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Contractual public-private partnerships in Horizon 2020

for research and innovation
in the manufacturing, construction,
process industry and automotive sectors



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Introduction

The new EU research framework programme – Horizon 2020 – may be implemented through public-private partnerships (PPPs) in the case of research and innovation activities of strategic importance to the Union's competitiveness and industrial leadership, or to address specific societal challenges.

Initially launched as part of the European Economic Recovery Plan in 2008, the three research PPPs on Factories of the Future, Energy-efficient Buildings and Green Cars have now proved that they can help innovate key industrial sectors. As broad, cross-sectoral initiatives, they are also ideally positioned to advance the breakthrough research required to address major societal challenges, economic growth and job creation.

Under the Seventh Framework Programme (FP7), 366 projects were launched within the three PPPs included in the Recovery Plan. These projects involved 4409 participations by research teams and received a total combined investment – from the EU and from the private side – of €2.4 billion. Such is the success of the PPPs that they are continuing under Horizon 2020 in the form of contractual Public-Private Partnerships, and are joined by a new PPP on Sustainable Process Industry.

This booklet presents the new opportunities introduced under Horizon 2020 and outlines the next steps for the four contractual PPPs for which DG Research and Innovation (DG RTD) is the main supporter:

- Factories of the Future (FoF)
- Energy-efficient Buildings (EeB)
- European Green Vehicles Initiative (EGVI)
- Sustainable Process Industry (SPIRE)

Building on the success of PPPs in FP7

The Final Assessment of the Research PPPs in the European Economic Recovery Plan, published in June 2013, found that:

- Research PPPs have been inclusive: participation of organisations not belonging to industrial research associations was around 75 % and they received around 70 % of the EU funding available.
- Research PPPs have had a better leverage effect for private investment, and have boosted industrial participation com-

pared with the standard FP7 programme (57 % in the PPPs versus 34 % in FP7 programme).

- The PPPs have proved useful in strengthening European value chains and in particular giving a role to SMEs (which accounted on average for 25 % of project partners).
- The efficiency of the calls was significantly improved, particularly with respect to success rates and shorter time to grant.

Building a base for industrial leadership

Horizon 2020 has a more intense focus on innovation than its predecessors. The FoF, EeB and SPIRE PPPs mainly fall under the programme's Industrial Leadership pillar (LEIT), which is designed to bridge the gap between excellent research results and the marketplace. The Energy Challenge and the Environment Challenge are also contributing to EeB and SPIRE. The EGVI PPP will be supported by the Transport Challenge, with a smaller contribution from the Industrial Leadership part. Activities in all the PPP areas will focus on those technologies and innovations with the potential to buttress businesses and help innovative small and medium-sized enterprises (SMEs) grow into world-leading companies. By promoting both sustainability and a knowledge-based economy, the PPPs will also play a prominent role in securing the EU's long-term future.

There are two types of PPP under Horizon 2020: contractual PPPs and Joint Technology Initiatives (JTIs). With their investment in cutting-edge research, both are helping key sectors to beat the economic downturn, and are thus contributing to the Europe 2020 strategy targets of smart, sustainable and inclusive growth.

Contractual PPPs follow the Horizon 2020 rules and procedures, with industry providing key advice on research priorities. JTIs are run as Joint Undertakings. Both JTIs and contractual PPPs have a legal basis in Article 19 of the Horizon 2020 programme.

The contractual arrangement forming the basis for each contractual PPP is signed by the European Commission and representatives of the respective industry grouping. It specifies the partnership's objectives, commitments, key performance indicators and expected outputs. Each contractual arrangement mentions an indicative budget, although formalisation is only done through the Horizon 2020 work programmes. EU funding is expected to be in the region of the support



received under FP7, with the following budgets tentatively earmarked:

- €1 150 million for Factories of the Future
- €600 million for Energy-efficient Buildings
- €750 million for European Green Vehicles Initiative
- €900 million for Sustainable Process Industry

These four EU contributions would add up to a combined amount of €3.4 billion. Industry has pledged to complement these amounts with private investment; with related activities included, a leverage factor of three to five times the level of public funding is anticipated.

Strategic sectors for growth and jobs

For a PPP to be supported under Horizon 2020, it must prove that the results will provide added value at EU level and boost both industrial competitiveness and sustainable growth. It must also have a convincing long-term roadmap for research and innovation activities. The roadmaps were delivered to the European Commission in mid-2013 following a broad stakeholder consultation, and commit the private side of each PPP to a shared vision and clear, quantifiable objectives. Crucially, the involvement of industry ensures that the research and innovation planned meet industry's needs.

In addition to the four PPPs mentioned above, indicative funding has also been allocated to four PPPs supported by DG Communications Networks, Content and Technology (DG CNECT), namely in the areas of Future Internet (5G), Robotics, Photonics and High Performance Computing. The overall indicative EU funding under Horizon 2020 for the eight contractual PPPs is €6.2 billion.

Call topics for each PPP will be published in calls alongside other Horizon 2020 call topics. Under the contractual PPP approach, the content of each call topic is prepared by the European Commission following consultation with industry and other stakeholders. The PPP call topics are a way to identify research projects that will help in particular master and deploy key enabling technologies (KETs), thus reinforcing Europe's leadership position in strategic industrial sectors and driving competitiveness and growth opportunities. The partnerships also offer funding for innovation relevant actions, such as demonstration projects, designed to test a working prototype or model. This completes the virtuous circle, ensuring that research results have a faster and more direct path to the marketplace.

A new approach for the new programme

Under Horizon 2020, the PPP concept has been further developed, but there are also improvements regarding simplifying the involvement of participants, increasing support for SMEs and putting more of the onus on industry and research institutions to identify potential innovative solutions to the different challenges.

It is worth highlighting the following aspects of Horizon 2020 in particular:

- A strong challenge-oriented approach, giving applicants considerable freedom to come up with innovative solutions.
- Simplified list of possible action types (i.e. Research and Innovation Actions (RIA) funded at 100% for direct costs; Innovation Actions (IA) where industry is funded at 70% for direct costs). Non-profit organisations are funded at 100% of the direct costs in both cases. A flat rate of 25% for indirect costs has been set for all types of participants.
- Less prescription, strong emphasis on expected impact.
- Cross-cutting issues such as social sciences, gender, international cooperation are mainstreamed.
- Emphasis on supporting key enabling technologies (i.e., advanced manufacturing, advanced materials, biotechnology, micro- and nano-electronics, nanotechnologies, photonics).
- Increased support for innovative SMEs to help them exit the economic crisis.
- Emphasis on R&D and innovation areas with a strong industrial dimension, and on activities primarily developed through relevant industrial roadmaps.
- Maximum time to grant of eight months (specifically, five months for the proposals evaluation and three months to sign the grant agreements).
- A new legal basis for the PPPs: Article 19 of the Horizon 2020 regulation.



Factories of the Future

The manufacturing industry produces approximately 80% of the EU's exports — worth €1 trillion in 2011. It involves 2 million enterprises across the EU, employs about 31 million people and contributes 21% of GDP. To maintain its role as a driver of the economy in the face of global competition, the sector is striving to sharpen its competitive edge and harness Europe's potential for innovation. The Factories of the Future (FoF) PPP represents a joint investment in the development of the necessary cutting-edge technology.

European manufacturing gives Europe a prominent role in international trade; for example the EU is the world's leading producer of mechanical engineering equipment with a market share of 37%. To safeguard this strong position and stimulate re-industrialisation, Europe's manufacturing industry must evolve in line with market expectations, embracing the increased demand for high-quality products and customisation. It also needs to take environmental sustainability into account, ensuring that Europe can produce an increased amount of better products while using scarce resources more efficiently and generating less waste.

Sustainable, strategic, smart

The FoF PPP constitutes a broad, cross-sectoral public-private partnership determined to use research and innovation to shape the future of European manufacturing. Particular attention is focused on the involvement of SMEs. The overall goal of the FoF PPP is to promote a new production paradigm based on distributed, agile, smart and sustainable manufacturing systems enabled by ICT.

An industry-driven strategy

Following extensive consultation the European Factories of the Future Research Association (EFFRA), which represents the private side in the FoF PPP, set out a strategy for the sector in a multiannual roadmap for the 2014-20 period. This document defines five specific objectives:

- research and innovation (R&I) to integrate and demonstrate innovative technologies for advanced manufacturing systems, with at least 40 innovative manufacturing technologies in the domains of high-tech manufacturing processes and systems, adaptive and smart manufacturing, equipment, intelligent and holistic processes, collabora-

orative and modern enterprises, human-centered manufacturing and customer-focused manufacturing;

- R&I for eco-friendly manufacturing, in order to cut energy consumption by up to 30% and reduce materials consumption and waste generation by up to 20%;
- R&I aiming to reverse the de-industrialisation of Europe, notably by helping to create at least eight new types of high-skilled jobs and stimulate greater investment in equipment;
- R&I for social impact, e.g. to improve workplaces, promote responsibility for workers in global supply chains, and attract greater numbers of highly qualified workers;
- R&I for promoting entrepreneurship, to foster business creation and encourage R&D expenditure.

Successful calls under FP7

Under FP7, four call for proposals were issued, with funding from the Nanotechnologies, Materials and Production technologies (NMP) and the Information and Communication Technologies (ICT) themes. Of the 851 proposals submitted in response, 150 projects were selected for implementation, receiving a total EU contribution of €661 million. They include 1612 participations, with strong involvement by industrial (52%) and more specifically SME (30%) partners.

Progress and new vision in Horizon 2020

The topics addressed by the PPP in FP7 reflected the shared vision for the future of manufacturing in Europe. They included eco-friendly, smart and virtual factories, sustainable predictive maintenance, high-performance processes, high-precision technologies, and moves towards zero-defects manufacturing.

Horizon 2020 will take this initiative another step ahead. In line with the FoF strategy, calls will focus on re-industrialisation through improved competitiveness and sustainability of manufacturing in Europe. The priorities for the period 2014-2015 will be on energy and resource efficiency in manufacturing, including end-of-life issues, attractive work environments, de-manufacturing technologies, mass customisation and personalised manufacturing, increased flexibility in manufacturing capacity, and enhanced process optimisation/modelling/simulation and ICT for SME manufacturing environments.

The estimated EU funding for 2014 is €116 million and for 2015 €145 million.



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Call topics planned for 2014 and 2015 under the FoF PPP

Topic code	Topic title	Type of Action	Expected deadline	Budget (M€)
FoF 1 — 2014	Process optimisation of manufacturing assets	RIA & CSA (SA)	March 2014	34 (ICT)
FoF 2 — 2014	Manufacturing processes for complex structures and geometries with efficient use of material	RIA		82 (NMP)
FoF 3 — 2014	Global energy and other resources efficiency in manufacturing enterprises			
FoF 4 — 2014	Developing smart factories that are attractive to workers	IA		
FoF 5 — 2014	Innovative product-service design using manufacturing intelligence	RIA		
FoF 6 — 2014	Symbiotic human-robot collaborations for safe and dynamic multimodal manufacturing systems	IA		
FoF 7 — 2014	Support for the enhancement of the impact of FoF PPP projects	CSA (CA)		
FoF 8 — 2015	ICT-enabled modelling, simulation, analytics and forecasting technologies	RIA & CSA (SA)		
FoF 9 — 2015	ICT Innovation for Manufacturing SMEs (I4MS)	IA & CSA (SA)	36 (ICT)	
FoF 10 — 2015	Manufacturing of custom made parts for personalised products	RIA	December 2014	77 (NMP)
FoF 11 — 2015	Flexible production systems based on integrated tools for rapid reconfiguration of machinery and robots	IA		
FoF 12 — 2015	Industrial technologies for advanced joining and assembly processes of multi-materials			
FoF 13 — 2015	Re-use and re-manufacturing technologies and equipment for sustainable product life cycle management	RIA		
FoF 14 — 2015	Integrated design and management of production machinery and processes			

FoF: Factories of the Future Call

Note: The above information is only indicative since the calls had not been published at the time of preparing this brochure. Full details on topic content, budgets and call conditions are provided in the Horizon 2020 workprogramme for 2014-15.

Energy-efficient Buildings

Buildings account in the EU for 40% of the energy consumption and 36% of the greenhouse gas emissions. Innovative technologies, systems and materials are needed to achieve higher levels of energy efficiency in Europe's built environment, and the Energy-efficient Buildings (EeB) PPP has set out to promote them – both in the interest of improved sustainability and as an investment in the future of a thriving sector.

Construction is Europe's largest single economic activity and its biggest employer. With a turnover of more than €1.2 trillion in 2011, Europe's construction sector and its supporting industries contribute about 10% of the EU's GDP. However, the construction sector in Europe remains affected by the on-going economic and financial crisis.

High standards, high hopes

Research and innovation will enable this sector to develop into a high-tech building industry that can deliver energy-efficient solutions as part of a sustainable business strategy. This is not an objective that individual players – most of the businesses involved are SMEs – or even Member States can accomplish alone. A public-private partnership at European level creates the required critical mass and helps to create synergies with EU-wide policy initiatives.

Horizon 2020 marks a new stage in the implementation of the EeB PPP. The multi-annual roadmap for 2014-20 identifies as general objectives the development of:

- technologies and solutions accelerating the reduction in energy use and greenhouse gas emissions;
- hi-tech energy-efficient solutions that will help to turn the building industry into a knowledge-driven, sustainable business;
- innovative and smart systemic approaches for green buildings and districts, thereby honing the industry's competitive edge by boosting its expertise with regard to smart cities.

Improved energy efficiency

The specific objectives defined in the EeB roadmap target the development of at least 40 new technologies across four areas: innovative construction, retro-fitting, interactive sustainable buildings, and performance monitoring tools.

The PPP's drive to promote high standards of energy efficiency ties in with wider employment, competitiveness and environmental objectives — and all Europeans potentially stand to benefit from its achievements. This wide scope is reflected in the PPP's leading principle: "People, Planet, Profit".

Successful calls under FP7

The EU provided FP7 funding for the PPP under four themes: Nanotechnologies, Materials and Production technologies (NMP), Information and Communication Technologies (ICT), Energy and Environment (including climate change). The four cross-thematic EeB calls brought in a total of 498 project proposals, 114 of which were successful – representing combined EU investment of €547.5 million. The proportion of industrial partners, including SMEs, among the 1 480 participations is considerably higher (54%) than the FP7 average.

Progress and new vision in Horizon 2020

The selected FP7 EeB projects reflected the variety of innovations required to achieve high levels of energy efficiency in Europe's built environment. The focus was on topics as diverse as new materials for energy-efficient building components, nanotechnology-based approaches for heating, ventilation and air conditioning (HVAC) systems, energy-saving technologies, retrofitting solutions and near-zero-energy building renovation for cities and districts, as well as ICT for energy-efficient buildings and energy-positive neighbourhoods.

The implementation of Horizon 2020 will provide continuity with the ongoing FP7 projects, some of which will run until 2017. The EeB PPP will get its main support from the LEIT-NMP part of Horizon 2020, with contributions as well from the Energy and Environment Challenges. The first topics proposed for 2014-15 cover priority areas such as the building envelope, integrated design, sustainable materials, performance monitoring, and thermal storage.

The estimated EU funding for 2014 is €62.5 million and for 2015 €73 million.





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Call topics planned for 2014 and 2015 under the EeB PPP

Topic code	Topic title	Type of Action	Expected Deadline	Budget (M€)
EeB 1 – 2014	Materials for building envelope	IA	March 2014	49.5 (NMP)
EeB 2 – 2014	Adaptable envelopes integrated in building refurbishment projects	RIA		
EeB 3 – 2014	Development of new self-inspection techniques and quality check measures for efficient construction processes			
EeB 4 – 2014	Support for the enhancement of the impact of EeB PPP projects	CSA (CA)		
EE 1 – 2014	Manufacturing of prefabricated modules for renovation of building	IA	December 2014	8 (Energy)
EE 3 – 2014	Energy strategies and solutions for deep renovation of historic buildings	RIA		5 (Environment)
EeB 5 – 2015	Innovative design tools for refurbishment at building and district level	IA		64 (NMP)
EeB 6 – 2015	Integrated solutions of thermal energy storage for building applications			
EeB 7 – 2015	New tools and methodologies to reduce the gap between predicted and actual energy performances at the level of buildings and blocks of buildings			
EeB 8 – 2015	Integrated approach to retrofitting of residential buildings			
EE 2 – 2015	Buildings design for new highly energy performing buildings		9 (Energy)	

EeB: Energy-efficient Buildings Call

EE: Energy-Efficiency Call

Note: The above information is only indicative since the calls had not been published at the time of preparing this brochure. Full details on topic content, budgets and call conditions are provided in the Horizon 2020 workprogramme for 2014-15.

European Green Vehicles Initiative

Road transport — which produces about 30% of the EU's CO₂ emissions — accounts for a large share of Europe's oil consumption. It is therefore a sector that could make a key contribution to greater sustainability. By promoting research and innovation that focuses on energy-efficient vehicles and alternative powertrains, the European Green Vehicles Initiative (EGVI) is accelerating the transition to greener road transport. It also helps to keep Europe's automotive industry ahead of the competition.

The EGVI PPP in Horizon 2020 reflects a lasting industry and EU commitment, foresees a critical mass of funding and cross-sectoral expertise, and represents a new step in the collaborative process established by its predecessor, the Green Cars PPP, in FP7.

A cross-sectoral approach

To provide a structured framework for interaction, and encourage lasting cooperation between partners focusing on automotive technologies, smart systems and smart grids, an International Non-profit Association (EGVIA) was set up. The multi-annual roadmap 2014-20 was built on the successful experience of cooperation under FP7 by three European Technology Platforms – ERTRAC, EpoSS and SmartGrids – following the system approach developed under the Green Cars PPP and after a stakeholder consultation.

Current strategy

The general objective, as set out in the EGVI roadmap for 2014-20, is to increase the energy efficiency of vehicles and advance the development of alternative powertrains. The scope encompasses passenger cars as well as two-wheelers, trucks and buses, and potential new light-vehicle concepts. At least 40 innovative technologies are expected to be integrated and demonstrated, with an emphasis on electrification (electric storage, electric components and vehicle infrastructure interface) and hybridisation of powertrains, and on the adaptation of powertrains to renewable fuels. Other activities will aim to improve the functionality of vehicles, reduce their complexity and weight, and refine the management of thermal and energy flows.

Electrifying mobility

The PPP's aims extend beyond research and innovation to production, commercialisation and the creation of markets. The innovations developed by EGVI are expected to bolster the competitiveness of Europe's automotive industry, a sector on which about 12 million mostly high-skilled jobs depend directly or indirectly. It will also boost the car industry's ability to support EU policies on clean transport, energy and the environment.

Successful calls under FP7

Four FP7 calls were issued for the Green Cars PPP across five themes: Information and Communication Technologies (ICT); Energy; Environment (including climate change); and Transport; as well as Nanotechnologies, Materials and Production technologies (NMP).

In total, 113 of the 385 project proposals were selected for funding, receiving a combined EU contribution of €439.2 million. Their implementation mobilised 1 317 participations, including a large number of industrial partners (56%) and notably SMEs.

Progress and new vision under Horizon 2020

Horizon 2020 will provide funds for the EGVI PPP under the Transport Challenge with a smaller contribution from the Industrial Leadership pillar. All sectors of the economy potentially stand to gain from this PPP's advances towards more energy-efficient and sustainable road transport.

The first topics, proposed for 2014-15, cover priority areas such as energy management in electric vehicles, new generation of Li-ion and post Li-ion batteries, hybrid light and heavy-duty vehicles, future alternative fuel powertrains, or the integration of electric vehicles into the transport system and the grid.

The estimated EU funding for 2014 is €145 million and for 2015 €30 million.





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Call topics planned for 2014 and 2015 under the EGVI PPP

Topic code	Topic title	Type of Action	Expected Deadline	Budget (M€)		
GV 1-2014	Next generation of competitive lithium batteries to meet customer expectations	RIA	August 2014	129 (Transport)		
GV 2-2014	Optimised and systematic energy management in electric vehicles					
GV 3-2014	Future natural gas powertrains and components for cars and vans	IA				
GV 4-2014	Hybrid light and heavy duty vehicles					
GV 5-2014	Electric two-wheelers and new light vehicle concepts					
GV 7-2014	Future natural gas powertrains and components for heavy duty vehicles					
NMP-17-2014	Post lithium ion batteries for electric automotive applications	RIA			October 2014	16 (NMP)
GV 6-2015	Powertrain control for heavy-duty vehicles with optimised emissions	IA			August 2015	10 (Transport)
GV 8-2015	Electric vehicles' enhanced performance and integration into the transport system and the grid	RIA	20 (Transport-CNECT)			

NMP: Nanotechnologies, Advanced Materials and Production Call

GV: Green Vehicles Call

Note: The above information is only indicative since the calls had not been published at the time of preparing this brochure.

Full details on topic content, budgets and call conditions are provided in the Horizon 2020 workprogramme for 2014-15.

Sustainable Process Industry

EU process industries sit at the core of most industrial value chains and have the key challenge that they are highly dependent on resources (energy, materials and water). Since the PPPs in the Recovery Plan have proved to be powerful drivers of innovation under FP7, a new initiative within Horizon 2020 extends the PPP approach to the process industry. The SPIRE PPP ('SPIRE' stands for Sustainable Process Industry through Resource and Energy Efficiency), is based on an alliance of eight industrial sectors: cement, ceramics, chemicals, engineering, minerals and ore, non-ferrous metals, steel and water.

The process industry delivers both final products for the end customer and intermediate products required for other manufacturing activities. Consequently, advances towards greater resource and energy efficiency throughout this sector could help to boost sustainability and competitiveness throughout the economy.

Ambitious aims

The multi-annual roadmap of the SPIRE PPP includes as specific objectives the integration and demonstration of at least 40 innovative systems and technologies in the domains of: adaptable processes able to use different feedstocks; reduction and re-use of waste; innovative processes leading to CO₂ reduction; green technologies to develop novel materials; industrial processes reducing water use; and technology uptake within/between sectors. Across all process industry sectors, these technologies should be capable of achieving:

- a reduction of up to 30% in fossil energy intensity;
- a reduction of up to 20% in non-renewable, primary raw material intensity;
- efficiency improvement of CO₂-equivalent footprints of up to 40%.

Critical mass

Representing more than 450000 individual enterprises, at least 6.8 million employees and no less than €1.6 trillion in turnover, the industrial sectors behind the SPIRE PPP account for 20% of the EU manufacturing sector, both in terms of employment and turnover. An international non-profit association was set up to become the private side of the partnership; it involves individual businesses, industry associations and research organisations. More industry and research stakeholders are encouraged to join.

Cross-sectoral vision for Horizon 2020

The SPIRE PPP has identified six components as essential to a resource- and energy-efficient process industry:

- smarter use and management of existing, alternative and renewable feedstocks (Feed);
- improved processing and energy systems, including industrial symbiosis (Process);
- new processes and materials for market applications that boost resource and energy efficiency throughout the value chain (Applications);
- avoidance and re-use of waste within and across sectors (Waste2Resources);
- accelerated deployment of research, development and innovation opportunities (Horizontal);
- outreach activities targeting industry and especially SMEs, as well as policy makers, investors and the general public (Outreach).

The SPIRE PPP will get its main support from the LEIT-NMP part of Horizon 2020, with contributions as well from the Energy and Environment Challenges.

The first topics, proposed for 2014-15, cover priority areas such as integrated process control, processes allowing the use of renewables as flexible feedstocks, downstream processing of mixtures, assessment of energy and resource efficient solutions, heat recovery, solar cooling systems, industrial symbiosis, process intensification, recovery technologies, and handling of solids.

The estimated EU funding for 2014 is €116.3 million and for 2015 €89 million.



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Calls topics planned for 2014 and 2015 under the SPIRE PPP

Topic code	Topic title	Type of Action	Expected Deadline	Budget (M€)
SPIRE 1 – 2014	Integrated Process Control	RIA	March 2014	60,3 (NMP)
SPIRE 2 – 2014	Adaptable industrial processes allowing the use of renewables as flexible feedstock for chemical and energy applications	IA		
SPIRE 3 – 2014	Improved downstream processing of mixtures in process industries	IA		
SPIRE 4 – 2014	Methodologies, tools and indicators for cross-sectorial sustainability assessment of energy and resource efficient solutions in the process industry	CSA (SA)		
EE 18-2014	New technologies for utilization of heat recovery in large industrial systems, considering the whole energy cycle from the heat production to the delivery and end use	IA		8 (Energy)
LCE 2 -2014	Developing the next generation technologies of renewable electricity and heating/cooling: solar cooling systems	RIA	Two stages: April 2014 September 2014	4* (Energy)
Waste 1-2014	Moving towards a circular economy through industrial symbiosis	IA		44 (Environment)
SPIRE 5 – 2015	New adaptable catalytic reactor methodologies for Process Intensification	RIA	December 2014	77 (NMP)
SPIRE 6 – 2015	Energy and resource management systems for improved efficiency in the process industries			
SPIRE 7 – 2015	Recovery technologies for metals and other minerals	IA		
SPIRE 8 - 2015	Solids handling for intensified process technology			
EE 18-2015	New technologies for utilization of heat recovery in large industrial systems, considering the whole energy cycle from the heat production to the delivery and end use			8 (Energy)
LCE 2 -2015	Developing the next generation technologies of renewable electricity and heating/cooling: solar heating for industrial processes	RIA	Two stages: September 2014 March 2015	4* (Energy)

**This is only an estimation since this contribution is part of a large topic where projects will be evaluated together. The maximum funding that can be awarded is 15 M€.*

SPIRE: Sustainable process industries Call | EE: Energy-Efficiency Call | LCE: Competitive Low-Carbon Energy Call | Waste: A Resource to Recycle, Reuse and Recover Raw Materials Call

Note: The above information is only indicative since the calls had not been published at the time of preparing this brochure.

Full details on topic content, budgets and call conditions are provided in the Horizon 2020 workprogramme for 2014 - 2015.

Further information

General

- HORIZON 2020
http://ec.europa.eu/research/horizon2020/index_en.cfm
- Contractual Public-Private Partnerships in research and innovation:
http://ec.europa.eu/research/industrial_technologies/ppp-in-research_en.html

Among the PPP-relevant information, in this website you can find the following documents:

- Factories of the Future. Multi-annual roadmap for the contractual PPP under Horizon 2020
- Energy-efficient Buildings. Multi-annual roadmap for the contractual PPP under Horizon 2020
- European Green Vehicles Initiative. Multi-annual roadmap for the contractual PPP under Horizon 2020
- Sustainable Process Industry. Multi-annual roadmap for the contractual PPP under Horizon 2020
- Final Assessment of the Research PPPs in the European Economic Recovery Plan

External websites

Factories of the Future PPP

- European Factories of the Future Research Association (EFFRA)
<http://www.effra.eu/>
- Manufuture Technology Platform
<http://www.manufuture.org>

Energy-efficient Buildings PPP

- Energy-Efficient Buildings Association (E2BA)
<http://www.e2b-ei.eu>
- European Construction Technology Platform
<http://www.ectp.org/>

European Green Vehicles Initiative PPP

- European Green Cars Initiative (ECGI)
<http://www.green-cars-initiative.eu>
- The European Road Transport Research Advisory Council (ERTRAC)
<http://www.ertrac.org/>

Sustainable Process Industries PPP

- Sustainable Process Industry (SPIRE)
<http://www.spire2030.eu/>

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The new EU research framework programme – Horizon 2020 – may be implemented through Public-Private Partnerships (PPPs) in the case of research and innovation activities of strategic importance to the Union's competitiveness and industrial leadership or to address specific societal challenges. Initially launched as part of the European Economic Recovery Plan in 2008, the three research Public-Private Partnerships (PPPs) on Factories of the Future, Energy-efficient Buildings and Green Cars have now proved that they can help the manufacturing, construction and automotive sectors, and in particular the relevant SMEs, to adapt to global competitive pressures by improving their technological base. Under Horizon 2020, the successors of these three PPPs and the new SPIRE initiative on Sustainable Process Industry will now become contractual Public-Private Partnerships. The Horizon 2020 work programme for 2014-2015 already includes opportunities for research and innovation activities under those four contractual PPPs, to develop clean technologies for Europe's industrial competitiveness, in order to ensure economic growth and job creation.

