthcoming".

This list does not claim to be complete.

Opportunities for support could also be found under other themes and programmes within Horizon 2020 and in other funding programmes at national or multinational level.

The date formatting of deadlines has been made according to German rules: Day.Month.Year

Deadlines given here are indicative and subject to errors; they can be changed at any time by the European Commission – this document will not be automatically updated. Information should always be confirmed on the Portal, as the primary source. This concerns not only deadlines, but also the contents of the call text. In preparing a proposal, please always use the call text version from the Portal and frequently check for updates.

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Main updates since last version:

- Massive revision of 2015 work programmes by the Commission in late July
- Modification of several submission deadlines by the Commission

The main changes are marked as NEW in this document.

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## **Societal Challenges: Sustainable Food Security**



**SFS-02b-2015: Assessing soil-improving cropping systems (Research and innovation actions) (NEW)**

**Deadline Stage 1: 03.02.2015**

**Deadline Stage 2: 11.06.2015**

Specific challenge: European crop production is facing more and more difficulties in remaining competitive in the global market for many reasons. Some of these reasons are the loss of soil fertility and the consequent massive use of expensive external nutrient inputs, notably Nitrogen and Phosphorous, for which European agriculture is almost totally dependent on imported products, or on fertilizers produced with expensive industrial processes, which generates greenhouse gases (GHGs). Therefore, more sustainable crop management strategies are needed to maintain or increase soil fertility. Inappropriate soil and water management and the overuse of external inputs in intensive crop production systems, represent an economic loss for the farmer and a significant burden for the environment and subsequent impact on human health, as they contribute significantly to ground water and surface water pollution, GHGs emissions, the build-up in soil contaminants, such as heavy metals and organic pollutants. Better soil management and optimisation of fertilisers and water are of paramount importance for conciliating the necessary competitiveness and the long-term sustainability of the entire intensive crop production sector in Europe.

Scope: Proposals should address one of the following issue (B):

B. [2015] Assessing soil-improving cropping systems

Proposals should assess real benefits that soil-improving cropping systems and agronomic techniques, e.g. precision farming, crop rotations, Conservation agriculture, can bring to European agriculture, as well as to identify and minimise limitations and drawbacks. Benefits may include a more rational use of natural resources, reduced energy needs, decreased GHG and other toxic gas emissions, soil fertility conservation, above and below ground biodiversity conservation and increased productivity. Limitations and drawbacks may include increased weeds, soil pathogens and problems with certain types of crops in relation to climatic conditions. Scientifically supported and field tested evidences of the mentioned beneficial effects of minimally disturbed soil, and no till or low tillage strategies, as well as of drawbacks and methods to minimise them, are needed to promote the adoption of soil-improving systems and techniques by European farmers. Considering the different pedo-climatic conditions and the varieties of cropping systems in Europe, the development of tailor-made soil-improving strategies, techniques and machinery suitable to different farming areas and adapted to different crops and crop systems, should help to overcome the current barriers that prevent their adoption by European farmers.

Proposals should fall under the concept of 'multi-actor approach'[1].

The Commission considers that proposals requesting a contribution from the EU in the range EUR 7 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals should show how some, or all, of the following impacts will be achieved:

- Improvement of ground and surface water quality.
- Reduction of soil contaminations with toxic compounds and heavy metals.
- Conservation of biodiversity and wildlife.
- Improved human health, through the reduced release of pollutants and GHGs.
- Scientific support to relevant EU policies[2]
- Sound scientific evaluation of benefits and drawbacks of soil-improving cropping systems and techniques.
- Reduction of soil erosion and improvement of soil quality and structure
- Increased European farmers' competitiveness through the reduction of production costs.
- Reduction of the negative environmental impact of crop production through less soil disturbance, better exploitation of soil biodiversity and functions and more rational use of external inputs, water and natural resource base.

Type of action: Research and innovation actions

[1] See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

[2] Fertiliser regulation ((EC) No 2003/2003), Nitrate directive (1991), Soil Thematic strategy (COM (2006) 231)

## **SFS-05-2015: Strategies for crop productivity, stability and quality (Research and innovation actions) (NEW)**

**Deadline Stage 1: 03.02.2015**

**Deadline Stage 2: 11.06.2015**

Specific Challenge: Crop productivity is determined by genetic variability and the complex interactions of the genotype (G) with its environment (E) in the context of specific management interventions (M). Understanding and capturing the dynamic of these above and below ground interactions in breeding programmes and farm management is considered as critical to address concerns over stagnating yields and yield gaps, building resilience to biotic and abiotic threats and further progress in crop improvement.

Scope: Proposals should propose smart approaches and tools to improve identification, prediction and introduction of useful genetic variation in crops, as well as favourable combinations of genotypes and management practices in a range of environments. They should tackle crop improvement in a holistic manner, and seek for novel breeding targets to improve yield, yield stability, quality, biotic/abiotic stress tolerance/resistance and environmental benefits. Activities and results should feed into breeding programmes as well as help diversifying and optimising crop management at different stages of plant development. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include participants established in third countries[1]. Proposals should fall under the concept of 'multi-actor approach'[2] and allow for adequate involvement of the farming sector in proposed activities. This action allows for the provision of financial support to third parties in line with conditions set out in Part K of the General Annexes.

*The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3–5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

- Increased knowledge on complex plant-environment interactions and suitable combinations of genotypes and management practices. Knowledge should be used in various ways, i.e. feed into different user communities (researchers, breeders, farming practitioners)
- Development of novel breeding strategies and tools for continuous support to a dynamic breeding sector
- Improved varieties and crop management strategies which allow for increased diversity and show higher adaptability to particular environments including under a changing climate
- Over a longer term, knowledge and tools created shall support productivity and stability of the agricultural sector in Europe and possible beyond

Type of action: Research and innovation actions

[1] This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

[2] See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

**SFS-07b-2015: Management and sustainable use of genetic resources (Research and innovation actions)**

**Deadline Stage 1: 03.02.2015 (NEW)**

**Deadline Stage 2: 11.06.2015**

Specific challenge: Genetic diversity in agriculture and forestry - both within and between species - is commonly recognised as a pre-requisite to ensure food security, productivity as well as resilience of crops, forests and animals vis-à-vis biotic and abiotic threats in changing environments. Widening the genetic basis of crops, forest trees and animals as well as diversifying production is therefore essential. This requires coordinated efforts to enhance conservation, access and use of a wide range of genetic resources conserved in ex-situ and in-situ/on-farm conditions. Local livestock breeds, forest plants and crops are a particularly important source of genetic variation as they are associated with a number of favourable characters such as robustness, adaptation to local – often marginal – conditions or organoleptic and health attributes. They also provide the basis for products with a regional identity for which there is increased consumer interest. Despite these benefits their use has been decreasing partly because of lower productivity as compared to modern, high yielding and more uniform breeds and varieties. The improvement of local breeds and crops provides opportunities for diversification in agriculture along with new openings for regional, high quality products and for economic development.

Scope: Proposals should address one of the following issues (A) or (B), and should clearly indicate to which one they refer.

**A. [2014] Traditional resources for agricultural diversity and the food chain**

Proposals should enhance description and evaluation as well as management and performance of local varieties and breeds along with their respective farming and (seed) production systems. Measures deployed should potentially span from research to demonstration and dissemination as well as development of (environmentally and economically) sustainable production schemes. Proposals should have a relevant socio-economic dimension, tap into knowledge from the formal and informal sectors, encourage the creation of networks within and between regions and address the value chain for regional high quality products. Overall, activities should capture more systematically the value of diverse and so far untapped genetic resources and encourage their broader use in breeding activities, in farming and in the food chain. Proposals should address either livestock or crop genetic resources (including from forest trees as relevant in farming activities). Proposals should fall under the concept of 'multi-actor approach'[1] and allow for adequate involvement of the farming sector in proposed activities.

**B. [2015] Management and sustainable use of genetic resources**

Proposals should implement comprehensive actions to improve the status and use of (in particular European) ex-situ and in-situ genetic collections. More specifically, they should support acquisition, conservation, characterisation/evaluation and especially the use of specific genetic resources in breeding, farming and forestry activities. Furthermore, proposals should undertake broader dissemination and awareness raising activities. In

doing so, they should closely liaise with relevant on-going initiatives e.g. seeking to harmonise, rationalise and improve management of existing collections and databases[2]. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include participants established in third countries[3]. This action allows for the provision of financial support to third parties in line with conditions set out in Part K of the General Annexes. Proposals should address crop, forest and/or livestock genetic resources.

Applicants should demonstrate that activities falling under the scope of the EU regulation implementing the Nagoya Protocol on Access and Benefit Sharing comply with the obligations stipulated therein.

*The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3–4 million for (A) and EUR 5–7 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

- improved in-situ/on-farm management and evaluation of genetic resources by the farming sector
- productivity and economic gains in specialised farming systems from the conventional and organic sectors
- promotion of traditional and/or underutilised crops (and their wild relatives as relevant) and breeds
- increased availability of diverse, high quality products, e.g. with enhanced health benefits for consumers
- economic benefits for farmers, other types of SMEs and regional economies through the expansion or creation of new products and markets
- broader adaption of livestock and cultivated plants (crops, forest trees for agriculture/agro-forestry) to limiting or changing agro-climatic conditions, e.g. by enhancing robustness through the use of adaptive traits from landraces and local breeds
- enhanced quality and scope of European ex-situ collections and in-situ collections/on-farm management
- enhanced methodologies for management, conservation, characterisation and evaluation of genetic resources
- increased transfer of genetic material into breeding programmes, farming or forest practices, i.e. through identification of useful traits (variation) in collections
- increased awareness on the value of genetic resources by end-users and possibly stronger engagement of end-users in the sound management of these resources
- Contribution to implementation of international commitments in the area such as the Convention on Biological Diversity and the Nagoya Protocol on Access and Benefit Sharing, as well as the International Treaty on Plant Genetic Resources for Food and Agriculture
- more extensive use of genetic resources in agriculture and forestry

- overall contribution to food security by supporting innovations in breeding and farming

Type of action: Research and innovation actions

[1] See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

[2] See for example Horizon 2020 call INFRAIA 1-2014/2015: Integrating and opening existing national and regional research infrastructures of pan-European interest

[3] This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

**Societal Challenges:**  
**INNOVATIVE, SUSTAINABLE AND**  
**INCLUSIVE BIOECONOMY**



**ISIB-03-2015: Unlocking the growth potential of rural areas through enhanced governance and social innovation (Research and innovation actions)**

**Deadline Stage 1: 03.02.2015 (NEW)**

**Deadline Stage 2: 11.06.2015**

Specific challenge: Smart, inclusive and sustainable growth in the EU cannot be achieved without substantial contribution of its rural areas. The key challenge is to foster a balanced development of rural areas by enabling them to capitalize on their distinctive territorial capital and thus 'turn diversity into strength'. Social innovation relates to the development of new forms of organisations and interactions to respond to societal challenges. It is a collective learning process in which different social groups and actors participate and which results in new skills and practices as well as in new attitudes, values, behaviours and governance mechanisms. Although social innovation is considered as an enabler for a transition towards sustainable agriculture and rural development, there is limited empirical evidence of the extent and outcomes of social innovations and on the supporting conditions. Little is known as to how to support social innovation, in particular in marginalised rural areas where the social structure is most fragile. This also raises the challenge of promoting institutional capacity building in these areas, at different levels, to develop the social capital and skills required to support the creation of successful social innovation.

Scope: Proposals should undertake a thorough analysis of social innovation in agriculture, forestry and rural development, encompassing its complexity and various dimensions as well as its impact on unfolding the territorial capital in different regional contexts. Proposals should establish appropriate methods for the evaluation of social innovation. Attention needs to be given to different learning arrangements (e.g. multi-actor networks, producer-consumer association, hybrid innovative networks, territorial alliances) as well as to innovative governance mechanisms at various levels, and their potential implications for social innovation. Proposals should also address the role of different policy instruments, other relevant incentives and diverse entities (public/private, local/non local, active citizens, etc.) as catalysts/constraints to social innovation. Proposals should explain why regions with similar initial conditions display diverging paths. Activities should cover diverse types of rural areas across the EU and Associated Countries and non-European Mediterranean countries. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to include third country participants, especially those established in Mediterranean countries[1].

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- clarify the different dimensions of social innovation and its dynamics in agriculture, forestry and rural development

- Identify pathways to unfold the territorial capital of rural regions and thus shape sustainable development trajectories in different types of rural areas
- support more sustainable agri-food and forestry systems and rural development, thus contributing in the medium term to smart, inclusive and sustainable growth in rural areas
- improve territorial governance and pave the way for an integrated approach to rural development (i.e. ensuring effective mechanisms to coordinate different policies and establish appropriate linkages with other areas).
- deliver analyses of different innovative governance mechanisms with respect to social innovation in different contexts
- allow policy makers and the local communities to improve the formulation and delivery of relevant policies as well as to shape such programmes that explicitly foster the creation of sustainable social innovations.

Type of action: Research and innovation actions

[1] This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

## **ISIB-04b-2015: Improved forest management models (Research and innovation actions)**

**Deadline Stage 1: 03.02.2015 (NEW)**

**Deadline Stage 2: 11.06.2015**

Specific challenge: The significant societal changes over the last decades and the emergence of new policies, e.g. on biodiversity, bioenergy and climate change (LULUCF accounting, adaptation) trigger the need to enhance the sustainability of a multipurpose EU forestry. The changing context is particularly sensitive for forests, as their lifetime spans over a large period, limiting the adaptation potential. To maintain the socio-economic, and environmental functions of forests, there is need improve the record of forest data, systems of monitoring and management models. This is currently challenged in the EU by the diversity of national and subnational systems of forest inventory, cartography, monitoring and planning, developed in the context of local/regional frameworks of policies and conditions, making the overall assessment of forest management and policy development, difficult. In addition to the work on harmonisation of forest data deriving from the existing national databases, and site-specific adaptive forest management (i.e. breeding, harvesting and wood utilisation), there is further need to close the remaining gaps in the recorded parameter space and provide for consolidated methodologies for estimation of forest data and improved data systems, and develop stand-related techniques and management models responsive to changing conditions on long term, conducive to increased wood production, while meeting the increasing societal demands and bioeconomy objectives.

Scope: Proposals should address one of the following issue (B):

### **B. [2015] Improved forest management models**

Proposals should aim at the improvement of forest management models and stand-related techniques, including but not limited to species composition (including climate-adaptive genetics/breeding and assisted migration), age distribution, rotation/harvesting period, sustainable yields, restocking modalities (afforested land may also be analysed) and natural disturbances risk management. Management models should rely on consistent forest data and provide, in addition to improved wood quality and higher sustainable yields, sustained production of NWFP[1], increased resilience to environmental change, and sustained provision of the whole 'basket' of ecosystem services, in accordance with the evolving societal demands, changing market conditions, and regional differences. Procedures, methodologies and techniques characterising the newly developed models should be readily available for end-users (i.e. forest owners, administration and management planning), and deemed acceptable for the policy actors. Proposals should fall under the concept of 'multi-actor approach'[2].

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million for (A) and EUR 4 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals should show how some, or all, of the following impacts will be achieved:

- Strengthening the methodological framework for more accurate and harmonized information derived from forest inventories and monitoring systems, above the present state of the art, able to feed into the EU information systems.
- Further support in the development of EU policies and international processes relying on consistent forest information, such as UNFCCC[3], and contribution to further development of GEOSS (Global Earth Observation System of Systems) and the related GFOI initiative (Global Forest Observing Initiative).
- Forest management models geared to sustainable supply of wood for material and energy use, supporting further development of the bioeconomy.
- Forest stands resilient in a continuously changing environment (including climate change), while preserving the capacity to provide for NWFP and essential ecosystem services such as carbon sequestration, biodiversity conservation, water regulation, soil and nutrient regulation, and recreation.

Type of action: Research and innovation actions

[1] Non-Wood Forest Products

[2] See definition of 'multi-actor approach' in footnote 1 in the introduction of this Work Programme part.

[3] United Nations Framework Convention on Climate Change

## ISIB-12b-2015: Rural development (ERA-NET Cofund)

**Deadline: 11.06.2015**

Specific challenge: Agriculture, forestry and the agri-food sector are integral parts of the European economy and society. They are subject to multiple pressures from external drivers, which include rising food, feed, fuel and fibre demand, globalisation, environmental changes and public health aspects, and are constrained by planetary boundaries such as land and water limits. With the expected increase in global population, demand for animal food products and competition for natural resources, agriculture and forestry will need to become more efficient, and sustainable.

Scope: Proposals should address the following issues (B):

### B. [2015] Rural development

Supporting rural development initiatives, with a view to promoting viable innovations in European regions; to ensure cohesion of rural areas and prevent economic and social marginalisation, foster diversification of economic activities (including the service sector), ensure appropriate relations between rural and urban areas.

The main objective of these ERA-NETs is to pool the necessary financial resources from the participating national (or regional) research programmes and the EU and to implement joint trans-national calls with EU co-funding in the above areas (one co-funded call per grant agreement, resulting in grants to third parties). Thematic focusing of these calls should be commensurate with the funds available, so as to ensure a reasonable rate of success in the call. The ERA-NETs should seek synergies with other relevant European and international research and innovation initiatives affecting sustainability and resilience of agriculture and food systems, in particular the FACCE and HDHL Joint Programming Initiatives. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to consider international cooperation, and the ERA-NETs should be open to participation by third countries national programmes[1].

The proposals should also aim at implementing other joint activities including additional joint calls without EU co-funding.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million for (B) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- improve coordination and reduce the overlap between national and EU funding in relevant fields of research;
- achieve a critical mass and ensure better use of limited resources in fields of mutual interests;
- share good practices in implementing research programmes;
- promote transnational collaboration and new knowledge generation and innovation;
- mobilise SMEs, when appropriate, in the transnational projects to enhance innovation.

- provide mapping of on-going research activities (where relevant);
- establish a network of research activities carried out at national and regional level, including a mutual opening of national and regional research programmes (where relevant).

Type of action: ERA-NET Cofund

[1] This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

## **ISIB-12c-2015: Monitoring and mitigation of agricultural and forestry greenhouse gases (GHG) (ERA-NET Cofund)**

**Deadline: 11.06.2015**

Specific challenge: Agriculture, forestry and the agri-food sector are integral parts of the European economy and society. They are subject to multiple pressures from external drivers, which include rising food, feed, fuel and fibre demand, globalisation, environmental changes and public health aspects, and are constrained by planetary boundaries such as land and water limits. With the expected increase in global population, demand for animal food products and competition for natural resources, agriculture and forestry will need to become more efficient, and sustainable.

Scope: Proposals should address the following issue (C):

C. [2015] Monitoring and mitigation of agricultural and forestry greenhouse gases (GHG)

Monitoring and mitigation of agricultural GHG, including such aspects as reducing uncertainties and improving national agricultural GHG inventories (e.g. with ICOS), the role of climatic variability and agricultural and forestry practices for GHG emissions, the technical and economic potential of CH<sub>4</sub> and N<sub>2</sub>O mitigation, carbon sequestration and reduced emissions from energy use and pre-chain inputs, emissions/removals certification, economic and policy measures, including trade, barriers to implementation, life cycle assessment.

The main objective of these ERA-NETs is to pool the necessary financial resources from the participating national (or regional) research programmes and the EU and to implement joint trans-national calls with EU co-funding in the above areas (one co-funded call per grant agreement, resulting in grants to third parties). Thematic focusing of these calls should be commensurate with the funds available, so as to ensure a reasonable rate of success in the call. The ERA-NETs should seek synergies with other relevant European and international research and innovation initiatives affecting sustainability and resilience of agriculture and food systems, in particular the FACCE and HDHL Joint Programming Initiatives. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to consider international cooperation, and the ERA-NETs should be open to participation by third countries national programmes[1].

The proposals should also aim at implementing other joint activities including additional joint calls without EU co-funding.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million for (C) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- improve coordination and reduce the overlap between national and EU funding in relevant fields of research;
- achieve a critical mass and ensure better use of limited resources in fields of mutual interests;

- share good practices in implementing research programmes;
- promote transnational collaboration and new knowledge generation and innovation;
- mobilise SMEs, when appropriate, in the transnational projects to enhance innovation.
- provide mapping of on-going research activities (where relevant);
- establish a network of research activities carried out at national and regional level, including a mutual opening of national and regional research programmes (where relevant).

Type of action: ERA-NET Cofund

[1] This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.



## ISIB-12d-2015: Sustainable crop production (ERA-NET Cofund)

**Deadline: 11.06.2015**

Specific challenge: Agriculture, forestry and the agri-food sector are integral parts of the European economy and society. They are subject to multiple pressures from external drivers, which include rising food, feed, fuel and fibre demand, globalisation, environmental changes and public health aspects, and are constrained by planetary boundaries such as land and water limits. With the expected increase in global population, demand for animal food products and competition for natural resources, agriculture and forestry will need to become more efficient, and sustainable.

Scope: Proposals should address the following issues (D):

### D. [2015] Sustainable crop production

Sustainable crop production, including such areas as breeding, nutrients recycling and soil-plant-atmosphere interactions, plant health and protection, management practices and added value of the products.

The main objective of these ERA-NETs is to pool the necessary financial resources from the participating national (or regional) research programmes and the EU and to implement joint trans-national calls with EU co-funding in the above areas (one co-funded call per grant agreement, resulting in grants to third parties). Thematic focusing of these calls should be commensurate with the funds available, so as to ensure a reasonable rate of success in the call. The ERA-NETs should seek synergies with other relevant European and international research and innovation initiatives affecting sustainability and resilience of agriculture and food systems, in particular the FACCE and HDHL Joint Programming Initiatives. In line with the objectives of the EU strategy for international cooperation in research and innovation, proposals are encouraged to consider international cooperation, and the ERA-NETs should be open to participation by third countries national programmes[1].

The proposals should also aim at implementing other joint activities including additional joint calls without EU co-funding.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million for (D) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact:

- improve coordination and reduce the overlap between national and EU funding in relevant fields of research;
- achieve a critical mass and ensure better use of limited resources in fields of mutual interests;
- share good practices in implementing research programmes;
- promote transnational collaboration and new knowledge generation and innovation;
- mobilise SMEs, when appropriate, in the transnational projects to enhance innovation.
- provide mapping of on-going research activities (where relevant);

- establish a network of research activities carried out at national and regional level, including a mutual opening of national and regional research programmes (where relevant).

Type of action: ERA-NET Cofund

[1] This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the annex to the work programme.

**Societal Challenges:**  
**WATER INNOVATION: BOOSTING ITS**  
**VALUE FOR EUROPE**

## **WATER-1b-2015: Demonstration/pilot activities (Innovation actions)**

**Deadline Stage 1: 21.04.2015 (NEW)**

**Deadline Stage 2: 08.09.2015 (NEW)**

Specific challenge: One of the main factors hampering the market uptake of innovative solutions in the field of water is the lack of real scale demonstration of their long term viability. In addition, highly promising and sustainable eco-innovative water solutions (technologies, processes, products, services etc.) often do not reach the market due to pre-commercialisation challenges and the residual risk linked to scaling-up.

There is therefore a need to take action to accelerate the commercialisation of eco-innovative water solutions with a view to stimulating sustainable economic growth, business and job creation in the water sector.

The EIP on Water[1] has identified 8 priority areas: 5 thematic priorities (water reuse and recycling; water and waste water treatment, including recovery of resources; water and energy integration; flood and drought risk management; and the role of ecosystem services in the provision of water related services) and 3 cross-cutting priorities (water governance; decision support systems and monitoring; and financing for innovation). According to the EIP on Water, these are areas which show high potential for innovation and market uptake.

Scope: Proposals shall address the following:

Demonstration/pilot activities of new or improved innovative water solutions in a real environment, with a focus on the cross cutting priorities identified in the EIP on water, while addressing the thematic priorities.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 6 and 8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Proposals may also aim to help process industries become less water dependant while ensuring efficient management of other resources (e.g. raw materials and energy), and/or exploiting untapped potential of ICT by developing and deploying advanced ICT solutions for water resources management in agriculture and urban areas.

Complex issues should be addressed with innovative, creative solutions with a globally positive environmental impact demonstrated by life cycle analysis. Social, institutional, economic and governance aspects ensuring a more rapid uptake of solutions as well as aspects affecting market deployment and uptake, such as, standardisation and regulatory issues, market assessment and business plan, should be considered where appropriate. Proposals should include the participation of SMEs, as far as possible.

Expected impact: Wide and fast deployment of sustainable innovative solutions in the water management sector. Contribution to the implementation of the EIP 'Water'. Support to the objectives of the Sustainable Process Industries Public-private Partnership (SPIRE PPP), in particular helping process industries and consumers to socially accept water as a highly valuable resource rather than a cheap consumable. Market penetration and demonstration, long-term application and sustained use of successful and sustainable innovative solutions by various end-users. Creation of new market opportunities both inside and outside Europe. Increased resource

efficiency and environmental performance of the water sector, inter alia through synergies between public water authorities, water utilities, various economic actors and sectors, major companies and industries, SMEs and research organisations. Significant reduction in water use. More than 50% reduction of energy demand in water supply, treatment and transportation. Development and uptake of water efficiency standards in urban, agricultural and industrial areas, including the promotion of interoperability between water information systems at EU and national levels and their harmonisation with the INSPIRE Directive. Support to the implementation and evaluation of technology verification schemes, including the EU Environmental Technology Verification Pilot (ETV) programme[2].

Type of action: Innovation actions

[1] <http://iet.jrc.ec.europa.eu/etv/>

[2] <http://ec.europa.eu/environment/water/innovationpartnership/>

**WATER-2b-2015: Integrated approaches to food security, low-carbon energy, sustainable water management and climate change mitigation (Research and innovation actions)**

**Deadline Stage 1: 21.04.2015 (NEW)**

**Deadline Stage 2: 08.09.2015 (NEW)**

Specific challenge: The rising demands of a growing world population for food, water, materials and energy will put increasing pressures on land use, water resources and ecosystems. Increased energy use leads to increased demands for cooling water for thermal power plants. Climate mitigation options such as biomass production for energy (biofuels) might also lead to increased land and water demands. Increased food and feed demand will put increasing pressures on land (e.g. deforestation leading to more greenhouse gas emission) and water resources. Such pressures will be compounded by the impacts of climate change which are likely to further modify the availability and suitability of these resources as well as affect agricultural productivity.

Tools to help explore options for low-carbon pathways, such as climate-energy models, currently lack a comprehensive integration of land-use and water systems, leading to an incomplete picture of the interactions between competing demands and the future viability and costs of adaptation and mitigation options as well as the environmental protection and agricultural challenges.

Despite considerable progress over the past ten years, the forecasting of natural water cycle variability and extreme weather events in the short and medium term still suffers from severe limitations. Improved understanding of the impacts of climate change on the hydrological cycle is necessary in order to better inform decision makers and ensure sustainable water supply and management of water systems, and quality of water bodies, in the EU.

Scope: Proposals shall address the following issues.

**Integrated approaches to food security, low-carbon energy, sustainable water management and climate change mitigation:**

Proposals should aim to:

- develop tools and methodologies for integrating agriculture, forestry, climate change impacts and adaptation with climate-energy-economic models and land-use models, using a multi-disciplinary approach;
- consider the potential role, contributions and limitations of low-carbon options with respect to land and water resources;
- develop a better scientific understanding of the land-water-energy-climate nexus;
- develop integrated strategies and approaches, at different spatial scales (regional, national, continental, global), integrating resource efficient land use, agricultural productivity improvements, sustainable water management and low carbon energy transition and analysing interactions with the existing regulatory frameworks in these areas and the potential barriers to implementation.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 6 and 8 million (or more) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

Increased understanding of how water management, food and biodiversity policies are linked together and to climate and sustainability goals. Reduction of the uncertainties about the opportunities and limitations of low-carbon options, such as bioenergy technologies and resource efficiency measures, in view of relevant near-term policy initiatives. Contribution to future assessments, including those of the IPCC, with multidisciplinary and integrated tools.

Type of action: Research and innovation actions

**WATER-5c-2015: Development of water supply and sanitation technology, systems and tools, and/or methodologies (Research and innovation actions)**

**Deadline Stage 1: 21.04.2015 (NEW)**

**Deadline Stage 2: 08.09.2015 (NEW)**

Specific challenge: Sustainable water supply and sanitation is fundamental to the food security, health, survival, societal well-being and economic growth in developing countries, especially in Africa. Developing countries are also particularly vulnerable to water-related problems which are expected to be exacerbated in the future by more frequent and severe floods and droughts due to climate change. A prerequisite for tackling these challenges is a profound analysis of water resources at cross-boundary catchment scales, pressures on water resources and conflicts in water use that require sound approaches to water management, taking into consideration broader socio-economic factors and greater gender balance in decision making. International cooperation can play an important role in mitigating negative effects.

At the same time, the EU should aim to strengthen international cooperation also with emerging economies, especially China and India, through strategic partnerships in the field of water. This will allow for joint development of technological solutions that, capitalising on the mutual knowledge and experience of the water industry in EU Member States and these countries, have a great potential for further replication and market uptake. Building on its leadership in international water-related negotiations, the EU will promote its experience in water policy and river management in order to share best practices.

Scope: Proposals shall address the following issue:

**[2015] Development of water supply and sanitation technology, systems and tools, and/or methodologies** to manage risks associated with water supply and sanitation and cross-boundary water management issues, or integrated water resources management systems for sustainable agriculture and food security, sustainable environment protection and economic growth, focused on the non-EU Mediterranean countries and Africa. Proposals should connect to local knowledge, socio-economic development cultures, policy institutions and implementing bodies, and take into account the gender dimension where relevant. In line with the EU's strategy for international cooperation in research and innovation[1] international cooperation is encouraged, in particular with non-EU Mediterranean countries and Africa. Proposals should include participation of organisations from the above-mentioned regions is considered essential.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 2 and 3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impacts:

Application of innovative technological approaches/solutions adapted to local conditions, operational and effective application of integrated water management, better identification of water vulnerability by policy makers, advanced regulatory and economic instruments, improved capacity building of local actors, and



increased economic and social well-being at local and regional levels in the non-EU Mediterranean countries and Africa. Support to internationally agreed water-related goals, including in the context of the post-2015 development framework and Rio+20 follow up, by bridging the water and sanitation gaps.

Type of action: Research and innovation actions

[1] COM(2012)497

**Societal Challenges:**  
**CALL FOR COMPETITIVE LOW-**  
**CARBON ENERGY**

## LCE-02-2015: Developing the next generation technologies of renewable electricity and heating/cooling (Research & Innovation Actions)

Deadline Stage 1: 3.09.2014

Deadline Stage 2: 3.03.2015

For 2015, the following technology-specific challenges have to be addressed:

- a. **Photovoltaics:** *Developing very low-cost PV cells and modules* – Proposals are requested to develop very low-cost but highly performing concepts either reducing constraints on the demand on natural resources (low material use and dependence on rare materials) or using low cost materials, while having efficient manufacturing processes of cells and of modules and improving device performance and durability for competitive energy costs. Proposals are also requested to explore innovative applications.
- b. **Concentrated Solar Power (CSP):** *Improving the environmental profile of the CSP technology* – CSP plants rely on water for cleaning the reflecting surfaces, for power generation and for cooling. Innovative solutions are needed to significantly reduce or replace the water consumption while maintaining the overall efficiency of the CSP plants, and limiting their environmental impact.
- c. **Wind energy:** *Substantially reduce the costs of wind energy* - There is a need for innovative integrated dedicated offshore systems (e.g. with a significant lower mass per unit power installed) to reduce production, installation and O&M costs for water depths of more than 50m.
- d. **Ocean energy**<sup>[1]</sup>: *Ensure efficiency and effective long term cost reduction and high levels of reliability and survivability* - There is a need to gather experience in open sea operating conditions, structural and power performance and operating data of emerging full scale wave and tidal energy convertors and components in single and/or multiple device configuration. For the overall development cycle a better resource assessment is needed as well.
- e. **Hydropower:** *Increasing flexibility of hydropower* – Hydropower is still amongst the largest sources of renewable energy. The challenge is however to make hydropower in the >100MW range available in a time as short as possible. New technologies need to be developed to increase ramping rates and to allow start-stop-cycles to reach up to 30 times per day depending on head and volume, while lifetime of components and respective life time prediction methods under heavy-duty operating conditions are considerably improved while avoiding adverse effects on downstream water courses.
- f. **Deep geothermal energy:** *Development of new technologies and concepts for geothermal energy* - New technologies and concepts for geothermal energy are necessary to increase the number of economically viable geothermal resources, including in hard rock and high temperature/pressure conditions, and to have a demonstrably smaller environmental footprint to existing technologies. Cross-fertilisation with hydrothermal oil and gas technologies and operations shall be explored.

g. **Renewable Heating and Cooling:**

- i. *Solar heating for industrial processes<sup>[2]</sup>* – The potential benefit of using solar heat above 200°C in industrial processes has been already acknowledged. Innovative concepts, processes and technologies for these applications are needed which can be easily integrated into existing industrial plants and processes.
- ii. *Improving efficiency of low emission biomass heating systems while widening the feedstock base<sup>[3]</sup>* – Current residential-scale boilers can combust only one type of feedstock (e.g. wood chips, wood pellets). New flexible and robust residential-scale low emission boilers for heat applications need to be developed using a wider range of sustainable feedstock (including mixtures) with high ash content such as agricultural and forest residues, upgraded solid or liquid bioenergy carriers with higher energy density and industrial by-products.

Scope: Proposals should address one or more of the technology-specific challenges described above, including between renewables areas, where new, innovative ideas are welcome. They should bring technology solutions to a higher TRL, from TRL 3-4 to 4-5 (please see part G of the General Annexes).

Technical issues, synergies between technologies, regional approaches, socio-economic and environmental aspects from a life-cycle perspective (including public acceptance, business cases, pre-normative and legal issues, pollution and recycling) need to be appropriately addressed where relevant.

Environment, health and safety issues shall be considered in all developments and appropriately addressed.

An important element for the entire area of renewables will be the need for an increased understanding of risks in each area (whether technological, in business processes, for particular business cases, or otherwise), risk ownership, and possible risk mitigation. Proposals shall therefore include appropriate work packages on this matter.

Proposals shall explicitly address performance and cost targets together with relevant key performance indicators, expected impacts, as well as provide for development of explicit exploitation plans. Proposals should also indicate the current Manufacturing Readiness Level (MRL, see Appendix to this work programme) and the activities needed to keep the MRL aligned with the advances in the TRL that will be undertaken in the proposal to ensure the potential for exploitation.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 3 to 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Technological innovation related to the integration of renewable generation in the industrial and residential sectors can be addressed in the Energy Efficiency call or Smart Cities and Communities call. Improving the energy efficiency of district heating and cooling networks is addressed in the Energy Efficiency call.

Expected impact: The proposals are expected to have one or more of the general impacts listed below:

- Significantly increased technology performance.
- Reducing life-cycle environmental impact.
- Improving EU energy security.
- Making variable renewable electricity generation more predictable and grid friendly, thereby allowing larger amounts of variable output renewable sources in the grid.
- Increasing the attractiveness of renewable heating and cooling technologies by improving cost-competitiveness, reducing complexity and increasing reliability.
- Bringing cohesion, coherence and strategy in the development of new renewable energy technologies.
- Nurturing the development of the industrial capacity to produce components and systems and opening of new opportunities.
- Strengthening the European industrial technology base, thereby creating growth and jobs in Europe.
- Reducing renewable energy technologies installation time and costs.
- Increasing the reliability and lifetime while decreasing operation and maintenance costs.
- Contributing to solving the global climate and energy challenges.

Type of action: Research & Innovation Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

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[1] Marine energy is also addressed under the cross-cutting 'Blue Growth' focus area led by Challenge 2 (Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy), in particular under the area 'New Offshore Challenges'.

[2] Projects selected under this heading might be considered contributing to the objectives of the SPIRE PPP depending on the centre of their activities.

[3] Biomass supply is addressed in LCE 11 and LCE 12. Proposers are advised also to consult the work programme of the Bio-Based Industries JTI, which is expected to be published mid-2014.

**LCE-11-2015: Developing next generation technologies for biofuels and sustainable alternative fuels (Research & Innovation Actions)**

**Deadline Stage 1: 3.09.2014**

**Deadline Stage 2: 3.03.2015**

Specific challenge: Europe has limited biomass and land resources to cope with an increased demand for fuels and other uses. Thus, in the long-term perspective, new technologies of sustainable biofuels and alternative fuels need to be developed that radically improve the state-of-art, notably in regards to the following sub-challenges:

- a. Improving conversion efficiency and/or enlargement of the biomass feedstock basis.
- b. Developing alternative fuels through use of new and sustainable resources from non-biomass non-fossil sources.
- c. Improving the economic, environmental and social benefits relative to fossil fuels and currently available biofuels, notably regarding cost reduction, minimisation of demand on natural resources (land and water in particular), enhanced energy balance, reduced GHG emissions (including carbon stock changes) and development of rural areas.

Scope: Proposals focusing on the long-term perspective should aim at developing the next wave of alternative and sustainable fuels by moving technologies from TRL 3-4 to TRL 4-5 (please see part G of the General Annexes). In each case, they should address sub-challenge a) or b) and sub-challenge c) described above.

Environment, health and safety issues, regional and social dimension, shall be considered in all developments and appropriately addressed. An assessment of alternative uses of the used feedstocks outside the bioenergy sector should also be done.

Biofuels produced from starch, sugar and oil fractions of food/feed crops are excluded.

An important element will be an increased understanding of risks (whether technological, in business processes, for particular business cases, or otherwise in each area), risk ownership, and possible risk mitigation. Proposals shall therefore include appropriate work packages on this matter.

Proposals shall explicitly address performance and cost targets together with relevant performance indicators, expected impacts, as well as provide explicit exploitation plans. Proposals should also indicate the current Manufacturing Readiness Level (MRL, see Appendix to this work programme) and the activities needed to keep the MRL aligned with the advances in the TRL that will be undertaken in the proposal to ensure the potential for exploitation.

Opening the project's test sites and pilot facilities, or research infrastructures for practice oriented education, training or knowledge exchange is encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 to 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: The new developed technology pathways should permit the use of new feedstock sources that do not compete directly or indirectly with food or feed production for resources, or a more efficient conversion of the current ones. A favourable energy balance is expected, as well as a significant potential for cost reduction, which would permit these fuels to eventually compete favourably with fossil or older-generation equivalent fuels. The development of new technologies will permit robust and reliable assessment of the environmental and social benefits with respect to current technologies, notably in terms of GHG performance, energy balance, efficient use of natural resources, decentralised energy production, and job creation in rural areas, as well as secure and affordable energy supply in Europe or worldwide.

Type of action: Research & Innovation Actions

## **LCE-12-2014: Demonstrating advanced biofuel technologies (Innovation Actions)**

**Deadline:** 10.09.2014

*Specific challenge:* In the short-term and medium-term perspective, due to different issues (such as the limited distribution infrastructure of the electrification option, or the unsuitability of such option for certain transport modes), biofuels are expected to be increasing contributors to the de-carbonisation of the transport sector. In order to achieve the EU targets regarding renewable energy in transport and CO<sub>2</sub> abatement (set out in the RES and Fuel Quality Directives), and to address concerns regarding indirect and direct environmental impacts of biofuels, new and advanced biofuels using sustainable feedstock need to reach the market. To this end, the following sub-challenges should be addressed:

- Proving that advanced biofuels and bioenergy carriers technologies, as identified in the Implementation Plan of the European Industrial Bioenergy Initiative (EIBI)[1], are technically viable, environmentally and socially sustainable, and potentially cost-competitive at commercial scale.
- Developing logistic systems for a sound, safe and sustainable feedstock supply.

*Scope:* Proposals should address the medium-term challenges for market penetration of advanced biofuels as presented above. In each case, they should address one of the respective sub-challenges, or a combination of them. They should bring technology solutions to a higher TRL level (please see part G of the General Annexes), in line with the Implementation Plan of the European Industrial Bioenergy Initiative (EIBI)[2]. Proposals shall aim at moving technologies that reached already TRL 5-6 to TRL 6-7 through industrial demonstration projects[3].

Environment, health and safety issues in the whole life cycle should be considered in all demonstrations and appropriately addressed. An assessment of alternative uses of the used feedstocks outside the bioenergy sector should also be done.

Biofuels produced from starch, sugar and oil fractions of food/feed crops are excluded.

An important element for the entire area of renewables will be an increased understanding of risks (whether technological, in business processes, for particular business cases, or otherwise in each area), risk ownership, and possible risk mitigation. Proposals shall therefore include appropriate work packages on this matter.

Proposals shall explicitly address performance and cost targets together with relevant key performance indicators and the expected impacts. Industrial involvement in the consortium and explicit exploitation plans are a prerequisite.

All proposals have to include a work package on the business case of the technology solution being addressed. This work package has to demonstrate the business case of the technology and identify potential issues of public acceptance, market and regulatory barriers, including standardisation needs. It should also address, where appropriate, synergies between new and existing technologies, regional approaches and other socio-economic and environmental aspects from a life-cycle perspective.



The current Manufacturing Readiness Level (MRL, see Annex to this work programme) and the activities needed to keep the MRL aligned with the advances in the TRL that will be undertaken in the proposal should also be indicated to ensure the potential for exploitation.

Opening the project's test sites, pilot and demonstration facilities, or research infrastructures for practice oriented education, training or knowledge exchange is encouraged.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 5 to 20 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: Testing advanced biofuel technologies at large industrial scale reduces the technological risks, paving the way for subsequent first-of-a-kind, commercial-scale industrial demonstration projects. For this purpose, the scale of the proposals should permit obtaining the data and experience required so that a first-of-a-kind, commercial-scale industrial demonstration project can be envisaged as a next step. The industrial concepts demonstrated should have the potential for a significant social and economic impact, notably in terms of job creation, economic growth and safe and affordable energy supply in Europe and beyond.

Type of action: Innovation Actions

[1] The EIBI Implementation Plan is found on <http://setis.ec.europa.eu/set-plan-implementation/european-industrial-initiatives-eiis/eii-implementation-plans>

[2] Note that an eligibility criterion sets a minimum bioenergy content: at least 70% of the marketable bio-products produced by the plant shall be bioenergy (biofuels, bioenergy carriers, heat, power) calculated on the basis of the energy content.

[3] Coordination is foreseen to avoid duplication of efforts under the Energy Work Programme and the Bio-Based Industries JTI regarding biomass supply and logistics which could be addressed under both support schemes and regarding energy driven biorefineries, i.e. those with a minimum of 70% bioenergy output, in case such biorefineries are selected for funding under the Bio-Based Industries JTI.

## **LCE-12-2015: Demonstrating advanced biofuel technologies (Innovation Actions)**

**Deadline: 05.05.2015**

**Specific challenge:** In the short-term and medium-term perspective, due to different issues (such as the limited distribution infrastructure of the electrification option, or the unsuitability of such option for certain transport modes), biofuels are expected to be increasing contributors to the de-carbonisation of the transport sector. In order to achieve the EU targets regarding renewable energy in transport and CO<sub>2</sub> abatement (set out in the RES and Fuel Quality Directives), and to address concerns regarding indirect and direct environmental impacts of biofuels, new and advanced biofuels using sustainable feedstock need to reach the market. To this end, the following sub-challenges should be addressed:

- Proving that advanced biofuels and bioenergy carriers technologies, as identified in the Implementation Plan of the European Industrial Bioenergy Initiative (EIBI)[1], are technically viable, environmentally and socially sustainable, and potentially cost-competitive at commercial scale.
- Developing logistic systems for a sound, safe and sustainable feedstock supply.

**Scope:** Proposals should address the medium-term challenges for market penetration of advanced biofuels as presented above. In each case, they should address one of the respective sub-challenges, or a combination of them. They should bring technology solutions to a higher TRL level (please see part G of the General Annexes), in line with the Implementation Plan of the European Industrial Bioenergy Initiative (EIBI)[2]. Proposals shall aim at moving technologies that reached already TRL 5-6 to TRL 6-7 through industrial demonstration projects[3].

Environment, health and safety issues in the whole life cycle should be considered in all demonstrations and appropriately addressed. An assessment of alternative uses of the used feedstocks outside the bioenergy sector should also be done.

Biofuels produced from starch, sugar and oil fractions of food/feed crops are excluded.

An important element for the entire area of renewables will be an increased understanding of risks (whether technological, in business processes, for particular business cases, or otherwise in each area), risk ownership, and possible risk mitigation. Proposals shall therefore include appropriate work packages on this matter.

Proposals shall explicitly address performance and cost targets together with relevant key performance indicators and the expected impacts. Industrial involvement in the consortium and explicit exploitation plans are a prerequisite.

All proposals have to include a work package on the business case of the technology solution being addressed. This work package has to demonstrate the business case of the technology and identify potential issues of public acceptance, market and regulatory barriers, including standardisation needs. It should also address, where appropriate, synergies between new and existing technologies, regional approaches and other socio-economic and environmental aspects from a life-cycle perspective.

The current Manufacturing Readiness Level (MRL, see Annex to this work programme) and the activities needed to keep the MRL aligned with the advances in the TRL that will be undertaken in the proposal should also be indicated to ensure the potential for exploitation.

Opening the project's test sites, pilot and demonstration facilities, or research infrastructures for practice oriented education, training or knowledge exchange is encouraged.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 5 to 20 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: Testing advanced biofuel technologies at large industrial scale reduces the technological risks, paving the way for subsequent first-of-a-kind, commercial-scale industrial demonstration projects. For this purpose, the scale of the proposals should permit obtaining the data and experience required so that a first-of-a-kind, commercial-scale industrial demonstration project can be envisaged as a next step. The industrial concepts demonstrated should have the potential for a significant social and economic impact, notably in terms of job creation, economic growth and safe and affordable energy supply in Europe and beyond.

Type of action: Innovation Actions

[1] The EIBI Implementation Plan is found on <http://setis.ec.europa.eu/set-plan-implementation/european-industrial-initiatives-eiis/eii-implementation-plans>

[2] Note that an eligibility criterion sets a minimum bioenergy content: at least 70% of the marketable bio-products produced by the plant shall be bioenergy (biofuels, bioenergy carriers, heat, power) calculated on the basis of the energy content.

[3] Coordination is foreseen to avoid duplication of efforts under the Energy Work Programme and the Bio-Based Industries JTI regarding biomass supply and logistics which could be addressed under both support schemes and regarding energy driven biorefineries, i.e. those with a minimum of 70% bioenergy output, in case such biorefineries are selected for funding under the Bio-Based Industries JTI.

### **LCE-13-2015: Partnering with Brazil on advanced biofuels (Cancelled)**

**Deadline: 5.05.2015**

After the update to the Horizon 2020 Work Programme of 22 July 2014, this topic has been cancelled.

***This topic was subject to completion of an agreement with the Brazilian government and thus the text may still change.***

**Specific challenge:** Decarbonising the transport sector is a major challenge in the global fight against climate change. As such, it is a crucial element in the EU Energy Roadmap 2050 and in the Brazilian National Policy for Climate Change.

In the short-term and medium-term perspective, biofuels are expected to be the main contributors to this de-carbonisation. In order to achieve the EU and Brazil policy targets in this domain, and to address concerns regarding environmental impacts of biofuels, new and advanced biofuels using sustainable feedstock need to reach the market.

Brazil is an essential partner in this sector: it has outstanding expertise, a well-established and highly competitive first generation industry, as well as optimal conditions for the development of an advanced biofuel industry.

Hence in the framework of the EU-Brazil S&T Cooperation Agreement, the European Commission representing the European Union and the Ministry of Science, Technology and Innovation (MCTI) of the Government of Brazil are working together to benefit from the complementarities in research and innovation, in order to foster the development of advanced biofuels and accelerate their commercialisation both in Brazil and in Europe.

The advanced biofuel technologies to reach first commercial maturity will most likely be linked to and find its basis on the current production systems with high economic and environmental performance, such as the sugarcane based ethanol. The joint work should thus focus on the development of advanced biofuel technologies that can be integrated in existing sugarcane based biofuel processes.

To this end, the following sub-challenges should be addressed:

- Exploiting synergies between Brazil and Europe in terms of scientific expertise, industrial capacity and resources.
- Proving that the integration of advanced biofuels technologies into existing sugarcane ethanol plants is technically feasible, cost competitive and environmentally and socio-economically sustainable at commercial scale. Joint work should build upon the Brazilian sugarcane ethanol model, and benefit from the Brazilian and European experience in biofuels.
- Developing or improving logistic systems for a sound and sustainable feedstock supply.

**Scope:** Proposals should address the first sub-challenge presented above, and at least one of the other two. They should bring technology solutions to a higher TRL level.

Proposals should aim at moving technologies that reached already TRL 4-6 to TRL 5-7 (please see part G of the General Annexes) through industrial demonstration projects, which may include supporting R&D activities if needed.

Biofuels produced from starch, sugar and oil fractions of food/feed crops are excluded.

All proposals have to include a work package on 'the business case' of the technology solution being addressed. That work package has to demonstrate the business case of the technology and identify potential issues of public acceptance, market and regulatory barriers, including standardisation needs. It should also

address, where appropriate, synergies between new and existing technologies, regional approaches and other socio-economic and environmental aspects from a life-cycle perspective. An assessment of alternative uses of the used feedstocks outside the bioenergy sector should also be done.

The exploitation of results, including IPR, should be appropriately addressed in the proposals. This involves, inter alia, ensuring a balanced role of Brazilian and European partners in such exploitation.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 5 to 10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: Testing advanced biofuel technologies at pre-commercial industrial scale reduces the technological risks, paving the way for a subsequent market replication. For this purpose, the scale of the projects should permit obtaining the data and experience required so that a first-of-a-kind, commercial-scale industrial project can be envisaged as a next step. The industrial concepts demonstrated should have the potential for a significant social and economic impact, notably in terms of job opportunities and wealth creation in rural areas of Brazil or Europe. Clearly positive environmental impact should also be obtained.

Proposals should appropriately exploit the complementarities between the EU and Brazil, and pave the way for significant enhancement in the cooperation between key researchers, institutions and industries that are active in biofuel research and innovation in the EU and Brazil.

Type of action: Innovation Actions

## **LCE 14 – 2015: Market uptake of existing and emerging sustainable bioenergy (Coordination and Support Actions)**

**Deadline: 05.05.2015**

*Specific challenge:* Actions are still needed to foster the development of the bioenergy sector and to ensure its sustainability (Renewable Energy Progress Report [COM(2013)175]). One way to do it is to use more and sustainable bioenergy. However, the EU needs to expand the supply of bioenergy produced in the EU, by encouraging the EU farmers and foresters to produce also energy and energy intermediaries.

In the short- and medium-term perspective, sustainable bioenergy in all its forms is expected to be the main contributor to the de-carbonisation. In order to achieve the EU targets set out in the RES and Fuel Quality Directives, and to address concerns regarding indirect and direct environmental impacts, sustainable bioenergy technologies (both existing and emerging) need to further penetrate the market.

*Scope:* Proposals should address one or several of the following bullet points using technologies and systems which are already at TRL 7-9 (please see part G of the General Annexes):

- Setting up or strengthening sustainable local bioenergy supply chains that meet highest environmental criteria and quality standards, including consideration for indirect impacts and energy balances;
- Ensuring development and / or implementation of quality and sustainability standards for bioenergy in all its forms;
- Creating a market for sustainable intermediate bioenergy carriers to enable better technology competitiveness through economies of scale;
- Encouraging European farmers and foresters to produce non-food bioenergy or bioenergy carriers alongside food, feed and other products.
- Development of methodologies for the traceability of biomass feedstocks from which bioenergy is produced (e.g. to distinguish first-generation from advanced biofuels);
- Removing non-technical barriers to widespread production and use of biogas/biomethane from manure and other wastes as one of the most sustainable fuels available today for use in transport and for incorporation into the grid;
- Ensuring sustained public acceptance of sustainable advanced biofuels;
- Exchange of information on best practices for bioenergy policy, regulations and support schemes to allow the most sustainable and energy efficient use of bio-resources.
- Cooperation between different policy areas at national / regional level (e.g. energy, agriculture, environment, waste, transport, etc.) needs to be increased to optimise the regulatory framework and implementing measures for the bioeconomy through exchange of information and best practices;
- All Member States must possess the necessary capacity to enact the EU legislation, while the businesses must make full use of the opportunities that these new markets create for them. Therefore specific

capacity building activities targeting the main stakeholders (e.g. biomass suppliers and users, decision makers, financial institutions, auditors and verification bodies) are needed.

- Tailored financing schemes for supporting investments in innovative and established bioenergy technologies must be implemented, and the most successful schemes replicated.

Regional specificities, socio-economic and environmental aspects from a life-cycle perspective shall be considered.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 1 to 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: Increasing the share of sustainable bioenergy in the final energy consumption. Substantial and measurable reductions in the transaction costs for project developers as well as for the permitting authorities, whilst still fully addressing the needs for environmental impact assessments, including considerations for indirect impacts and energy balance, and public engagement. Development of better policy, market support and financial frameworks, notably at national, regional and local level.

Type of action: Coordination and Support Actions

**Societal Challenges:**  
**ENERGY EFFICIENCY - MARKET**  
**UPTAKE**



## EE-02-2015: Buildings design for new highly energy performing buildings (Innovation Actions)

**Deadline:** 04.02.2015 (NEW)

**Topic EE 2:** will be implemented under the PPP on Energy-efficient Buildings. The activities are expected to be implemented at Technology Readiness Level (TRL) 5-7 (please see part G of the General Annexes).  
. Topic EE2: Work Programme H2020 2014-2015 / 10. Secure, clean and efficient energy: H2020-EE-2014/2015

Specific Challenge: By the end of 2020 (2018 for buildings occupied and owned by public authorities), all new buildings should comply with the Energy Performance of Buildings Directive obligations and thus meet 'nearly zero-energy' performance levels using innovative, cost-optimal technologies with integration of renewable energy sources on site or nearby. Moreover the construction of 'plus-energy' buildings - i.e. buildings producing more energy than they consume - should also be encouraged in order to reduce energy use whilst increasing the share of renewable energies. However the costs of these highly energy performing buildings still represent a barrier for investors. Therefore the construction industry needs to deliver more affordable solutions.

Scope: Projects should focus on development and demonstration of solutions which significantly reduce the cost of new buildings with at least 'nearly zero-energy' performance levels, whilst accelerating significantly the speed with which these buildings and their systems are taken up by the market. Focus should lie on solutions for appropriate indoor air quality and comfort, design adapted to local climate and site, passive solutions (reducing the need for technical building systems which consume energy) or active solutions (covering a high share of the energy demand with renewable energies), building energy management systems (where appropriate), highly efficient HVAC (e.g. low temperature systems, solar cooling), electric and/or thermal energy storage of renewable energy onsite and nearby. Projects should also provide solutions for automated and cost-effective maintenance of the installed equipment, and assess differences between predicted and actual energy performance. Such differences should be documented and minimized.

The applied solutions should address the challenge to move towards to a 'nearly-zero energy' buildings standard at large scale with demonstration projects that go beyond 'nearly-zero energy' buildings levels to the point where buildings are active contributors to energy production and environmental quality in particular when new districts are planned (e.g. net-zero energy neighbourhoods). The energy balance should be calculated by means of a LCA approach, considering i.a. embodied energy.

Projects should also focus on methods for on-site and nearby-generation of renewable energy for new buildings (electricity as well as heating and cooling generation, e.g. heat pumps, integrated PV, or other options) accompanying energy efficiency measures to achieve standards higher than those of 'nearly zero-energy' buildings.

The performance of innovative technologies may be verified through technology verification schemes such as EU Environmental Technology Verification (ETV) pilot programme[1].

*The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

This topic will be implemented under the PPP on Energy-efficient Buildings.

The activities are expected to be implemented at TRL 5-7 (please see part G of the General Annexes).

Expected Impact: Significant increase of the share of 'nearly zero-energy' buildings with the aim of 100% market uptake by the end of 2020. Costs reductions of at least 15% compared to current situation, with additional benefits in terms of energy reduction. Demonstration for net-zero energy districts taking advantage of onsite or nearby-generation of renewable energy.

Type of action: Innovation Actions

[1] <http://iet.jrc.ec.europa.eu/etv/>

**EE-05-2015: Increasing energy performance of existing buildings through process and organisation innovations and creating a market for deep renovation Coordination and Support Actions)**

**Deadline: 04.06.2015 (NEW)**

Specific challenge: The Energy Performance of Buildings Directive and the Energy Efficiency Directive contain provisions to increase renovation rates, especially for public buildings. However non-technological barriers hamper the implementation of these provisions and also prevent other market actors in the residential and private sectors from following the example that the public sector is expected to set.

The heterogeneity of the construction industry, the large number of companies and the relative lack of quality standards and inspection protocols and guidelines limit the number and impact of large-scale energy efficiency investments and the effective integration of renewable energies. Many buildings are not commissioned and/or operated properly and energy performance certificates have not yet gained full public acceptance. The pressure to build or renovate towards nearly zero-energy buildings means that the building sector needs to significantly upgrade its working practices.

In addition there is a need to develop a marketplace for deep renovation[1] packages. Currently, there is limited articulated demand from building owners for significant energy performance improvements in existing buildings. Supply side, demand side and public authorities need to cooperate and find solutions that drive compelling offers for building owners, and lift as many barriers as possible simultaneously.

Scope: Proposals should focus on removing market barriers. They should focus on coherent interventions across issues and across actors to drive structural improvement in market conditions (i.e. those able to significantly influence buildings energy use in different sectors including building owners/operators, public authorities, construction and maintenance industry, housing associations, developers, financiers, etc.). All building types may be covered; however the main focus should be on existing buildings, in particular the most inefficient ones, as they represent the largest savings potential. Proposals should create synergies by incorporating at least one of the following three elements:

- Driving product and process innovation in the construction sector to improve product offerings by creating an early market.
- Development, testing and/or implementation of regulations; property valuation techniques; decision-making tools for renovation strategies; quality standards; and/or inspection and monitoring mechanisms to bridge the gap between expected and actual energy performance.
- Enabling conditions to finance deep renovation of buildings (including through process and organisation innovation).

Optional additional activities may include:

- Support for the implementation of the recast Energy Performance of Buildings Directive in Member States by promoting dialogue and exchange of best practices; complementing activities of the EPBD Concerted Action[2].
- Support to the implementation of the Energy Efficiency Directive as regards its provisions on 'long-term strategies for mobilising investment in the renovation of the national stock of residential and commercial buildings' (Article 4) and the renovation of central government buildings' (Article 5); complementing activities of the EED Concerted Action[3]. Proposals should not replace activities that are under the responsibility of Member States but add European value to these activities (e.g. exchange of knowledge and experience between organisations from different countries).
- Methods to increase the share of on-site and nearby-generated renewable energy in order to achieve nearly zero-energy buildings performance levels (or better).

*The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: proposals triggering the renovation of existing buildings towards high energy performance, or raising quality and compliance, should result in savings of at least 25 GWh/year per million EUR of EU support. Impacts should also be measured in terms of investment made by stakeholders in sustainable energy; better implementation of energy-efficiency policies; and number of policy makers or building owners/operators influenced.

Type of action: Coordination and Support Actions

[1] Deep (or major) renovation means the renovation of a building where: (a) the total cost of the renovation relating to the building envelope or the technical building systems is higher than 25 % of the value of the building, excluding the value of the land upon which the building is situated; or (b) more than 25 % of the surface of the building envelope undergoes renovation (Energy Performance of Buildings Directive)

[2] [www.epbd-ca.eu](http://www.epbd-ca.eu)

[3] [www.esd-ca.eu](http://www.esd-ca.eu)

## EE-15-2015: Ensuring effective implementation of EU product efficiency legislation (Coordination and Support Actions)

**Deadline:** 04.06.2015 (NEW)

**Specific challenge:** By 2020 full implementation of the EU product efficiency legislation would be one of the most important contributions to the EU energy efficiency target. The Ecodesign Directive alone would yield yearly savings of up to 600 TWh of electricity and 600 TWh of heat in 2020, as well as net savings for European consumers and businesses of €90 billion per year – 1% of EU's current GDP – in year 2020 (meaning net savings of €280 per household per year)[1]. Previous initiatives have demonstrated the usefulness of market surveillance activities[2]. However to ensure full implementation of product efficiency legislation, it has also been proven that these activities should be improved.

**Scope:** Proposals should focus on building up the monitoring, verification and enforcement of the EU's energy-related products policy, in particular for those products that represent the highest energy saving potential (e.g. electric motors, water and space heating and cooling equipment, lighting). Proposals should support higher level of surveillance activities and go beyond product testing activities. They should not replace activities that are under the responsibility of Member States[3] but add European value to these activities (e.g. execution of joint activities, exchange of information, development of common methods, protocols or checklists, etc.). Actions must involve the relevant market surveillance authorities and consumers' (or other end users') associations as appropriate, and demonstrate a high transnational added value.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

**Expected impact:** for market surveillance proposals every million Euro of EU support is expected to generate savings of at least 15 GWh/year of energy losses avoided from non-compliance[4]. In addition, proposals should result in an increase of confidence among purchasers, manufacturers and retailers. They should also contribute to the enforcement of EU product legislation.

**Type of action:** Coordination and Support Actions

[1] Molenbroek, E. Cuijpers, M. & Blok, K. (2012) Economic benefits of the EU Ecodesign Directive. Improving European economies.

[2] e.g. by testing the pan-EU compliance of energy-related products (see [http://www.eaci-projects.eu/iee/page/Page.jsp?op=project\\_detail&prid=2613](http://www.eaci-projects.eu/iee/page/Page.jsp?op=project_detail&prid=2613)) with the legal requirements.

[3] Article 18 of Regulation (EC) N°765/2008, article 3(2) of the Ecodesign Directive 2009/125/EC, and article 3 of the Labelling Directive 2010/30/EU.

[4] Conservative estimate based on the study from Paul Waide (Navigant), quoted above.

## EE-16-2015: Organisational innovation to increase energy efficiency in industry (Coordination and Support Actions)

**Deadline:** 04.06.2015 (NEW)

*Specific challenge:* Between 2000 and 2010, energy efficiency in industry has on average improved by 1.3% per year[1]. However by using existing cost-effective energy solutions, the industry sector could further reduce its consumption by at least 13%[2], thus gain in competitiveness and save nearly 40 Mtoe a year. Obtaining larger savings in industry can also be achieved by introducing new affordable intelligent energy solutions that secures uptime in production chains.

*Scope:* Activities should focus on removing market barriers, in particular the lack of expertise and information on energy management. Proposals should primarily address the uptake of cross-cutting innovative technologies, such as energy efficient electric motor driven systems and steam/hot water generation, because these represent 75% of the potential savings in industry[3]. They should also consider total-site energy management schemes and system optimization methodologies to identify saving potentials, monitor progress, and design energy recovery and energy storage solutions. Proposals should put in place mechanisms to secure funding for energy efficiency investments and facilitate the continuation of the activities beyond the project lifetime. The use of renewable energies and waste heat recovery should be encouraged where it is cost-effective. Energy-intensive industries should be prioritised as they account for 70% of industrial energy use and processes (e.g. drying) which represent a relatively high share of energy consumption in industry should also be considered where appropriate.

The following areas or their combination are also eligible for funding:

- Industrial systems efficiency benchmarking: Devise methods and tools including ICT to compare and benchmark the energy performance of industrial systems, processes and develop guidelines for tailored measures, in particular in energy-intensive industries. Such methods and tools should be based on existing standards where applicable.
- Development of sector-specific technology pathways towards 2050 to target the most energy-intensive industrial sectors
- Energy management in SMEs and industry: Improve the availability of skilled energy auditors and energy managers and the diffusion of energy management systems and best practices. Develop instruments to ensure availability of updated, comprehensive and usable information on energy efficiency relevant for industries. Address the issue of access to finance for the actual implementation of energy efficiency upgrades.
- Human and organizational challenges: Analysis of motivations, behaviour, perception, and barriers for the involved actors (from decision makers to employees) in the sector. Knowledge about organizational factors influencing energy efficiency.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: for capacity building projects, every million Euro of EU support is expected to increase the skills of hundreds of people working in the sector, resulting in savings of at least 25 GWh per year. All proposals should demonstrate a significant impact in terms of improved competitiveness; larger investments made by stakeholders in sustainable energy; primary energy savings; better implementation of energy-efficiency policies; number of policy makers influenced; number of people with increased skills; and/or number of people changing their behaviour.

Type of action: Coordination and Support Actions

[1] Odyssee-MURE project (<http://www.odyssee-indicators.org/>)

[2] [http://www.isi.fraunhofer.de/isi-media/docs/e/de/publikationen/BMU\\_Policy\\_Paper\\_20121022.pdf](http://www.isi.fraunhofer.de/isi-media/docs/e/de/publikationen/BMU_Policy_Paper_20121022.pdf)

[3] Although this might depend on the industrial sector. Electric motors, for example, might be embedded in process-specific machines.

## EE-18-2015: New technologies for utilization of heat recovery in large industrial systems, considering the whole energy cycle from heat production to transformation, delivery and end use (Research & Innovation Actions)

**Deadline:** 04.02.2015 (NEW)

**Topic EE 18:** will be implemented under the PPP SPIRE. The activities are expected to be implemented at Technology Readiness Level (TRL) 4-7 (please see part G of the General Annexes).

.Topic EE 18: Work Programme H2020 2014-15 / 10. Secure, clean and efficient energy: H2020-EE-2014/15

Specific challenge: Heat recovery represents an important and unexplored opportunity for reducing energy use in industrial processes and in heating and cooling. Surplus heat is produced in large quantities in many industrial processes but remains largely unutilised due to various technological, market and regulatory barriers. The huge potential for utilising industrial surplus heat should be evaluated not only in the context of increased industrial efficiency, when this heat is recovered for further use in internal processes and for the space heating or cooling and warm water requirements of specific plants, but also in the context of decarbonisation and resource efficiency of the energy supply and the potential of significantly reducing primary energy consumption. Many of the potential solutions for recovering wasted energy can be replicated across several industrial sectors (e.g. food exothermic fermentations and heat dissipative technologies) or can be made adaptable to the specificities of the various industrial sectors. However, to exploit this potential, it is critical to increase the economic competitiveness of waste heat recovery and develop ready-made practical solutions allowing its mainstreaming into normal operation practices of industrial plants. To minimize the economic costs of heat recovery, and prepare its integration into plant processes and organisation, technologies, new equipment and adaptable integration solutions should be developed and tested in real-world conditions, through research and development of prototypes and industrial procedures. Equally considered in this call are heat recovery solutions that involve the upgrading of waste heat streams to process heat streams at higher temperature levels and heat recovery solutions that involve the conversion of waste heat streams to electric or mechanical energy.

Responses to this call will include proposals for demonstrating replicable technologies to recover and use process heat adaptable to various types of industrial processes, to recover heat from material flows from industrial processes (e.g. waste streams, by-products, intermediates) or surplus heat in plant perimeters.

Scope: Research and demonstration on technologies, technical and operational approaches to recover waste heat from industrial processes, from material flows originating in industrial processes (e.g. waste streams, by-products, intermediates) or plant perimeters and to transform it into useful energy forms. Their integration will bring new and innovative solutions, systems, equipment and methodologies, organisation and operational practices and applications useful in several industrial sectors with the highest possible efficiency and quality.

To achieve this goal, a complete validation at real production conditions is preferred with demo sites where pilot systems will be tested in industrial facilities. Furthermore, the equipment developed will need to be adapted to market readiness level. Main subjects to be developed include:

- Technical, organisational and operational solutions of heat recovery for process internal use, plant internal use and plant external use, including adaptable solutions for process interface
- Integration and optimization of the heat chain, including fuel substitution and efficient use of heat recovered from material flows originating in industrial processes (e.g. waste streams, by-products, intermediates);
- Evaluating waste heat recovery potentials internally and externally; planning, modelling, maximising and implementing heat recovery options in the plant energy balance and locally;



- Advanced control and operation techniques, automation and safety measures and protocols
- Adaptable heat recovery modules for heat recovery in various process and from various sources, heat usage equipment, site and process design, operation organisations
- Advanced co-generation and trigeneration, energy cascading
- Evaluation of and adaptable and replicable solutions for non-technological issues that hamper heat recovery and a larger use of heat recovered, such as process and business organisation, operation and plant design, cooperation mechanisms, contractual and financial arrangements.

The aim is to achieve wide replicability and adaptability to the specificities in different sectors. It is expected to identify and combine the best technologies and most innovative solutions to reduce the total energy consumption and the operation costs of the plant. Methodologies and equipment will be subjected to a large validation by means of activities at demo sites. Proposals should show large replication potential.

*The Commission considers that proposals requesting a contribution from the EU between EUR 3 and 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

The activities are expected to be implemented at TRL 4-7 (please see part G of the General Annexes).

Expected impact:

- Design development and demonstration of economically viable solutions and technologies allowing recovering 15% of process heat and/or saving at least 15% of the plant energy use, compared to current practices.
- Adaptable technical, organisational and operational modules and producers to internal and external heat recovery
- In parallel, perceived technical and business risks will be reduced leading to widespread uptake of the technical solutions with a high impact in several industrial sectors
- The technologies developed should integrate well in the current industrial landscape ultimately leading to turn-key solutions with a pay-back time appropriate for industrial applications.

Type of action: Research & Innovation Actions

**Societal Challenges:**  
**WASTE: A RESOURCE TO RECYCLE,**  
**REUSE AND RECOVER RAW**  
**MATERIALS**

## WASTE-4d-2015: Raw materials partnerships (Coordination and support actions)

**Deadline:** 21.04.2015 (NEW)

**Specific Challenge:** The complexity and heterogeneity of waste streams require coordination and networking between researchers, entrepreneurs and public authorities to harmonise technologies, processes and services, to profit from benchmarking, sharing best practices, and gender mainstreaming, and to use or develop standards. Insufficient cooperation between different value chain players in several raw materials sectors results in lower recycling rates or suboptimal use of raw materials from an environmental and socio-economic point of view. Improved cooperation within or along different value chains and among stakeholders, including a participatory role of citizens, representing the wider society, and civil society organisations, can lead to more efficient use of raw materials and to waste reduction.

The global nature of the waste management challenge requires coordination, pooling of resources and support to the definition of global objectives and strategies, and holds a potential for export of eco-innovative solutions and seizing new markets. Dissemination at international level of knowledge on waste management, including environmental regulations and standards, can contribute to turning waste into a resource at global level and to setting up resource efficient waste management systems and technologies and services, particularly in developing countries and emerging economies. To this end, enhanced forms of participatory processes for all stakeholders are needed.

**Scope:** Proposals shall address the following issue:

**Raw materials partnerships:** Creation of a common multi-stakeholder platform focused on a limited number of key raw materials across their whole value chain. This should involve partners from across the value chain, including mining, processing, recycling, application, public sectors (national/regional/local) and civil society, while respecting the conditions of each value chain. The action shall support implementation of the European Innovation Partnership (EIP) on Raw Materials.

**Expected impact:**

In the medium term, better-informed decision-making at EU and national level as well as by industry. Increased EU raw materials knowledge and transparency of EU raw materials information, for the benefit of various stakeholders. Boosting the raw material sector through an interdisciplinary and transnational cooperation allowing matching the supply and demand from the EU downstream industries. In the longer term, improving availability of key raw materials, while creating greater added value to the economy and more jobs. Facilitation of exchange of information and increased knowledge and use of the most advanced, economically effective and innovative technologies in the whole value chain of raw materials. Contribution to the implementation of the EIP on Raw Materials.

**Type of action:** Coordination and support actions

## WASTE-6a-2015: Eco-innovative solutions (Innovation actions)

**Deadline Stage 1: 21.04.2015 (NEW)**

**Deadline Stage 2: 08.09.2015 (NEW)**

Specific challenge: The growing waste produced in Europe, particularly in urban areas, where the vast majority of the world population are expected to live by 2050, represents a cost for society and a burden on the environment and, at the same time, a valuable stock of resources that can be exploited.

Boosting eco-innovative solutions to prevent waste generation and promote the use of waste as a resource, in line with the objectives of the EU Resource Efficiency Roadmap[1] and the Waste Framework Directive[2], can enhance the natural and living environment in urban and peri-urban areas. Developing and demonstrating such solutions in real-life environments will enhance their market uptake and contribute to sustainable urbanisation worldwide.

Cities are more than spatially extended material artefacts; they are complex systems similar to living organisms that use energy, air, water and nutrients and need to dispose waste in a sustainable way. Adopting an urban metabolism perspective opens the way for innovative, systemic approaches, involving the analysis of resource flows within cities. Integrating in this way economic, social and environmental dynamics, it is possible to understand the socio-economically and gender nuanced patterns of resource use and consumption, and pinpoint drivers of waste-avoiding behaviour, manufacturing and business and public governance models.

Scope: Proposals should adopt an integrated urban metabolism approach and inter-disciplinary research and innovation and take into account the gender dimension where relevant. Proposals should involve active engagement of local authorities, citizens and other relevant stakeholders, using innovative concepts such as mobilisation and mutual learning[3].

Proposals shall address the following issue:

**Eco-innovative solutions:** Demonstration, at an appropriate pilot scale, and market replication, of integrated eco-innovative cost- and energy-efficient technologies, processes and services for waste prevention, treatment, enhanced collection, recycling and recovery of high-grade valuable materials from waste. Approaches should integrate technological and non-technological solutions, including, where appropriate, the use of economic instruments, such as incentives for more sustainable production and consumption patterns, and awareness raising initiatives. Proposals should include the participation of industry, including SMEs as far as possible.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 8 and 10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: Significant measurable improvements in the state of the art in waste management in urban and peri-urban areas, and in the operationalisation of the urban metabolism approach for sustainable urban development and reduction of environmental hazards in cities. Contribution, over the long term, to the establishment of European research and innovation leadership in urban waste management and prevention.

In addition, the following specific impacts are expected:

Significant improvement in cost, material and, where appropriate, energy recovery efficiency in waste recycling and prevention in the short term. Identification of potential markets for the proposed waste collection strategies, treatment technologies and recycled products, as well as potential for replicability of solutions, based on a return-on-investment study on the short term. Creation, in the short/medium term, of green jobs and/or new SMEs due to effective market uptake of innovative technologies, processes and services, ensuring equality of access to women and men, and social inclusion. Contribution to development of standards, validated by key industrial players, and identifying best available and emerging techniques under the Industrial Emissions Directive.

Type of action: a) Innovation actions

[1] COM(2011) 571

[2] Directive 2008/98/EC

[3] <http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1226>

## WASTE-6b-2015: Eco-innovative strategies (Research and innovation actions)

**Deadline Stage 1: 21.04.2015 (NEW)**

**Deadline Stage 2: 08.09.2015 (NEW)**

**Specific challenge:** The growing waste produced in Europe, particularly in urban areas, where the vast majority of the world population are expected to live by 2050, represents a cost for society and a burden on the environment and, at the same time, a valuable stock of resources that can be exploited.

Boosting eco-innovative solutions to prevent waste generation and promote the use of waste as a resource, in line with the objectives of the EU Resource Efficiency Roadmap[1] and the Waste Framework Directive[2], can enhance the natural and living environment in urban and peri-urban areas. Developing and demonstrating such solutions in real-life environments will enhance their market uptake and contribute to sustainable urbanisation worldwide.

Cities are more than spatially extended material artefacts; they are complex systems similar to living organisms that use energy, air, water and nutrients and need to dispose waste in a sustainable way. Adopting an urban metabolism perspective opens the way for innovative, systemic approaches, involving the analysis of resource flows within cities. Integrating in this way economic, social and environmental dynamics, it is possible to understand the socio-economically and gender nuanced patterns of resource use and consumption, and pinpoint drivers of waste-avoiding behaviour, manufacturing and business and public governance models.

**Scope:** Proposals should adopt an integrated urban metabolism approach and inter-disciplinary research and innovation and take into account the gender dimension where relevant. Proposals should involve active engagement of local authorities, citizens and other relevant stakeholders, using innovative concepts such as mobilisation and mutual learning[3].

Proposals shall address the following issue:

**Eco-innovative strategies:** Development of innovative and sustainable strategies for waste prevention and management in urban and peri-urban areas. Proposals should highlight how urban patterns, drivers, consumer behaviour, lifestyles, culture, architecture and socio-economic issues can influence the metabolism of cities. Proposals should highlight the possible benefits to be derived from ecosystems services and green infrastructure, and their gender sensitive application.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

**Expected impact:** Significant measurable improvements in the state of the art in waste management in urban and peri-urban areas, and in the operationalisation of the urban metabolism approach for sustainable urban development and reduction of environmental hazards in cities. Contribution, over the long term, to the establishment of European research and innovation leadership in urban waste management and prevention.

In addition, the following specific impacts are expected:

Demonstrable improvement in the short/medium term in the participatory and science-based decision-making and planning for waste management, risk prevention and land-use as an integral part of urban development. Collectively-built, gender-sensitive solutions to promote eco-innovative urban management and re-naturing cities, measurable by qualitative and quantitative indicators. Significant increased competitiveness of soil-ecology-construction-waste treatment-related industries. In the long term, enhanced environmental resilience in urban areas and quality of life both in Europe and internationally.

Type of action: Research and innovation actions

[1] COM(2011) 571

[2] Directive 2008/98/EC

[3] <http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1226>

## **WASTE-7-2015: Ensuring sustainable use of agricultural waste, co-products and by-products (Research and innovation actions)**

**Deadline Stage 1: 21.04.2015 (NEW)**

**Deadline Stage 2: 08.09.2015 (NEW)**

*Specific challenge:* Agriculture generates co-products, by-products and waste streams that are currently not properly taken care of both in environmental and economic terms.

In plant production (e.g. from arable, horticulture, fruit, wine, grassland sectors), losses take place at the farm and post-harvest levels and also down the chain at the level of the retail sector. Co-products or by-products are generated, for instance in the wine sector, which require sustainable use. Straw has been given significant attention in the last years as biomass feedstock and potential trade-offs with its relevance for soil improvement need to be considered.

In livestock production, manure, litter and other effluents management is a challenge, in particular in industrial production systems. While these effluents can be used as fertiliser, they can also be sources of bio-energy or valuable bio-products. The impacts on the environment, with emissions to the air, soil and water need to be evaluated. It is important to consider the whole effluent chain to avoid pollution swapping and health issues, due to possible transmission of pathogens.

Beyond reduction and recycling of agricultural waste, co-products and by-products, there may be opportunities for new processes enabling innovative uses of these materials, also outside the agricultural sector.

*Scope:* Proposals should evaluate existing techniques and develop new and innovative approaches for efficient use of agricultural waste, co-products and by-products, thereby contributing to the creation of sustainable value chains in the farming and processing sectors (including the organic sector). A range of sector-specific case studies (in terms of sources of waste and uses as well as geographic coverage) should serve to test and take up proposed approaches and technologies. Research and innovation efforts should address crop co-products/by-products/waste as well as manure/effluents.

On straw and other crop residues (including in mixture with manure), proposals should develop environmental safeguards such as sustainable extraction rates as well as guidance on optimal use of crop residues (in particular straw) for soil improvement, taking into account the need to maintain soil organic matter levels, and on farming practices to harvest and handle crop residues for alternative purposes.

As regards manure and effluents, proposals should address some or all of the following areas:

- nutrient, energy and biochemical recovery from manure and other effluents;
- improved knowledge on the environmental impact of manure and other effluents, further developing measurements and good manufacturing practices, minimising impacts on water and air quality (emissions and odours);
- sanitary implications of pathogens that can be transmitted from manure and possible control options;



- management chains, from processing to transport and application.

Involvement of industry (including strong participation from SMEs) should be ensured and pilot and/or demonstration activities should be performed. Knowledge platforms should be established. In line with the objectives of the EU's strategy for international cooperation in research and innovation and in particular with the implementation of the EU-China dialogue, proposals are encouraged to include third country participants, especially those established in China[1]. Proposals should fall under the concept of 'multi-actor approach'[2]. This action allows for the provision of financial support to third parties in line with conditions set out in Part K of the General Annexes.

*The Commission considers that proposals requesting a contribution from the EU in the range of EUR 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Proposals are requested to foresee close interaction with the other proposals selected for funding through creation of a joint stakeholder platform and other joint structures.

Expected impact:

- Increased awareness and dialogue across sectors on availability, needs and options for smart use of agricultural waste, by-and co-products through creation of joint stakeholders platform and other joint structures.
- Improved resource efficiency through reduction of waste and improved waste management in primary production.
- Increased opportunities for valorisation of waste, by-and co-products resulting in environmental and economic benefits for the farming sector (development of new products and processes).
- Enhanced competitiveness through more varied and/or new types of sources for bio-products and bio-energy in the agro-food (conventional and organic) and bioeconomy sectors.
- Improved soil quality and crop productivity – through an optimal use of crop waste (taking into account the need to maintain soil organic matter levels) and nutrient recovery.
- Improved water quality – reducing pollution and eutrophication of ground waters, and thus indirectly marine waters.
- Improved air quality – by reducing livestock emissions.
- Progress towards regulatory and standard development, in particular with respect to environmental protection and food safety.

Type of action: Research and innovation actions

[1] This is without prejudice to the general rules on the funding of legal entities from third-countries, as set in part A of the General Annex.

[2] The multi-actor approach aims at more demand-driven innovation through the genuine and sufficient involvement of various actors (end-users such as farmers/farmers' groups, advisors, enterprises, etc.) all along the project from participation in the planning of work and experiments, their execution up until the dissemination of results and the possible demonstration phase. The adequate choice of key actors with complementary types of knowledge (scientific and practical) should be reflected in the description of the project proposals and result in a broad implementation of project results. The multi-actor approach is more than a strong dissemination requirement or what a broad range of stakeholders can deliver: it should be illustrated with a sufficient quantity and quality of knowledge exchange activities and a clear role for the different actors in the work. This should generate innovative solutions that are more likely to be applied thanks to the cross-fertilisation of ideas between actors, the co-creation and the generation of co-ownership for eventual results. A multi-actor project needs to take into account how the objectives and planning of the project proposal are targeted to needs/problems and opportunities of end-users, as well as complementarity with existing research. Facilitation between actors and openness to involving additional players/groups of players during the project, for instance relevant EIP operational groups, is strongly recommended.

**Societal challenges:**  
**GROWING A LOW CARBON, RESOURCE**  
**EFFICIENT ECONOMY WITH A**  
**SUSTAINABLE SUPPLY OF RAW**  
**MATERIALS**

## SC5-13d-2015: Raw materials research and innovation coordination (Coordination and support actions) (NEW)

**Deadline:** 21.04.2015

Specific Challenge: The appropriate and sustainable supply of raw materials requires framework conditions which relate to mineral policies, permitting procedure and data reporting system, raw materials knowledge infrastructure, research and innovation coordination, and international cooperation. Mineral policies are sometimes not clear, too dispersed in their implementation or insufficiently linked to other related policies (e.g. land-use planning) to be fully effective. A common understanding of which mineral deposits are of public importance is lacking. Permitting procedures can be lengthy and sometimes conflict with other public authorities' requirements. Knowledge of raw materials reserves and resources is dispersed, terminology is often heterogeneous and reporting standards vary throughout the Member States. There is no raw materials knowledge infrastructure at EU level.

Research and development in the area of raw materials is scattered between different players. Further coordination is required between industrial players, researchers in the EU and across the whole value chain and EU and Member State funding authorities. There is a need to better exploit synergies in R&D with the best world players in raw materials technology and scientific developments, as well as to learn from the experience of raw materials-producing countries.

These specific challenges are identified in the Strategic Implementation Plan of the European Innovation Partnership (EIP) on Raw Materials.

Scope: The Commission considers that proposals requesting a contribution from the EU of between EUR 1 to 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Proposals shall address the following issues:

**Raw materials research and innovation coordination:** improving both research and innovation collaboration among all the relevant European Technology Platforms and other industrial and research initiatives, improving coordination with the relevant EU, Member States and regional policies and initiatives in the area of raw materials, engaging all the relevant players, particularly civil society and authorities at regional and local level, across the whole EU. The action should develop a common long term 2050 vision and roadmap for the relevant raw materials, including metals, industrial minerals and aggregates, wood and natural rubber-based materials.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: In the medium to longer term enhanced impact of research and innovation activities through better identification of R&I priorities, improved co-ordination of EU and Member States' research and innovation programmes and funded activities, and synergies with international research and innovation programmes.

Greater EU influence in multilateral processes and better support to implementation of international commitments. Contribution to evidence-based policy and appropriate, cost-effective management, planning and adaptation decisions by the public sector, businesses, industry and society addressing global challenges in the EU and beyond through the provision and effective communication of trustworthy science-based information. Establishing and maintaining strong and sustainable relationships with the countries concerned. Improved conditions for sustainable access and supply of raw materials in the EU. Facilitated decision-making at EU, national, regional and local levels and in the minerals industry. Safeguarding of mineral wealth for future generations by defining mineral deposits of public importance. Stable and competitive supply of raw materials from EU sources. Promotion of good governance and facilitation of public acceptance in the EU. Increased competitiveness of the EU industry and minerals supply from EU sources. Increased transparency of EU raw materials policies and legislation. Increased EU raw materials knowledge for different stakeholders, increased transparency of EU raw materials information through completion of an inventory of raw materials. Better understanding of longer term raw materials research and innovation needs and initiatives by the wider society in the EU. Facilitated translation of the industrial needs into governmental planning, policy and decision making and vice versa resulting in an improved environment for the industry in the EU. Contribution to achieving the objectives of the EIP on Raw Materials.

Type of action: Coordination and support actions

**SC5-19b-2015: Mapping Member State research and innovation in climate change, environment, resource efficiency and raw materials (Coordination and support actions)**

**Deadline: 21.04.2015 (NEW)**

Specific challenge: Better transnational cooperation and coordination of research and innovation policies, programmes and initiatives in the area of climate action, environment, resource efficiency and raw materials within the EU is needed to enhance the impact of research and innovation and ensure a more efficient use of resources and R&I developments.

Trans-national cooperation between National Contact Points (NCPs) within this Societal Challenge should be facilitated with a view to identifying and sharing good practices and raising the general standard of support to programme applicants, taking into account the diversity of actors that make up the constituency of this Societal Challenge.

Innovative ways are required to link up all relevant actors, increase policy coherence and improve public awareness of EU research and innovation.

Scope: Enhancing European networks to facilitate dialogue among the relevant scientific communities, funding bodies and user communities in the EU throughout the duration of Horizon 2020. Proposals should enhance coordination and synergies, and avoid overlaps, between European and nationally or regionally funded research and innovation actions, and create links with related international programmes, as appropriate.

Proposals shall address the following issue:

Mapping Member State research and innovation in climate change, environment, resource efficiency and raw materials[1]: identifying baselines, trends, good practices, threats, opportunities and potential synergies between EU, national and regional programmes, over the entire duration of Horizon 2020, building on existing sources, studies and databases, including ERA-Watch.

Expected impact:

Evidence-based policy and appropriate, cost-effective management, planning and adaptation decisions by the public sector, businesses, industry and society through the provision and effective communication of trustworthy and timely science-based information. Enhanced impact of research and innovation activities through better identification of R&I priorities, improved coordination of EU and Member State research and innovation programmes and funded activities, and synergies with international research and innovation programmes. Evidence-based R&I policy-making at EU and national/ regional as well as international levels; knowledge-based support to business management decisions; synergy between international, EU, national and regional programmes; recommendations for European Semester.

Type of action: Coordination and support actions

[1] This activity directly aimed at supporting the development and implementation of evidence base for R&I policies and supporting various groups of stakeholders is excluded from the delegation to EASME and will be implemented by the Commission services.

## **Industrial Leadership Fast Track to Innovation Pilot**



## **FTIPilot-1-2015: Fast Track to Innovation Pilot (Innovation actions) (NEW)**

**Deadline Date**      **01.12.2015**

Specific challenge: Innovation is fostered when new ideas can emerge and easily translate into socio-economic value. Working together, partners with complementary backgrounds, knowledge and skills, and in new and established value-chains, can turn these ideas into sustainable innovative products, processes and services that both address societal challenges and/or are highly competitive in global markets. FTI aims to accelerate this commercialisation process by providing extended funding opportunities through an open and agile scheme nurturing bottom-up ideas from innovative constituencies across Europe.

Scope: The FTI pilot supports projects undertaking innovation from the demonstration stage through to market uptake, including stages such as piloting, test-beds, systems validation in real world/working conditions, validation of business models, pre-normative research, and standard-setting. It targets relatively mature new technologies, concepts, processes and business models that need a last development step to reach the market and achieve wider deployment. To this end, if a proposal involves technological innovation, the consortium must declare that the technology or the technologies concerned are at least at Technology Readiness Level (TRL)[1] 6. Projects can be interdisciplinary.

Proposals must relate to any field under the specific objective "Leadership in enabling and industrial technologies" and/or to any of the specific objectives under the priority "Societal challenges"[2].

Proposals should specify the intended outcome of the project and describe its key performance indicators/success criteria.

Proposals must also include a business plan clearly describing the market potential (potential users/customers and benefits for them; targeted European/global markets, etc.), the business opportunities for participants, measures to enhance the probability of eventual commercial take-up. and a credible commercialisation strategy that identifies next steps and specifies other actors to be involved. Particular attention should be paid to IP protection and ownership and to the possibility of commercial exploitation ('freedom to operate').

The expected impact should be clearly described in both qualitative and quantitative terms. Factors such as time sensitivity and the international competitive situation should be considered in the light of the technology/innovation fields and industry sectors concerned. Possible impacts on sustainability or climate change, in particular, or on other cross-cutting objectives of Horizon 2020[3], should also be highlighted.

Consortia must involve participants from industry. Universities, research and technology organisations and further innovation actors may also participate. Actors that can play a key role in the commercialisation process are encouraged to take part, such as cluster organisations, end-users, industrial associations, incubators, investors, or the public sector. First-time industry applicants[4] and SMEs are particularly welcome.

Expected impact:

- Fast development, commercial take-up and/or wide deployment of sustainable innovative solutions (products, processes, services, business models etc.) in enabling and industrial technologies and/or for tackling societal challenges.
- Time to initial market take-up no later than 3 years after the beginning of the FTI project. In very well-justified cases linked to the specific characteristics of a particular innovation field or industry sector, the time to initial market take-up could be longer.
- Enhanced competitiveness and growth of business partners in the consortium, measured in terms of turnover and job creation.
- Increased industry participation, including SMEs, and more industry first-time applicants to Horizon 2020.
- Leveraging more private investment into research and/or innovation.
- Where appropriate, addressing transnational value-chains and/or EU-wide or global markets.

Type of action: Innovation actions

[1] For a definition of TRL, see Part G of the General Annexes.

[2] For proposals which fall under the "Secure Societies" societal challenge, an additional specific procedure may apply (see Participant Portal – H2020 Grant Manuals – Horizontal issues – Security Issues).

[3] Please see Article 14 of the Horizon 2020 Regulation:

[http://ec.europa.eu/research/participants/data/ref/h2020/legal\\_basis/fp/h2020-eu-establishment\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/legal_basis/fp/h2020-eu-establishment_en.pdf)

[4] In the context of the FTI pilot, a "first-time industry applicant" means a legal entity that is a private, for-profit organisation that has obtained a PIC (Participant Identification Code) for the first time, meaning that such legal entity is for the first time registered in the Beneficiary Register during the preparation of the proposal. See step 4 of <http://ec.europa.eu/research/participants/portal/desktop/en/funding/>

## **Industrial Leadership**

## SILC II-2014: Sustainable Industry Low Carbon (SILC) II (Innovation Actions)

**Deadline:** 2.09.2014

Specific challenge: Low-carbon technologies are essential for achieving the EU's climate and energy targets, such as those recently adopted by the Commission for 2030, and contribute to implementing the industrial roadmaps that various sectors are developing in the perspective of a low-carbon economy in 2050.

The EU manufacturing sector is challenged by strong global competition and ambitious EU environmental policies. Leveraging advanced manufacturing technologies and key enabling technologies through the whole value chain and promoting the adoption of such technologies within and across sectors would help to meet these twin challenges. In particular, in the context of the EU's decarbonisation ambitions, breakthrough solutions for advanced low-carbon manufacturing and processing are important in maintaining the competitiveness of EU industries.

Scope: Under the SILC II initiative, research and innovation activities for innovative, cost-effective technologies shall be developed in order to reduce the GHG emission intensity (ratio between direct GHG emissions and output units of an activity) of manufacturing and process industries. Proposals will preferably focus on energy-intensive industries, in particular (but not only) those industries which may be exposed to a significant risk of carbon leakage. Targeted industries include inter alia iron and steel, non-ferrous metals such as aluminium and copper, cement, glass, pulp and paper, chemicals and ceramics.

Proposals shall focus on research and innovation for the design and development of breakthrough solutions and implementation of demonstration programmes, including in real industrial environments. The activities should run close-to-market in production plants to demonstrate the viability of breakthrough technologies in overcoming the technological as well as non-technological barriers. Proposals will address technological solutions that could have widespread applications and may combine different technologies.

The reduction of GHG emissions should not be achieved solely through fuel switching.

For this topic, proposals should include an outline of the initial exploitation and business plans. Wherever possible, proposers could actively seek synergies, including possibilities for funding, with relevant national / regional research and innovation programmes and/or cumulative funding with European Structural and Investment Funds in connection with smart specialisation strategies. Exploitation plans, outline financial arrangements and any follow-up should be developed during the project.

A dedicated work package should address the transferability of the developed technologies within the sector and possibly to other sectors.

Activities are intended to start at Technology Readiness Levels 4-5 and target Technology Readiness Level 6-7; and are expected to be led by industries involving research partners and technology providers.

*The Commission considers that proposals requesting a contribution from the EU around EUR 5 - 10 million and with a duration of up to five years would allow this specific challenge to be addressed appropriately.*

Expected impact:

- Economically viable solutions and technologies allowing an ambitious reduction in specific GHG emission intensity of at least 35%, with respect to the best available techniques currently installed[1].
- The transferability of the solutions and technologies within the sector and possibly to other sectors should be assessed.
- Reducing the compliance costs of the EU ETS and making EU industry more competitive while avoiding any unwanted distortions between Member States.
- Boosting Europe's industrial leadership in advanced manufacturing and processing and fostering employment and opening new market opportunities in this field.

Type of action: Innovation Actions (50% funding exceptionally).

## **NMP-02-2015: Integration of novel nano materials into existing production lines (Innovation Actions)**

**Deadline:** 26.03.2015

Specific challenge: Nanomaterials are intended to improve the performance of existing production technologies, and to give new functionalities to products, such as lightweight solutions for transportation and construction, enhanced properties for packaging materials and processes, decreased wear and friction of yarns, enhanced electrical performance and reliability and high-performance thermal insulation and UV shielding fibrous materials (e.g. hollow fibres). However, such new nanomaterials need to be introduced into production and the correct controlled conditions need to be created and maintained in industrial processes.

Scope: Development and demonstration in operational environments; the integration of technologies and processing for using novel nanomaterials in production; to improve the control and monitoring of the conditions required for the use of nanomaterials in industrial processes; to increase the level of robustness and repeatability of such industrial processes; to optimize and evaluate the increased performances of the production lines in terms of productivity and cost-effectiveness; to assess the functionality and performance of the produced component/product.

For this topic, proposals should include an outline of the initial exploitation and business plans, which will be developed further in the proposed project.

Wherever possible, proposers could actively seek synergies, including possibilities for funding, with relevant national / regional research and innovation programmes and/or cumulative funding with European Structural and Investment Funds in connection with smart specialisation strategies. For this purpose the tools provided by the Smart Specialization Platform, Eye@RIS3 may be useful[1]. The initial exploitation and business plans will address such synergies and/or additional funding. Exploitation plans, outline financial arrangements and any follow-up will be developed further during the project. The results of these activities as well as the envisaged further activities in this respect should be described in the final report of the project.

The implementation of this proposal is intended to start at TRL 5-6, target TRL 7, Implemented as cross-KET activities.

*The Commission considers that proposals requesting a contribution from the EU between EUR 5 and 8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

- Accelerated market uptake of nanomaterials and products in one or more of the following sectors: fibre, yarn and textile; biomedical products, packaging products; energy; construction and building; and transportation. This non-exhaustive list does not preclude submission and selection of proposals addressing other sectors.

- Improvement in existing manufacturing processes and equipment through integration of nano materials, demonstrating better resource efficiency, safety, sustainability and recyclability of a wide variety of components and final products.
- Improvement in technical knowledge on the integrated manufacturing processes for nanomaterials in terms of productivity and cost-effectiveness.
- Contribution to development of business plans that encourage private sector investment for future business growth.
- Promoting safe-by-design approaches in collaboration with the EU nano-safety cluster and contributing towards the framework of EU nanosafety and regulatory strategies[1].

Type of action: Innovation Actions

[1] EU Nano-safety strategy 2015-2020 and NanoReg project

## **NMP-14-2015: ERA-NET on Materials (including Materials for Energy) (ERA-NET (COFUND))**

**Deadline:** 26.03.2015

Specific challenge: Maintaining Europe's position in research related to materials science and engineering requires concentrated action on common European research priorities in view of implementing joint initiatives. The Materials Roadmap Enabling Low Carbon Energy Technologies (SEC (2011)1609) was recently published in the context of the Strategic Energy Technology (SET) Plan. A strategic and industrial relevant approach to implement this roadmap needs to cover the entire research and innovation chain by pooling national research and innovation capacities, thereby mobilising European infrastructure networks as well as promoting education and training in materials research and innovation.

Scope: The proposed ERA-NET aims at coordinating the research efforts of the participating Member States, Associated States and Regions in the field of materials, continuing the activities started by M-ERA.NET, for materials research and innovation, especially enabling low carbon energy technologies, and to implement a joint transnational call for proposals (resulting in grants to third parties) with EU co-funding to fund multinational innovative research initiatives in this domain.

*The Commission considers that proposals requesting a contribution from the EU of EUR 10 million would allow this specific challenge to be addressed appropriately. At least 50% of this amount should be used for implementing the Materials Roadmap Enabling Low Carbon Energy Technologies. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

- Synergies and coherence in key fields of industrial materials research at national and regional level;
- Implementation of relevant parts of the Materials Roadmap Enabling Low Carbon Energy Technologies (SEC(2011)1609), and relevant objectives of the SET-Plan (COM (2009)519).

Type of action: ERA-NET (COFUND).



## **NMP-22-2015: Fibre-based materials for non-clothing applications (Innovation Actions)**

**Deadline Stage 1: 26.03.2015**

**Deadline Stage 2: 8.09.2015**

Specific challenge: New approaches to improve the functionality of materials are important for the sustainable development of Europe's competitiveness. Fibre-based materials for technical, high -value, high -performance products at reasonable prices, with improved safety and functionality, represent a challenge for materials science and engineering.

Scope: Proposals should aim to develop engineered fibre-based materials for novel, smart, high-value and high-performance non-clothing parts and products for technical and industrial use. New approaches and production technologies will enable a broader spectrum of industrial applications, taking into account, as appropriate, issues of sustainability, recycling, safety, energy, and self-cleaning or other functionalities. Portable final products may also be considered.

In order to ensure the industrial relevance of the research, the cost effectiveness and commercial potential of the innovative technologies compared to state-of-the-art solutions currently available on the market should be quantitatively monitored during the project. A market estimate should be outlined in proposals and developed in projects, with recommendations for future industrial uptake.

Proof of concept in terms of product and/or process must be delivered within the project, excluding commercially usable prototypes, but convincingly demonstrating scalability towards industrial needs. Dedicated multiscale modelling and characterisation, and standardisation or the production of (certified) reference materials may also be addressed.

For this topic, proposals should include an outline of the initial exploitation and business plans, which will be developed further in the proposed project. (NEW)

Activities expected to focus on Technology Readiness Level 5-6.

*The Commission considers that proposals requesting a contribution from the EU between EUR 6 and 8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

- Increase in competitiveness and sustainability of European multiple sectors industry through innovative high value products and manufacturing processes;
- Employment and training through engagement in cutting edge technologies in various sectors, e.g. transport, construction, sport and leisure etc.

Type of action: Innovation Actions

## BIOTEC-6-2015: Metagenomics as innovation driver (Research & Innovation Actions)

Deadline Stage 1: 26.03.2015 (NEW)

Deadline Stage 2: 08.09.2015 (NEW)

Specific challenge: Metagenomics has the potential to provide unprecedented insight into the form and function of heterogeneous communities of microorganisms and their vast biodiversity, without the need for isolation and lab culture of particular organisms. Microbial communities affect human and animal health, support the growth of plants, are critical components of all terrestrial and aquatic ecosystems and can be exploited to produce fuels or chemicals. However, in order to expand their potential further, the metagenomic methodologies need to overcome a number of challenges such as those related mainly to standardisation of experimental design, screening, sequencing technologies and bioinformatics relevant techniques.

### Scope:

Proposals should address the development of technologies that form the metagenomic toolkit to guide future developments in the field with view to enable metagenomic approaches responding to societal and industrial needs. Similarly, epigenetic modifications and the RNA and protein data (e.g. on cell-cell level) could be addressed to elucidate functional dynamics of communities of microorganisms. Activities will span between Technology Readiness Levels 3 and 5.

*The Commission considers that proposals requesting a contribution from the EU between EUR 6 and 10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

### Expected impact:

- Metagenomic methodologies to enabling enhanced understanding of communities of living organisms and empower agricultural, industrial, medical and other applications. This should bring significant and measurable improvements in productivity, yields, quality and functionality, as well as reduction of costs for the end-users.
- Reduced time-to-market thus strengthening competitiveness of European industry and SMEs.
- Identification of, for instance, human drug targets, commercially useful traits in agricultural plants, genes in microorganisms with industrial applications or unravelling pathogens, as well insights into microbial biodiversity for environmental applications.
- Contribution to the standardisation work in the field at European and international level.

Type of action: Research & Innovation Actions

## **FoF-12-2015: Industrial technologies for advanced joining and assembly processes for multi-materials (Innovation Actions)**

**Deadline: 04.02.2015 (NEW)**

Specific challenge: Multi-material design of components and structures provides an opportunity to develop products which are able to operate under more exigent requests demanded by market and society such as increased strength-to-weight ratio, multi-functionality, highly aggressive environments and low carbon footprint. By smart use of adequate joining technologies, and the incorporation of multi-material design into the assembly chain, the final product performance can be improved. This is particularly relevant when high cost, scarce or hazardous materials are involved.

Scope:

Traditional joining leads to loss of the performance that materials offer in their final product, because of modifications in composition and properties or geometric distortion. Improved, new or hybrid joining and assembly processes are therefore needed to be developed for specific combinations of designs and materials, in combination with flexible and automated non-destructive inspection technologies, in order to overcome the mentioned limitations. Technologies to be addressed can be welding processes, bonding using adhesives, mechanical joining or any other joining process. The novel joining integration capabilities will feature a high degree of process automation and quality control and they will make use of sustainable manufacturing practises. Assembly and disassembly efficiency, product quality, recycling and cost targets will also be considered. While the focus will be on demonstrating the technologies, R&D activities supporting the integration and scale-up are expected as well.

Demonstration activities should focus on all of the following priorities:

- Joining and assembly processes that will lead to improved performance of the joints for real operating conditions, and facilitate recycling, based on a deep understanding of the cause-effect relationships as well as of materials process interactions.
- The implementation of numerical simulation techniques, including computational multi-scale modelling, which will lead to a better understanding of the considered joining processes as well as product development along all its different phases.
- The development of high efficient, cost-effective and flexible surface condition solutions (e.g. surface modification, thermal treatments, gap avoidance) to provide joints with the maximum performance.
- The implementation and set up of reliable, efficient and automated non-destructive inspection techniques for joint quality evaluation, together with in-situ monitoring and control systems for critical variables of the joining operations that will guarantee reliable, robust and safe production conditions in industrial environments.

At least one prototype or pilot implementation in pre-industrial settings aiming at demonstrating the scalability should be delivered before the end of the project as a proof of concept.

For this topic, proposals should include an outline of the initial exploitation and business plans, which will be developed further in the proposed project.

Wherever possible, proposers could actively seek synergies, including possibilities for funding, with relevant national / regional research and innovation programmes and/or cumulative funding with European Structural and Investment Funds in connection with smart specialisation strategies. For this purpose the tools provided by the Smart Specialization Platform, Eye@RIS3 may be useful[1]. The initial exploitation and business plans will address such synergies and/or additional funding. Exploitation plans, outline financial arrangements and any follow-up will be developed further during the project. The results of these activities as well as the envisaged further activities in this respect should be described in the final report of the project.

Activities expected to focus on Technology Readiness Level 5-7. A significant participation of SMEs with R&D capabilities is encouraged.

*The Commission considers that proposals requesting a contribution from the EU between EUR 4 and 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

Application of multi-material design to products through the developed joining and assembly processes will bring:

- At least 20% decrease in the consumption of high cost and critical materials.
- At least 30% improvement of the product performance, without increasing the final price.
- A higher level of automation and lower production times compared to current technologies.

Type of action: Innovation Actions.

**FoF-13-2015: Re-use and remanufacturing technologies and equipment for sustainable product lifecycle management (Research & Innovation Actions)**

**Deadline: 04.02.2015 (NEW)**

Specific challenge: In order to increase the competitiveness of EU industry and reduce the environmental footprint, manufacturing industries should develop innovative technologies and approaches to manufacture added-value products with fewer resources and to ensure a sustainable product life cycle based on reuse and re-manufacturing methods and technologies.

Innovative product recovery approaches would need to be developed in order to extract useful components from obsolete or malfunctioning modules, to re-use useful functions and/or materials for new products or to extend their lifespan. This will help save time, money, energy, and resources.

Modern high-tech products adopted in the electronics, medical and energy industries are made of advanced materials that are at present poorly recovered and reused. Such materials with low substitutability and low recycling rates include advanced materials such as long and short fibre composites, nano-materials and bio-materials as well as more conventional materials that are today not considered for re-use due to absence of data on reprocessed performance.

This unsustainable scenario requires systemic solutions which are involving all relevant actors in the supply chain. On the one side, there is the need for new product design approaches (including end-of-life options, re-use and re-manufacturing aspects) with development of the built-in product 'smartness' (for ageing monitoring) and modularity (for improved reuse). On the other side, new re-/de-manufacturing processes with improved resource efficiency, or processes more tolerant to substitute materials are required.

Scope:

Research activities should be multi-disciplinary and address all of the following areas:

- Eco-innovative approaches for product design which are capable to take into account re-use and re-manufacturing aspects for enhanced product recovery and spare parts/services support.
- New manufacturing and equipment concepts for re-use and re-manufacturing, with improved resource efficiency and service lifetime.
- New technologies and automation solutions for the effective disassembly/separation and recovery of advanced materials.
- Generation and validation of new business models to improve economic viability of closed-loop life cycles which make use of the systemic approaches for product life-cycle management.

For this topic, proposals should include an outline of the initial exploitation and business plans, which will be developed further in the proposed project.

Activities expected to focus on Technology Readiness Levels 4-6.

This topic is particularly suitable for collaboration at international level, particularly under the IMS scheme.[1] Project partnerships that include independent organisations from IMS regions[2] are therefore encouraged. For a project to get the IMS label it must include independent organisations from at least two different IMS regions.

*The Commission considers that proposals requesting a contribution from the EU between EUR 3 and 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

The impact on the areas of application of the projects is expected to be:

- A significant reduction of energy consumption in manufacturing activities by 2020.
- A significant reduction in non-renewable materials through a combination of substitution, reuse, remanufacture and recycling of materials.
- Reduction of minimum 20% in greenhouse gases emissions from manufacturing activities.
- Reduction of waste generation by 10% minimum.
- Enabling the manufacturing of eco-products.
- Increase of above 20% in productivity rates.
- Clear illustration of possibilities for new safe and sustainable jobs creation.

Type of action: Research & Innovation Actions

[1] IMS (Intelligent Manufacturing Systems) is an industry-led, global, collaborative research and development programme, started in 1995 as the world's only multilateral collaborative R&D framework: [www.ims.org](http://www.ims.org)

[2] The current member regions of IMS are the European Union, the United States of America, Mexico and the EFTA state of Norway

## **EeB-05-2015: Innovative design tools for refurbishing of buildings at district level (Innovation Actions)**

**Deadline:** 04.02.2015 (NEW)

Specific challenge: The development of sustainable solutions for refurbishment of buildings and their proper integration at district level requires major innovations in the design tools, construction methods and management practices, including socio-economic aspects and innovative financing instruments.

Buildings should no longer be renovated individually, but as part of a global energy system, where their interactions with their environment can be predicted and simulated, as well as taking into account interactions with inhabitants and customers. Design tools should also support the evaluation of different retrofitting alternatives.

A challenge is to ensure the interoperability between tools from various domains and at different scales. But more importantly, knowledge collection and management in the fields of refurbishment issues should be developed and implemented in order to propose solutions adapted to collaborative multi-disciplinary refurbishing work.

Scope: Research activities should be focused on design at buildings and district level, taking into account the adjacent systems such as district heating/cooling and decentralised thermal energy generation and other interactions with the neighbourhood, giving priority to local renewable resources. Projects should promote and set up an integrated approach in support of innovation, by providing actors with holistic methods and tools. Energy efficiency technologies should become elements of design databases that allow stakeholder to select the most suitable approach for performance improving, taking full advantage of geo-clustered data sets. The design phases linked to the retrofitting of existing buildings taking into account subsequent operation and maintenance will be considered as priority. In this respect, there is a need for further research on operational information that can be used in design models. Knowledge based design can also be used to provide input into management systems.

Projects should also cover validation actions on a technical level, which apply the tools on refurbishment projects; and on a societal level, i.e. validation with the occupants of the building. For the latter, involvement of organisations within an Integrated Project Delivery Approach, supporting a participatory design approach, could be an asset.

For this topic, proposals should include an outline of the initial exploitation and business plans. Wherever possible, proposers could actively seek synergies, including possibilities for cumulative funding, with relevant national / regional research and innovation programmes and/or European Structural and Investment Funds in connection with smart specialisation strategies. Exploitation plans, outline financial arrangements and any follow-up should be developed during the project.

Activities expected to focus on Technology Readiness Level 5-7. A significant participation of SMEs with R&D capacities is encouraged.

*The Commission considers that proposals requesting a contribution from the EU between EUR 4 and 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

- More effective refurbishment at building and district level.
- Optimised design of integrated energy-efficient buildings, considering the different physical dimensions in a coupled and holistic way (energy, comfort, air quality, acoustics etc.), enabling actors to take validated and quantified choices for the refurbishment at building and district level on the basis of quantified performance objectives with compliance with regulation and user-oriented comfort expectations and constraints .

Type of action: Innovation Actions.



## EeB-06-2015: Integrated solutions of thermal energy storage for building applications (Research & Innovation Actions)

**Deadline:** 04.02.2015 (NEW)

Specific challenge: Storage plays a pivotal role in synchronising energy demand and supply, both on a short and long term (seasonal) basis. Transformation of our existing building stock towards very low energy buildings and nearly zero energy and Plus-energy buildings requires effective integration and full use of the potential yield of renewable energy. Thermal storage is a key priority to make such a step, particularly considering the energy renovation of the existing stock, where compact building level solutions are required.

Scope: Proposals should address advanced solutions required to reduce thermal losses, reduce pressure drops, and improve heat exchange in and between storage material and heat carrier. Having in mind a system approach, innovations are required at different levels. High energy density storage materials are needed in terms of long term multi-cyclic stability at tuneable temperature levels. These advanced energy storage materials should allow regeneration temperatures in a range below 100°C to enable a higher efficiency and effectiveness of thermal energy storage of at least 6 times the energy storage density of water. Furthermore, an additional innovation may concern storage reactor components, in particular the heat exchanger. With respect to the entire storage system, advanced energy management is needed, including smart algorithms for (dis)charging at different temperatures, and simple and robust control equipment. These storage solutions should be enabled by material innovations that are safe and environmentally friendly.

Small scale demonstration of the technical (with compactness as a crucial boundary condition) and economic feasibility of such storage systems at the level of components and systems in relation to space heating and cooling and/or domestic hot water systems of a single building are expected, validating a systemic approach in system integration and scalability in near real life operating conditions.

Activities expected to focus on Technology Readiness Levels 4-6.

*The Commission considers that proposals requesting a contribution from the EU between EUR 3 and 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

- Provide advanced thermal energy storage solutions.
- Demonstrate solutions that have a stable long term performance in multi-cyclic seasonal use of at least 20 years.
- Validate in the case of pumpable energy storage materials, an energy density comparable to the best solid-gas systems.
- Deliver compact systems with the potential to fit in the limited space available in a single building in the existing housing stock. The storage material volume per dwelling should not exceed 2.5 m<sup>3</sup>.

- Solutions should demonstrate a potential to reduce the net energy consumption of a building by at least 15% and a have return-on-investment period below 10 years.

Type of action: Research & Innovation Actions

## **EeB-08-2015: Integrated approach to retrofitting of residential buildings (Innovation Actions)**

**Deadline:** 04.02.2015 (NEW)

Specific challenge: Europe is facing the challenge of deep rehabilitation of residential buildings (including buildings of historic value) while lowering the costs of refurbishment. Nowadays at the scale of Europe, fossil energy is mainly used in residential buildings for two usages which are space heating and Domestic Hot Water production. Such a large building stock needs innovative, efficient and cost-effective retrofitting solutions to meet the planned net-zero energy standards. Moreover, due to the current economic crisis investment capability in building retrofitting is limited and public incentives tend to decrease. Breakthrough solutions are, therefore, needed which combine affordability along the whole life cycle, reduced maintenance and higher performance reliability with reduced energy use.

Scope: Systemic approaches need to be developed which integrate the most promising cost-effective technologies and materials. The solutions could include, for example, energy use through innovative heat pump systems; combination of renewable energy sources at building level; exploitation of heat recovery for water and air as well as ICT, enabling to adapt the system to the end-user behaviour without losing control of the global efficiency of the system.

In combination and synergy with the efforts addressing envelope improvements to reduce drastically the buildings heat needs, a systemic approach related to space heating and Domestic Hot Water (DHW) needs to be developed, having in mind that in the coming years DWH is going to be the first thermal need in residential buildings. The risk of overheating should be also analysed together with the whole renovation solution.

The district scale, as well as the interactions between the buildings and the thermal and electrical energy networks (i.e. impact on the energy demand) should be taken into account. Innovative solutions with a high degree of flexibility with regard to the grid are required by realising the full potential of ICT and control system solutions. The integration of (compact) thermal energy storage should play a pivotal role as moving the demand from peak periods to other ones or yielding the full potential of renewable. The approach should be based on a methodology incorporating modelling, simulation, virtual reality, with the aim of identifying the optimal cost-effective solutions. Standardisation issues to facilitate integration of system components should be addressed.

Energy efficiency should be addressed by proper system integration and installation, e.g. through synergy between technologies which have already been proven at a small scale and need a larger scale demonstration.

Financial models should be validated too, in order to ensure the feasibility of the replication of deep energy efficiency rehabilitation of residential buildings in Europe, where the current economic crisis originates important socio-economic barriers.

A high replication potential is necessary while taking into account the supply chain issues. At least two demonstration sites should be considered in two different climatic conditions in order to ensure that the

technologies are as widely applicable as possible. The impact at district level should be taken into account when defining the overall approach and should be reflected in the selection of the demonstrators.

In addition, to ensure appropriateness of business models, the participation of building owners (private or public organisations) is recommended. User involvement in renovation processes will require special attention, in particular when a deep retrofitting is required. Social and behavioural aspects are critical factors for project success. In parallel, new low intrusive techniques and the utilization of tools and technologies that speed up construction processes with high quality standards are welcome.

For this topic, proposals should include an outline of the initial exploitation and business plans. Wherever possible, proposers could actively seek synergies, including possibilities for cumulative funding, with relevant national / regional research and innovation programmes and/or European Structural and Investment Funds in connection with smart specialisation strategies. Exploitation plans, outline financial arrangements and any follow-up should be developed during the project.

Activities expected to focus on Technology Readiness Level 5-7. A significant participation of SMEs with R&D capacities is encouraged.

*The Commission considers that proposals requesting a contribution from the EU between EUR 4 and 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

- Demonstrate innovative retrofitting solutions as real cases approaching net zero energy standards.
- Reduction of at least 60% in energy consumption compared to the values before renovation while ensuring affordability.
- Demonstrate a high replicability potential.
- Return on investment should be below 7 years in the case of deep retrofitting.
- Advent of a new generation of skilled workers and SME contractors in the construction sector aware of the need of a systemic approach towards energy efficiency should be promoted through the proposed activities.

Type of action: Innovation Actions.

## **SPIRE-06-2015: Energy and resource management systems for improved efficiency in the process industries (Research & Innovation Actions)**

**Deadline: 04.02.2015 (NEW)**

Specific challenge: manufacturing sustainability has been improved considerably in environmental, economic and social terms, by sharing resources (e.g. plants, energy, water, residues and recycled materials) through the integration of multiple production units of a single company or multiple companies on a single industrial production site. Nevertheless, a more general cross-sectorial interaction is needed for a major impact within the process industry. This could take a long time to achieve and the aim is to pave the way for future cross-sectorial interactions and potentialities in the development of holistic measurements and activities.

Currently, poor understanding of each other's processes is hindering the development of technical and non-technical interactions and exchanges, which are necessary for industry to properly face the challenges.

Scope: Projects should enable the implementation of a broad variety of technologies, encompassing a wide range of disciplines, such as fundamental science, and plant engineering and management. The integration into a single management system of all these environmental, energy and economic factors is key for the improvement in efficiency of the process industries.

The proposed research should focus on the following areas:

- Analysis and optimisation tools for flexible energy use and material flow integration should be developed, aiming at a holistic approach for resource management in process industries, suitable both for small and large scale in a flexible approach. To facilitate a proper dissemination and use, it is expected that standards-based software for measuring critical footprint issues and relevant data used into the daily routine of the plants/clusters will be developed.
- Rapid transfer from lab-scale and conceptual design into testing at demonstration sites, using realistic industrial streams and process conditions. Pilot tests should focus on integrated solutions and tools adapted to the specific conditions in real production units. This will facilitate future industrial symbiosis between different sectors, by integrating energy and material flows within existing industrial parks.
- New approaches that perform cost-saving optimisation of energy and resources supply and demand, in order to reduce the residues and costs in intensive industries, taking into consideration both economical and sustainability constraints.

Prototypes and pilot implementations in real industrial settings represent a clear added-value.

For this topic, proposals should include an outline of the initial exploitation and business plans, which will be developed further in the proposal project. **NEW**

Activities expected to focus on Technology Readiness Levels 4-6. A significant participation of SMEs with R&D capacities is encouraged.

*The Commission considers that proposals requesting a contribution from the EU between EUR 3 and 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact:

- Holistic energy and resource management systems should facilitate significant gains in sustainable processing with regard to several parameters (resource efficiency, energy efficiency and the emission performance).
- Optimisation of interdependencies and the identification of technology components allowing for a breakthrough regarding a cost effective reduction in the use of resources, which overcomes the difficult cross-company collaboration.
- Optimisation of energy and resources supply and demand in selected areas should reduce the overall costs in energy intensive industries by at least 15%, by taking into consideration both economic and sustainability factors.

Type of action: Research & Innovation Actions

## **BIO BASED INDUSTRIES PPP**

## **H2020-BBI-PPP-2014-1**

**Deadline:** 15.10.2014

By definition, all topics in this call are potentially interesting for FTP stakeholders. A separate set of documents has been established by the Joint Undertaking “Bio-based Industry consortium” and contains, *inter alia*, the current work programme, an annex and a Guide for applicants. This set is publicly available under:

<http://www.bbi-europe.eu/participate>



**Industrial Leadership**  
**H2020-INNOSUP-2014-2015 (NEW)**

## **INNOSUP-4-2014: European label for innovation voucher programmes (Coordination and support action)**

**Deadline: 29.10.2014**

Specific challenge: Innovation voucher programmes are well established support instruments for SMEs in many countries and regions in Europe. In a general way innovation voucher schemes can be characterised as small, lump-sum grants (typically below EUR 10.000) that support SMEs to contract universities, R&D service providers or private consultants to either conduct small innovation projects or to explore the feasibility of larger ones. In most innovation voucher schemes the innovation agency that has issued the voucher pays the invoice of a service provider after the SME has received the requested service. Innovation vouchers are used to establish an initial contact between knowledge institutions and SMEs and have proven to be a successful instrument to support the spin-in of technology and knowledge into SMEs' business practice. Most innovation voucher schemes are however limited to beneficiaries and service providers from a limited geographic area, which limits the possibility for transnational activities. Furthermore, the diversity of designs of voucher schemes sets barriers to cooperation between schemes.

In the 'Riga-Declaration'[1] managers of innovation voucher programmes in the Member States have given recommendations for exploiting the full potential of innovation voucher programmes. Amongst other, the potential role of the European level, is described as follows:

*"5. Innovation vouchers schemes should be implemented at local, regional and national level, thus fully taking into account the subsidiarity principle. The European level is encouraged to develop with national and regional entities a voluntary collaboration and brokerage framework for innovation voucher programmes that aims at making excellent knowledge, skills and innovation support services from both public and private service providers across Europe more effectively accessible for SMEs."*

The proposed action aims at establishing such a voluntary cooperation framework with the objective to achieve among participating schemes an automatic recognition of foreign European service providers at equal conditions to the national ones.

Scope: The proposed activities will assist the development of a European label for innovation voucher programmes that treat foreign European service providers equally to national ones. The systems to manage and award the label might provide services to participating managing entities of innovation voucher programmes which enhance the quality of delivery or manage the higher risks resulting from international opening of the schemes. Financial incentives, for example co-funding a limited number of initial transnational cooperation projects with knowledge institutions, might be provided within the limits set for the provisions of financial support to third parties in line with the conditions set out in part K of the General Annexes.

The Commission considers that a proposal requesting a contribution from the EU of around EUR 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting another amount.

Expected impact:

- The action shall establish a European label for innovation voucher programmes that provides an open cooperation framework for the programmes established at local, regional and national level.
- Participating programmes shall, as a minimum requirement, commit to treat foreign European service providers equal to those domestic ones and aim at a minimum of 5% of innovation vouchers used for cooperation outside the home country.
- Increase the range and quality of services available to SMEs,
- Enhance the opportunities of excellent researchers and other specialists to transfer their knowledge transnationally and accelerate the spin-in of technologies and knowledge.

Type of action: Coordination and support action

[1] See for example [http://www.innovation.lv/ino2/publications/Riga\\_declaration.pdf](http://www.innovation.lv/ino2/publications/Riga_declaration.pdf)

## **INNOSUP-6-2015: Capitalising the full potential of online collaboration for SME innovation (Coordination and support action)**

**Deadline: 10.03.2015**

Specific challenge: Identifying suitable partners for innovation activities is recognised as a major barrier to SME innovation. Innovation support services are addressing this challenge traditionally by two interventions that are often combined: (a) the provision of networking space for personal meetings either as one-off meeting ('brokerage events') or as more stable networks ('clusters') often with a limited geographic reach; and (b) the definition of 'cooperation profiles' ('technology offers', 'partner search profile' etc.) that are distributed through networks of intermediaries. To a different degree intermediaries become active in establishing the partnership ('brokerage'). Social media and other web-based services challenge these existing approaches and ask for their revision.

The British 'connect' platform is the first publicly financed innovation platform on the web that creates a protected space for companies to display their competences, interest and skills, to reach out to a large number of peers, to make them personal contacts and to engage them in initial cooperation. Commercial offers like 'linked in' or various crowdsourcing platforms offer important elements while not regarding themselves as innovation platforms for SMEs.

However, it becomes evident that only a small number of enterprises using the platform have already the skills to draw full benefits from the opportunities. Most establish contacts on the platform – which effectively eliminates the 'brokerage function' that is so far provided by many intermediaries – but are unable to maintain the group of contacts or to draw on their skills in the preparation of innovation projects. In that respect they could benefit from a new generation of support services that assist to create value from online collaboration with a group of contacts and potential partners ("assistance to online collaboration for innovation")

So far staff in innovation agencies has hardly skills to assist their clients to establish collaborations on web platforms and no profile of skills has been defined. Commercial offers by crowdsourcing platforms remain effectively unaffordable for SMEs or face difficulties to scale up their offers and reach a critical mass of the community.

Scope: To address the described gaps proposals should address one or more of the following aspects:

- develop and test new service designs for 'assistance to online collaboration for innovation' for SMEs in diverse sectors;
- make such new services accessible for enterprises in sectors that are typically not yet benefitting from innovation support;
- develop and test a qualification profile, curriculum and training courses for staff currently providing brokerage services in established networks or SME agencies.

Service designs and qualification profiles shall be formulated independently from a particular collaboration or social media platform. Tests of services shall be undertaken on platforms that are open and bring together

already a critical mass of enterprises and innovation stakeholders. Establishing such platforms will not be supported.

The nature of the topic – online collaboration – suggests that the training modules are established as web-based self- or collaborative learning modules that are supported by case studies in the form of videos. The qualification profiles and training modules shall be published under a creative commons license.

Projects proposing new service designs for ‘assistance to online collaboration for innovation’ should indicate on which platform(s) the new service would be tested and in how far the newly developed service could be scaled-up.

It is intended to support 2-3 projects from the indicative budget.

Expected impact:

- New services assisting online collaboration for innovation help SMEs to access a broader range of potential innovation partners and mobilise them in a timely manner for concrete projects.
- The qualification profile and training material are made available to SME innovation support agencies interested in enhancing the skills of their staff.
- The efficiency of innovation support service provision - for example but not limited to the services of Enterprise Europe Network – is enhanced.
- Resources in public innovation support are reoriented from information and brokerage functions – which can to a large extent be automated – to higher value added functions like the identification of opportunities and the animation of project development.

Type of action: Coordination and support action

## **INNOSUP-7-2015: Professionalization of open innovation management in SMEs (Coordination and support action)**

**Deadline: 29.04.2015**

Specific challenge: Current research on open innovation has not taken into account the extent and creativity of SMEs in designing and implementing open innovation strategies. The lessons learned from open innovation come from large firms and are not readily transferable to the context of SMEs. While open innovation in large firms does not affect its strategic objectives, in the case of SMEs, it alters the strategic orientation of the company and requires a comprehensive overhaul of the firm's strategy. If implemented correctly, the benefits for an SME can be very important, for instance in the fields of technology transfer, capital raising, resource optimisation or networking (Vanhaverbeke et al., 2012). An urgent need exists, therefore, to study how collaboration and/or open innovation is managed and organised in SMEs.

Open innovation can be an important lever for growth for SMEs. It is important to investigate the size-related challenges and the required competencies and put them in an SME context and develop promising practices. Scattered local initiatives supporting open innovation in SMEs exist. Awareness of these initiatives should be expanded and the services supporting them professionalised.

At the same time financial and management reporting need to catch up with the logic of open innovation. For an entrepreneur comprehensive data and performance indicators would allow drawing conclusions whether open innovation is productive and should be continued or suspended.

Scope: This activity will consist of the following elements:

- **Collection and analysis of information and data** on the application of open innovation in SMEs, taking into account different situations in Member States and in specific market segments. Identification of case-study examples and analysis of how these practices are organised and managed both in high-tech and low-tech industries. Publication and further dissemination of an annual report on the use of open innovation by SMEs in selected economic sectors.
- **EU-wide diffusion of success stories of SMEs using open innovation.** Open innovation support schemes are currently implemented locally. Their scale and outreach is too small to invest significantly in developing content and guidelines and hence they attract limited attention from the entrepreneurs. This action will promote Europe-wide case-study examples that illustrate how entrepreneurs successfully transformed their business through a network of partners. It will also illustrate how managing such a network will allow SMEs to gain competitive advantage, overcome their size and resource limitations and how open innovation can become key both for creation and appropriating value.
- **Development of practical management tools** to support and explain the identified case studies. The management modules should focus on (1) Strategy dimension, (2) Entrepreneurship skills, (3) Resource needs, (4) Tools to build trust and control and manage risk in a collaborative partnership. This will provide managers of small companies with hands-on guidelines on how to innovate and set-up innovation networks. The aim should

be to raise awareness of open innovation in SMEs by identifying best practice examples that will help the professionalisation of open innovation management Europe-wide. The action should provide recommendations on how open-innovation information provision and training should evolve over time, beyond the scope of the present activity.

**- Development and testing of open innovation indicators to support management support tools within an SME.** The developed quantitative tools should help management to make decision about the timing when to establish or end partnerships. Companies should be supported not only in partnering, but also in determining when, for how long and in which sequence partners should be drawn into the projects.

The duration of this action will be three years.

Expected impact:

- Increased collaboration of SMEs with external partners to innovate successfully.
- Open innovation will allow SMEs to sidestep the commoditisation pressure and price competition successfully by developing new and more profitable businesses through networking among innovation partners.
- Professional open innovation management by SMEs.
- Creation of an online platform to disseminate best practice examples in the business community and complementing the cases with training modules highlighting specific open innovation aspects.

Type of action: Coordination and support action

## **INNOSUP-8-2015: Measuring open innovation inputs and outputs in SMEs (Coordination and support action)**

**Deadline:** 29.04.2015

Specific challenge: Innovation occurs more and more frequently in global networks. From a policymaker's point of view this requires the development of internationally comparable indicators to better understand the concept of open innovation and its implications for innovation policy. R&D-intensive firms are increasingly reluctant to increase R&D spending, but rather seek to rationalize the process by bringing in new partners or spinning out research projects. Traditional innovation measures fail to spot these tendencies. Currently available open innovation data is also insufficient to support business operations. There is little hard evidence, based on large-scale databases, about research projects or other innovation activities where open innovation may play a crucial role. From the points of view of a policymaker, detailed and comprehensive data would allow drawing conclusions regarding the inputs into and generated outputs of open innovation to guide policy development.

Scope: The project will develop methodologies to gather, measure and analyse data on open innovation. Subsequently the project will carry out practical testing of methodologies and indicators to describe the importance and characteristics of open innovation across countries, industrial sectors, firm size and then develop recommendations for their further use. Specifically the activity will comprise the following elements:

- **Stocktaking of available open innovation indicators, indices and methodologies** (in particular those developed by the European Commission, OECD or private data). Assessment of their relevance and effectiveness for use as measures of innovation activities and innovation performance in SMEs, taking into consideration intensity and quality of collaboration.

- **Development of quantitative tools to present evidence and impact of open-innovation in SMEs.** Open innovation studies are dominated by qualitative approaches, drawing heavily on in-depth interviews and case-studies. In order to move beyond qualitative and incidental evidence, empirical measure should be developed and validated to test the relationship between business performance and open innovation in larger samples of firms.

- **Identification of policy conditions to make open innovation a reality in SMEs.** The erosion of the closed innovation system has also resulted in a larger role for SMEs in the industrial innovation system. Development of public policy guidelines that are in line with the open innovation paradigm, i.e. education and human capital development, transition of funding models towards open innovation systems, competition policy, industrial policy.

The duration of this action will be one year.

Expected impact:

- Broadening of available innovation indicators from input/ output measures to indicators that combine the quality and intensity (i.e. number of collaborative deals divided by number of employees) of the innovation cooperation.



- The activity will gather evidence base for the impact of open innovation in an SME context.
- By moving from incidental evidence to time series data a convincing case for open innovation will be verified.

Type of action: Coordination and support action

**Industrial Leadership**  
**DEDICATED SME INSTRUMENT**  
**PHASE 1 & 2 - 2014**

**NMP-25-2014-1: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs (SME Instrument)**

**Deadlines Phase 1:** 24.09.2014, 17.12.2014

**Deadlines Phase 2:** 9.10.2014, 17.12.2014

Specific challenge: Research results should be taken up by industry, harvesting the hitherto untapped potential of nanotechnologies, advanced materials and advanced manufacturing and processing technologies. The goal is to create added value by creatively combining existing research results with other necessary elements,[1] to transfer results across sectors where applicable, to accelerate innovation and eventually create profit or other benefits. The research should bring the technology and production to industrial readiness and maturity for commercialisation after the project.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

**In phase 1**, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, design, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept. The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50 000. Projects should last around 6 months.

**In phase 2**, innovation projects will be supported that address the specific challenge and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Levels of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

*The Commission considers that proposals requesting a contribution from the EU between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.*

In addition, **in phase 3**, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the commercial uptake of nanotechnologies, advanced materials and advanced production technologies in a sustainable way.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70% funding)

[1] [http://ec.europa.eu/enterprise/policies/innovation/files/swd-2012-458\\_en.pdf](http://ec.europa.eu/enterprise/policies/innovation/files/swd-2012-458_en.pdf)

### **SIE-01-2014-1: Stimulating the innovation potential of SMEs for a low carbon energy system (SME Instrument)**

**Deadlines Phase 1:** 24.09.2014, 17.12.2014

**Deadlines Phase 2:** 9.10.2014, 17.12.2014

Specific Challenge: SMEs play a crucial role in developing resource-efficient, cost-effective and affordable technology solutions to decarbonise and make more efficient the energy system in a sustainable way. They are expected to strongly contribute to all challenges outlined in the legal base of the Horizon 2020 Societal Challenge ‘Secure, Clean and Efficient Energy’[1], in particular with regard to

- Reducing energy consumption and carbon footprint by smart and sustainable use (including energy-efficient products and services as well as ‘Smart Cities and Communities’),
- Low-cost, low-carbon electricity supply (including renewable energy as well as CCS and re-use),
- Alternative fuels and mobile energy sources,
- A single, smart European electricity grid,
- New knowledge and technologies, and
- Robust decision making and public engagement.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

**In phase 1**, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept. The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50.000. Projects should last around 6 months.

**In phase 2**, innovation projects will be supported that address the specific challenges outlined in the legal base of the Horizon 2020 Societal Challenge ‘Secure, Clean and Efficient Energy’ and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation,

design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Levels of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, **in phase 3**, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the specific challenges outlined in the legal base of the Horizon 2020 Societal Challenge 'Secure, Clean and Efficient Energy' in a sustainable way.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70%)

[1] Council decision XXXX establishing the Specific Programme implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020)

### **SC5-20-2014-1: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials (SME Instrument)**

**Deadlines Phase 1:** 24.09.2014, 17.12.2014

**Deadlines Phase 2:** 9.10.2014, 17.12.2014

Specific challenge: Innovative SMEs have been recognised as being able to become the engine of the green economy and to facilitate the transition to a resource efficient, circular economy. They can play an important role in helping the EU to exit from the economic crises and in job creation. The potential of commercialising innovative solutions from SMEs is however hindered by several barriers including the absence of the proof of concept, the difficulty to access risk finance, the lack of prototyping, insufficient scale-up studies, etc. Growth therefore needs to be stimulated by increasing the levels of innovation in SMEs, covering their different innovation needs over the whole innovation cycle.

Innovative SMEs should be supported and guided to reach and accelerate their full green growth potential. This topic is targeted at all types of eco-innovative[1] SMEs in all areas addressing the climate action, environment, resource efficiency and raw materials challenge, focusing on SMEs showing a strong ambition to develop, grow and internationalise. All kinds of promising ideas, products, processes, services and business models, notably across sectors and disciplines, for commercialisation both in a business-to-business (B2B) and a business-to-customer (B2C) context, are eligible.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

**In phase 1**, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept. The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50.000. Projects should last around 6 months.

**In phase 2**, innovation projects will be supported that address the Societal Challenge 'Climate action, environment, resource efficiency and raw materials' and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation



activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Level of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, **in phase 3**, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the European Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the specific Challenge of 'Climate action, environment, resource efficiency and raw materials' in a sustainable way.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70%)

[1] [http://ec.europa.eu/environment/eco-innovation/index\\_en.htm](http://ec.europa.eu/environment/eco-innovation/index_en.htm)

**BIOTEC-5a-2014-1: SME boosting biotechnology-based industrial processes driving competitiveness and sustainability (SME Instrument)**

**Deadlines Phase 1:** 24.09.2014, 17.12.2014

**Deadlines Phase 2:** 9.10.2014, 17.12.2014

Specific challenge: The large number of SMEs which characterise the EU biotechnology sector are playing a crucial role in the move to competitive and sustainable biotechnology-based processes. These SMEs are characterised by their research intensity and long lead times between early technological development and market introduction. They therefore need to be supported to overcome the so-called “valley of death”.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

**In phase 1**, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, design, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept. The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50 000. Projects should last around 6 months.

**In phase 2**, innovation projects will be supported that address the specific challenge and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Levels of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, **in phase 3**, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the specific challenge of boosting biotechnology-based industrial processes driving competitiveness and sustainability.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70% funding)

**Industrial Leadership**  
**DEDICATED SME INSTRUMENT**  
**PHASE 1 & 2 - 2015**

## **SC5-20-2015: Boosting the potential of small businesses for eco-innovation and a sustainable supply of raw materials (SME Instrument)**

**Deadlines Phases 1 & 2: 18.03.2015, 17.06.2015, 17.09.2015, 16.12.2015**

Specific challenge: Innovative SMEs have been recognised as being able to become the engine of the green economy and to facilitate the transition to a resource efficient, circular economy. They can play an important role in helping the EU to exit from the economic crises and in job creation. The potential of commercialising innovative solutions from SMEs is however hindered by several barriers including the absence of the proof of concept, the difficulty to access risk finance, the lack of prototyping, insufficient scale-up studies, etc. Growth therefore needs to be stimulated by increasing the levels of innovation in SMEs, covering their different innovation needs over the whole innovation cycle.

Innovative SMEs should be supported and guided to reach and accelerate their full green growth potential. This topic is targeted at all types of eco-innovative[1] SMEs in all areas addressing the climate action, environment, resource efficiency and raw materials challenge, focusing on SMEs showing a strong ambition to develop, grow and internationalise. All kinds of promising ideas, products, processes, services and business models, notably across sectors and disciplines, for commercialisation both in a business-to-business (B2B) and a business-to-customer (B2C) context, are eligible.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

**In phase 1**, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept. The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50.000. Projects should last around 6 months.

**In phase 2**, innovation projects will be supported that address the Societal Challenge 'Climate action, environment, resource efficiency and raw materials' and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market

replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Level of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, in **phase 3**, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the European Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the specific Challenge of 'Climate action, environment, resource efficiency and raw materials' in a sustainable way.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70%)

## **SIE-01-2015: Stimulating the innovation potential of SMEs for a low carbon energy system (SME Instrument)**

**Deadlines Phases 1 & 2: 18.03.2015, 17.06.2015, 17.09.2015, 16.12.2015**

Specific Challenge: SMEs play a crucial role in developing resource-efficient, cost-effective and affordable technology solutions to decarbonise and make more efficient the energy system in a sustainable way. They are expected to strongly contribute to all challenges outlined in the legal base of the Horizon 2020 Societal Challenge ‘Secure, Clean and Efficient Energy’[1], in particular with regard to

- Reducing energy consumption and carbon footprint by smart and sustainable use (including energy-efficient products and services as well as ‘Smart Cities and Communities’),
- Low-cost, low-carbon electricity supply (including renewable energy as well as CCS and re-use),
- Alternative fuels and mobile energy sources,
- A single, smart European electricity grid,
- New knowledge and technologies, and
- Robust decision making and public engagement.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

**In phase 1**, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept.

The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50.000. Projects should last around 6 months.

**In phase 2**, innovation projects will be supported that address the specific challenges outlined in the legal base of the Horizon 2020 Societal Challenge ‘Secure, Clean and Efficient Energy’ and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research. For technological



innovation a Technology Readiness Levels of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, **in phase 3**, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the specific challenges outlined in the legal base of the Horizon 2020 Societal Challenge 'Secure, Clean and Efficient Energy' in a sustainable way.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70%)

[1] Council decision XXXX establishing the Specific Programme implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020)

**NMP-25-2015: Accelerating the uptake of nanotechnologies, advanced materials or advanced manufacturing and processing technologies by SMEs (SME Instrument)**

**Deadlines Phases 1 & 2: 18.03.2015, 17.06.2015, 17.09.2015, 16.12.2015**

Specific challenge: Research results should be taken up by industry, harvesting the hitherto untapped potential of nanotechnologies, advanced materials and advanced manufacturing and processing technologies. The goal is to create added value by creatively combining existing research results with other necessary elements,[1] to transfer results across sectors where applicable, to accelerate innovation and eventually create profit or other benefits. The research should bring the technology and production to industrial readiness and maturity for commercialisation after the project.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

**In phase 1**, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, design, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept. The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50 000. Projects should last around 6 months.

**In phase 2**, innovation projects will be supported that address the specific challenge and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Levels of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, **in phase 3**, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the commercial uptake of nanotechnologies, advanced materials and advanced production technologies in a sustainable way.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70% funding)

[1] [http://ec.europa.eu/enterprise/policies/innovation/files/swd-2012-458\\_en.pdf](http://ec.europa.eu/enterprise/policies/innovation/files/swd-2012-458_en.pdf)

## **BIOTEC-5b-2015: SME boosting biotechnology-based industrial processes driving competitiveness and sustainability (SME Instrument)**

**Deadlines Phases 1 & 2: 18.03.2015, 17.06.2015, 17.09.2015, 16.12.2015**

Specific challenge: The large number of SMEs which characterise the EU biotechnology sector are playing a crucial role in the move to competitive and sustainable biotechnology-based processes. These SMEs are characterised by their research intensity and long lead times between early technological development and market introduction. They therefore need to be supported to overcome the so-called “valley of death”.

Scope: The SME instrument consists of three separate phases and a coaching and mentoring service for beneficiaries. Participants can apply to phase 1 with a view to applying to phase 2 at a later date, or directly to phase 2.

**In phase 1**, a feasibility study shall be developed verifying the technological/practical as well as economic viability of an innovation idea/concept with considerable novelty to the industry sector in which it is presented (new products, processes, design, services and technologies or new market applications of existing technologies). The activities could, for example, comprise risk assessment, market study, user involvement, Intellectual Property (IP) management, innovation strategy development, partner search, feasibility of concept and the like to establish a solid high-potential innovation project aligned to the enterprise strategy and with a European dimension. Bottlenecks in the ability to increase profitability of the enterprise through innovation shall be detected and analysed during phase 1 and addressed during phase 2 to increase the return in investment in innovation activities. The proposal should contain an initial business plan based on the proposed idea/concept. The proposal should give the specifications of the elaborated business plan, which is to be the outcome of the project and the criteria for success.

Funding will be provided in the form of a lump sum of EUR 50 000. Projects should last around 6 months.

**In phase 2**, innovation projects will be supported that address the specific challenge and that demonstrate high potential in terms of company competitiveness and growth underpinned by a strategic business plan. Activities should focus on innovation activities such as demonstration, testing, prototyping, piloting, scaling-up, miniaturisation, design, market replication and the like aiming to bring an innovation idea (product, process, service etc) to industrial readiness and maturity for market introduction, but may also include some research. For technological innovation a Technology Readiness Levels of 6 or above (or similar for non-technological innovations) are envisaged; please see part G of the General Annexes.

Proposals shall be based on an elaborated business plan either developed through phase 1 or another means. Particular attention must be paid to IP protection and ownership; applicants will have to present convincing measures to ensure the possibility of commercial exploitation ('freedom to operate').

Proposals shall contain a specification for the outcome of the project, including a first commercialisation plan, and criteria for success.

The Commission considers that proposals requesting a contribution from the EU between EUR 0.5 and 2.5 million would allow phase 2 to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Projects should last between 12 and 24 months.

In addition, **in phase 3**, SMEs can benefit from indirect support measures and services as well as access to the financial facilities supported under Access to Risk Finance of this work programme.

Successful beneficiaries will be offered coaching and mentoring support during phase 1 and phase 2. This service will be accessible via the Enterprise Europe Network and delivered by a dedicated coach through consultation and signposting to the beneficiaries. The coaches will be recruited from a central database managed by the Commission and have all fulfilled stringent criteria with regards to business experience and competencies. Throughout the three phases of the instrument, the Network will complement the coaching support by providing access to its innovation and internationalisation service offering. This could include, for example, depending on the need of the SME, support in identifying growth potential, developing a growth plan and maximising it through internationalisation; strengthening the leadership and management skills of individuals in the senior management team and developing in-house coaching capacity; developing a marketing strategy or raising external finance.

Expected impact:

- Enhancing profitability and growth performance of SMEs by combining and transferring new and existing knowledge into innovative, disruptive and competitive solutions seizing European and global business opportunities.
- Market uptake and distribution of innovations tackling the specific challenge of boosting biotechnology-based industrial processes driving competitiveness and sustainability.
- Increase of private investment in innovation, notably leverage of private co-investor and/or follow-up investments.
- The expected impact should be clearly described in qualitative and quantitative terms (e.g. on turnover, employment, market seize, IP management, sales, return on investment and profit).

Type of action: SME Instrument (70% funding)

**Excellent Science:**  
**FET-OPEN**

## NOVEL IDEAS FOR RADICALLY NEW TECHNOLOGIES - RESEARCH PROJECTS

**Deadline:** 29.09.2015

**Intermediary Cut-off dates:** 30.09.2014, 31.03.2015

Specific challenge: Supporting a large set of early stage, high risk visionary science and technology collaborative research projects is necessary for the successful exploration of new foundations for radically new future technologies. Nurturing fragile ideas requires an agile, risk-friendly and highly interdisciplinary research approach, expanding well beyond the strictly technological disciplines. Recognising and stimulating the driving role of new high-potential actors in research and innovation, such as women, young researchers and high-tech SMEs, is also important for nurturing the scientific and industrial leaders of the future.

Scope: Proposals are sought for collaborative research with all of the following characteristics:

- Long-term vision: the research proposed must address a new, original or radical long-term vision of technology-enabled possibilities that are far beyond the state of the art and currently not anticipated by technology roadmaps.
- Breakthrough S&T target: research must target scientifically ambitious and technologically concrete breakthroughs that are arguably crucial steps towards achieving the long-term vision and that are plausibly attainable within the life-time of the proposed project.
- Foundational: the breakthroughs that are envisaged must be foundational in the sense that they can establish a basis for a new line of technology not currently anticipated.
- Novelty: the research proposed must find its plausibility in new ideas and concepts, rather than in the application or incremental refinement of existing ones.
- High-risk: the potential of a new technological direction depends on a whole range of factors that cannot be apprehended from a single disciplinary viewpoint. This inherent high-risk has to be countered by a strongly interdisciplinary research approach, where needed expanding well beyond the strictly technological realm.
- Interdisciplinary: the proposed collaborations must be interdisciplinary in the sense that they go beyond current mainstream collaboration configurations in joint science- and technology research, and that they aim to advance different scientific and technological disciplines together and in synergy towards a breakthrough.
- This call is open to early-stage research on any new technological possibility.

*The Commission considers that proposals requesting a contribution from the EU of between EUR 2 and 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.*

Expected impact: Proposals must aim at one of the following two impacts:

- Initiating a radically new line of technology by establishing Proof-of-Principle of a new technological possibility and its new scientific underpinning, or
- Kick-starting an emerging innovation eco-system of high-potential actors around a solid baseline of feasibility and potential for a new technological option, ready for early take-up.
- The active involvement of new and high-potential research and innovation players, which may become the European scientific and technological leaders of the future, is encouraged. Impact is also sought in terms of take up of new research and innovation practices and, more generally, from making leading-edge science and technology research more open, collaborative, creative and closer to society.

Type of action: Research and Innovation Actions