Call Energy efficient Buildings 2015

Pierre Fiasse
NCP Wallonie
NCP-Wallonie

- National Contact Point Wallonie
  - Team of 7 people
  - Located at Walloon Business Federation
  - 12 Years experience

- Professional support to build EU R&D collaborative projects
Energy efficient Buildings > PPP Public Private Partnerships:

Industry: define R&D strategy

Commission: launch calls Co-financing

- Roadmaps
- E2B Association (120 mbrs)
- [http://www.e2b-ei.eu](http://www.e2b-ei.eu)

Impact: growth, jobs, societal benefits

Open to all

pilots, demonstrators > techno deployment
Energy efficient Buildings : past calls

• FP7 2010-2013 :
  • 4 Calls
  • 1 billion €, ~ 50% EC
  • 94 projects
  • Participants :
    • Ind ~ 50%
    • SME ~ 28 %
    • 71% = non member E2BA
    • Many demo buildings

• H2020 2014 :
  • 1rst Call EeB
  • 49,5 millions €
H2020: innovation focus

- FP6- FP7: transfer of results > industry?
- H2020: Innovation
  - Demonstrators – Pilots – Up Scaling
  - Impact on consortium composition
  - « new » needs/ transfert strategy

... next steps (including: during project)

- ... Business plans
- Alternative fundings (financial engineering)
- Smart specialization: synergies/ coordination with regional R&D

- Techno developers
- End users
- Supply chain
- Non techno actors
H2020: innovation focus

- FP6- FP7: transfer of results > industry?
- H2020: Innovation
  - Demonstrators – Pilots – Up Scaling
  - Impact on consortium composition
  - « new » needs/ transfert strategy

- New metric: Technology Readiness Level
ECTP/ E2B new 2030 strategy (copyright E2BA)
Energy efficiency in Buildings : 2015 Calls

- 8 Topics:
  - LEIT NMP : 4 Topics
  - Soc Challenge Energy : 4 Topic
  - Content - Information : available

- 64 M€ NMP + ≈ 30 M€ Energy

- One stage submission

- Full proposal’s deadline EeB : delayed to 4 Febr 2015
H2020: funding

- Funding (Commission)
  - RIA - Research & Innovation Action: 100%
  - IA - Innovation Action: 70% (100% Non Profit)

  *Overheads: 25%*

- Other:
  - CSA Coordination & Support action
  - SME
  - ...

- Conditions
  - Min 3 EU member or associated states
  - Projects 3-8 M€, 5-15 partners
**EeB-05 : Innovative design tools for refurbishing of buildings at district level**

**Specific challenge:**
- Buildings should no longer be renovated individually, but part of a global energy system:
  - Interactions with their environment are to be predicted and simulated,
  - + Interactions with inhabitants and customers.
- Energy efficiency technologies should become elements of design databases
- Need of design tools to support the evaluation of different retrofitting alternatives.
- A challenge is to ensure the interoperability between tools from various domains and at different scales

**Scope / research activities**
- Develop integrated design tools – multi buildings / district level
- Taking into account interactions with their environment: adjacent systems such as district heating/cooling and decentralised thermal energy generation, etc
- Design phases + next (operations, constructions methodologies, maintenance, ...)
- Validation on a technical level & societal level (occupants)

- Participation of SMEs with R&D capacities encouraged
EeB-05 : Innovative design tools for refurbishing of buildings at district level

**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

**Additional requirements :**
- Outline of the initial exploitation and business plans **required**
- Exploitation plans, outline financial arrangements : **during the project**
- Smart specialisation strategies : seek synergies, incl. possibilities for funding, with
  - relevant national / regional research and innovation programmes and/or
  - cumulative funding with European Structural and/or
  - Investment Funds
Specific challenge:
- Energy storage (thermal = priority) for synchronizing energy demand and supply, both on a short and long term (seasonal) basis

Scope / research activities
- Advanced solutions to
  - reduce thermal losses, pressure drops,
  - improve heat exchange in and between storage material and heat carrier
- Innovations:
  - high energy density storage materials
    - long term multi-cyclic stability at tuneable temperature levels
    - Regeneration T° range below 100°C: ↗ efficiency and effectiveness of thermal storage
    - energy storage density: at least 6 times ↗ than water
    - Safe and environmentally friendly
  - ... storage system level: smart energy management, smart systems, compacity
- Small scale demonstration asked:
  - technical and economic feasibility
  - integration and scalability potential in near real life operating conditions
EeB-06 : Innovative Integrated solutions of thermal energy storage for building applications  RIA

- **Expected impact:**
  - Demonstrate solutions that have a stable long term performance in multi-cyclic seasonal use of at least 20 years.
  - Solutions should demonstrate a potential to reduce the net energy consumption of a building by at least 15% and have a return-on-investment period below 10 years.
  - Deliver compact systems with the potential to fit in the limited space available in a single building (max 2.5 m³/ dwelling)
  - In the case of pumpable energy storage materials: energy density comparable to the best solid-gas systems to be validated
EeB-07 : New tools and methodologies to reduce the gap between predicted and actual energy performances at the level of buildings and blocks of buildings

**Specific challenge:**
- monitoring of real energy use in energy-efficient buildings > major ≠ with predicted ones
- capture the real complexities of the energy performance of the actual buildings and districts.
- dvlp methodologies for the correct understanding of user behaviour

**Scope / research activities**
- develop methodologies and tools to monitor and assess actual building energy performance ... to predict accurately building energy loads and consumption along the whole lifecycle
- holistic “open” approach to building control and monitoring systems required
- high quality, reliable and non-intrusive (e.g. wireless) data acquisition methodology
- demonstration asked:
  - Block of buildings > 3 different buildings in real life operating conditions
  - Realistic solutions : cost effective/ interoperable/ commissioning, sign-off and maintenance phase
- participation of SMEs encouraged
EeB-07 : New tools and methodologies to reduce the gap between predicted and actual energy performances at the level of buildings and blocks of buildings

**Expected impact :**
- Significant reduction in the ≠ between real and predicted energy behaviour in a building or a block of buildings, after the demonstration of the viability of the new tools and methods for measuring and analysing real building energy performance.
- Gap is narrowed down to a value consistent with energy performance contracts.
- Provide solutions with a high replication potential

**Additional requirements :**
- Outline of the initial exploitation and business plans required
- Exploitation plans, outline financial arrangements : during the project
- Smart specialisation strategies : seek synergies, incl. possibilities for funding, with
  - relevant national / regional research and innovation programmes and/or
  - cumulative funding with European Structural and/or
  - Investment Funds
EeB-08 : Integrated approach to retrofitting of residential buildings

- **Scope / research activities**
  - Systemic approaches need to be developed
    - which integrate the most promising cost-effective technologies and materials
    - key points : space heating and Domestic Hot Water (DHW)
  - Technology developments:
    - e.g. energy use through innovative heat pump systems; combination of renewable energy sources at building level; exploitation of heat recovery for water and air, thermal storage ...
  - ICT technologies
    - adapt the system to the end-user behaviour without losing control of the global efficiency of the system.
    - at district scale : interactions between the buildings and the thermal and electrical energy networks
  - Methodologies using modelling, simulation, etc to identify the optimal cost-effective solutions
  - Integrated approach :
    - Realistic/ highly replicable solutions, supply chain approach, financial models, standardisation issues, social and behavioural aspects,...
  - Demonstration asked : at least 2 sites should be considered in 2 different climatic conditions

4 - 7 M€
TRL 5-7
04/02/15
EeB-08: Integrated approach to retrofitting of residential buildings

**Expected impact:**
- Demonstrate innovative retrofitting solutions as real cases approaching net zero energy standards.
- > 60% decrease 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.

**Additional requirements:**
- Outline of the initial exploitation and business plans required
- Exploitation plans, outline financial arrangements: during the project
- Smart specialisation strategies: seek synergies, incl. possibilities for funding, with
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  - Investment Funds
EE-02 : Buildings design for new highly energy performing buildings

- **Specific challenge:**
  - Decrease cost of 'nearly zero-energy' buildings to enable market uptake by 2020

- **Scope / research activities**
  - Development and demonstration of solutions which significantly reduce the cost of new buildings with at least 'nearly zero-energy' performance levels, whilst accelerating market uptake.
  - Assessment via LCA approach, considering i.e. embodied energy to calculate the real energy balance.
  - Technologies: e.g.
    - Indoor air quality and comfort, efficient HVAC (solar cooling, low T° systems, ..), design adapted to local climate and site, etc
    - Passive solutions / active solutions / renewable energies
    - Building energy management systems
    - Electric and/or thermal energy storage of renewable energy onsite and nearby.

- **Approaches including:**
  - Assessing differences between predicted and actual energy performance > optimisation
  - Cost-effective maintenance aspects
  - ...
EE-02 : Buildings design for new highly energy performing buildings

**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.
○ **Scope / research activities**
  ○ Objective: reducing $≠$ between peak power demand and minimum night time demand, thus reducing costs and greenhouse gas emissions
    ○ via real time optimisation of energy demand, storage and supply (including self-production when applicable) using intelligent energy management systems
    ○ cost-effective and interoperable solutions that do not compromise the comfort of occupants
    ○ Solutions should be compatible with smart grids and open international standards and with the distribution network infrastructure.
  ○ Demonstration asked for a block of buildings consisting of at least 3 different buildings in real life operating conditions.

○ **Expected impact**
  ○ should be measured in
    ○ energy and cost savings.
    ○ consumer’s willingness and capability to participate actively in energy markets and profit from optimal price conditions
EE-11 : New ICT-based solutions for energy efficiency  RIA

- **Scope / research activities**
  - creation of **innovative IT ecosystems** to develop services and applications making use of information generated by energy consumers (e.g. through social networks) or captured from sensors (e.g. smart meters, smart plugs, social media) and micro-generation.
    - Apps for smart phones and tablets
    - Serious games to empower consumers stimulate collaboration and enable full participation in the market, etc
  - deployment and validation in real life conditions in publicly owned buildings
    - Validation : socio-economic evidence for ICT investment in the field
    - ... including detailed plans for sustainability and large-scale uptake (post-project phase)

- **Expected impact**
  - Energy consumption, production and emissions reduction : 15% - 30%.
  - Accelerate wide deployment of innovative ICT solutions for energy efficiency.
  - Greater consumer understanding and engagement in energy efficiency.
EE-13 : Technology for district heating and cooling

- **Scope / research**: one or more of the following areas
  - Demonstrate and deploy a new generation of highly efficient, intelligent district heating and cooling systems
    - capable of integrating multiple efficient generation sources,
    - including different kinds of renewable energy, cogeneration, waste heat from industrial or other sources and storage,
    - which can be operated at different temperature levels
  - **Bring down heat distribution losses** and integrate storage
    - via innovative pipe, design, high performance insulation materials, reduced operating temperatures, intelligent, efficient system for fluid handling carriers or intelligent metering, control and grid optimisation strategies
  - Develop optimisation, control, metering, planning and modelling tools
    - E.g. intelligent thermal agile controllers to optimise the overall efficiency of technology-hybrid systems
    - IT supervision systems capable of delivering real performance indicators likely to modify consumption behaviour.
  - Develop new solutions for low temperature heat recovery and recirculation

- **Expected Impact**:
  - ↓ energy consumption of space and water heating by 30 to 50%
  - contribute to wider use of intelligent district heating and cooling systems and integration of renewables, waste and storage.

1,5 - 2 M€
TRL 4-6
06-10-15
Next steps? How to participate?

1. Topic: choose & role!
2. Find partners / Contact them

- Find partners:
  - Your network
  - Active search
    - E2BA Members = key players: contact them
    - NCP > own network
  - Brokerage event: 21th October
  - Partner search / E.E.N. network / NCP Network
  - Become an E2BA member!

Key players/ coordinators:
- D’appolonia
- ACCIONA
- Tecnalia
- CSTB
- Fraunhofer IPB & ISE
- …
- BBRI
Next steps? How to participate?

1. Topic: choose & role!
2. Find partners / Contact them
3. Build proposal

- NCP Support
- Methodology
- Tools
Tools:
Expression of interest

- Quality!
- Speed
- « marketing »

- E-Mail
- or attach doc

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One-page expertise description
Other opportunities/ Building sector

- **Smart Cities Calls**
  - Wider projects
  - Mobility + Eco-Construction > City level

- **H2020 NMP/ Energy Calls**
  - More focused project > one technological brick

- **Eranets / Eurostars**
  - Joint calls between regions
  - participants funded by they own funding agency
  - Smaller project : 1,5 M€, 3-5 partners
  - Eurostars : innovative SME – close market – deadline 16 sept
Info

- **Call documents**:  

- **Subcalls**:  
  - H2020-EeB-2015  
  - H2020-EE-2015-1-PPP  
  - H2020-EE-2015-2-RIA

- **E2BAssociation**  
  [http://www.e2b-ei.eu](http://www.e2b-ei.eu)
Merci de votre attention

Pierre Fiasse
European Project Developer
Horizon 2020 Nano, Materials, Transport & Aero NCP
Tél : 010.47.19.49
pierre.fiasse@ncpwallonie.be