



European
Commission



Energy-efficiency related PPPs under Horizon 2020

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EeB and SPIRE

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Experience until now: PPPs in FP7

Joint Technology Initiatives

- **Innovative Medicines Initiative (IMI)**
- **Clean Sky**
- **Single European Sky ATM Research (SESAR)**
- **Fuel Cells and Hydrogen (FCH)**
- **Embedded Computing Systems (ARTEMIS)**
- **Nanoelectronics (ENIAC)**

"Contractual" PPPs

- **Factory of the Future (FoF)**
- **Energy-efficient Buildings (EeB)**
- **Green Cars (GC)**
- **Future internet (FI-PPP)**

Outcome of "contractual" PPPs in FP7

- Quick response in defining the strategy
- Efficient launch of calls within the Recovery Plan
- Increased industry participation: >50%, SMEs ~ 23%
- More innovation related activities, including demonstration
- The full EC contribution of € 1.6 billion has been provided
- Industry and EC are keen to continue under Horizon 2020

Why Public-Private Partnerships in Horizon 2020?

- To solve problems together with industry
- To strengthen European industrial leadership
- To facilitate prioritisation of R&I in line with Europe 2020 objectives and industry needs
- To leverage research and innovation elements
- To strongly commit industry to joint objectives

Two types of PPPs in Horizon 2020

- **Contractual PPPs:** budget is only committed on an annual basis through H2020 calls in WPs, prepared on the basis of an industry-developed multi-annual roadmap and a contractual arrangement which specifies an indicative 7 years EU funding, and the commitments of industry to match this and to additional investments outside the PPP calls with high leverage factors, but not legally binding.
- **Joint Technology Initiatives:** like the contractual PPPs, but with ring fenced 7 year budget, the JU launching the calls (where derogations to H2020 are possible) and with the additional commitments of industry outside the calls inserted in the legislation.

PPPs in Horizon 2020

Joint Technology Initiatives

- **Innovative Medicines (IMI)**
 - **Clean Sky**
 - **Single European Sky ATM Research (SESAR)**
 - **Fuel Cells and Hydrogen (FCH)**
 - **Electronic Components and Systems (ECSEL - old ARTEMIS + ENIAC)**
- New:**
- **Bio-based Industries (BBI)**

Contractual PPPs

- **Factory of the Future (FoF)**
 - **Energy-efficient Buildings (EeB)**
 - **Green Vehicles (EGVI)**
 - **Future internet (5G)**
- New:**
- **Sustainable Process Industry (SPIRE)**
 - **Robotics**
 - **Photonics**
 - **High Performance Computing**

EeB Rationale

- **The construction sector is the largest European single activity (€1,2 trillion, 9.6% of GDP) and biggest industrial employer (14,6 million direct operatives, 30.7% of industrial employment, 43,8 million indirect workers).**
- **Sector is highly fragmented and 95% of the 3,1 million enterprises (EU-27) are SMEs. Turnover decreased significantly during the crisis and has not yet recovered.**
- **Buildings account for 40 % of total energy consumption and 1/3 of Greenhouse Gases in Europe.**

EeB Rationale

- **Very low replacement rate of the existing stock (1-2% per year)**
- **Energy-efficient building solutions are at present too expensive for private investment by homeowners**
- **Renovation technologies offering energy savings would also foster new jobs**
- **Energy efficiency in the built environment cannot be solved on a Member State scale: novel technologies and systemic solutions are needed, which are optimised leveraging on research at EU scale, but customised at local scale**



EeB 1 – 2014: Materials for building envelope

Innovation Actions, TRL 6+

EeB 2 – 2014: Adaptable envelopes integrated in building refurbishment projects

Research & Innovation Actions, TRL 4-6

EeB 3 – 2014: Development of new self-inspection techniques and quality check measures for efficient construction processes

Research & Innovation Actions, TRL 4-6

EeB 4 – 2014: Support for the enhancement of the impact of EeB PPP projects

CSA



EeB 5 – 2015: Innovative design tools for refurbishment at building and district level

Innovation Actions, TRL 5-7

EeB 6 – 2015: Integrated solutions of thermal energy storage for building applications

Research & Innovation Actions, TRL 4-6

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

Innovation Actions, TRL 5-7

EeB 8 – 2015: Integrated approach to retrofitting of residential buildings

Innovation Actions, TRL 5-7



EE 1 – 2014: Manufacturing of prefabricated modules for renovation of building

Innovation Actions, TRL 5-7

EE 2 – 2015: Buildings design for new highly energy performing buildings

Innovation Actions, TRL 5-7

EE3 – 2014: Energy strategies and solutions for deeper renovation of Historic Buildings

Research & Innovation Actions, TRL 4-6

Deadlines



Topic identifier	Deadline 2014
EeB 1-2014 EeB 2-2014 EeB 3-2014 EeB 4-2014	20/03/2014
EE 1-2014	20/03/2014
EE 3-2014	20/03/2014

Deadlines



Topic identifier	Deadline 2015
EeB 5-2015 EeB 6-2015 EeB 7-2015 EeB 8-2015	09/12/2014
EE 2-2015	09/12/2014

SPIRE Rationale

- **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).**
- **Eight EU industrial sectors are covered (chemical, steel, cement, ceramics, minerals, non-ferrous metals, industrial water and process engineering), most of which are world-leaders.**
- **SPIRE represent together 6.8 million jobs in 450,000 enterprises and over €1,600 billion/year in turnover.**
- **However, they are struggling with competitiveness at global level and striving for long-term sustainability.**

SPIRE Rationale

- **The SPIRE industry sectors cannot address alone their energy and resource efficiency challenges in line with the EU2020 objectives. In fact, there are high risks and long-term investments with long RoI timeframes.**
- **There is a need for cooperation along the value chains to make a difference for Europe at global level, and for public support.**
- **To radically increase resource and energy efficiency, EU process industries need to jointly tackle the common challenges at EU level and employ a stable R&D budget in a contractual PPP.**



SPIRE 1 – 2014: Integrated Process Control

Research & Innovation Actions, TRL 3-5

SPIRE 2 – 2014: Adaptable industrial processes allowing the use of renewables as flexible feedstock for chemical and energy applications

Innovation Actions, TRL 5-7

SPIRE 3 – 2014: Improved downstream processing of mixtures in process industries

Innovation Actions, TRL 5-7

SPIRE 4 – 2014: Methodologies, tools and indicators for cross-sectorial sustainability assessment of energy and resource efficient solutions in the process industry

CSA



SPIRE 5 – 2015: New adaptable catalytic reactor methodologies for Process Intensification

Research & Innovation Actions, TRL 3-5

SPIRE 6 – 2015: Energy and resource management systems for improved efficiency in the process industries

Research & Innovation Actions, TRL 4-6

SPIRE 7 – 2015: Recovery technologies for metals and other minerals

Innovation Actions, TRL 5-7

SPIRE 8 – 2015: Solids handling for intensified process technology

Innovation Actions, TRL 5-7



EE 18 2014/2015: 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, TRL 4-7

LCE 2 – 2014: Developing the next generation technologies of renewable electricity and heating/cooling: Solar cooling systems

LCE 2 – 2015: Developing the next generation technologies of renewable electricity and heating/cooling: Solar heating for industrial processes

Research & Innovation Actions, TRL 3-4 to 4-5

WASTE-1-2014: Moving towards a circular economy through industrial symbiosis

Innovation Actions

Deadlines



Topic identifier	Deadline 2014
SPIRE 1-2014 SPIRE 2-2014 SPIRE 3-2014 SPIRE 4-2014	20/03/2014
EE 18-2014/15	20/03/2014
LCE 2-2014	First stage 01/04/2014 Second stage 23/09/2014
WASTE 1-2014	First stage 08/04/2014 Second stage 16/09/2014

Deadlines



Topic identifier	Deadline 2015
LCE 2-2015	First stage 03/09/2014 Second stage 03/03/2015
SPIRE 5-2015 SPIRE 6-2015 SPIRE 7-2015 SPIRE 8-2015	09/12/2014
EE 18-2014/15	09/12/2014



Thank you for your attention