FCT

Fundação para a Ciência e a Tecnologia

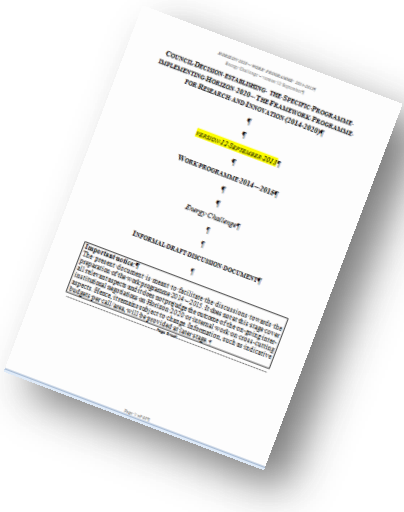
MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA

Oportunidades de Financiamento para as PME: Tópicos nos próximos concursos do Horizonte 2020 - Energia

Hélder Gonçalves (Delegado Nacional ao tema Energia no Horizonte 2020)

27 de Fevereiro de 2014

Programa de Trabalhos – Informação Geral



- **Data de lançamento dos concursos :** 11 de Dezembro de 2013
- Programa de Trabalhos **Bianual** (2014 /2015)
- Baseado num abordagem **integrada e por desafios**
- Abordagem Transversal com outros partes do Horizonte 2020 (ICT, NMP)
- Projetos em colaboração
- **Avaliação das Calls Energia** – single-stage & two stage evaluations

Programa de Trabalhos – Estrutura dos Tópicos

- ***Specific Challenge*** *– Identifica ncessidade de intervenção*
- ***Scope*** *- Delinea o problema e especifica o enfoque e as fronteiras do problema MAS sem descrever especificamente as abordagens*
- ***Expected impact*** *- Descreve os elementos chave que são esperados alcançar com o desafio proposto*
- ***Type of Action*** *- Tipologia de projecto [CSA | RIA | IA]*

EE 9– 2014/15: Empowering stakeholders to assist public authorities in the definition and implementation of sustainable energy policies and measures

Specific challenge

While public authorities have an important role to play to develop energy efficiency policies and plans, the latter require the full involvement of private stakeholders and the civil society for their effective implementation. However there is a general lack of capacity and coordination among those stakeholders to guarantee their full involvement and to effectively convert policies and plans into concrete actions.

Scope

Projects should target specific actors among a wide spectrum of stakeholders (utilities, industry, financing institutions, non-governmental organisations, consumer associations, interest groups, trade unions, etc). They should provide large-scale capacity building or engagement activities to those specific groups playing a key role in the definition and/or implementation of sustainable energy policies and measures initiated by public authorities. Projects should demonstrate a strong European added value and put in place mechanisms ensuring the continuation of the activities beyond the project duration.

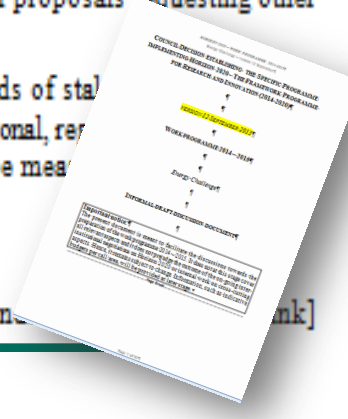
The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

Each project must prove to influence hundreds of sta
key role in the definition and successful implementation of national, re
As a result the number of final consumers impacted should be mea
people.

Type of action: Coordination and support action

The conditions for this topic are provided in the general con nk]



Contexto Político – Estratégias Europeia de apoio ao desafio Energia no Horizonte 2020

SC 3 – Secure, clean and Efficiency Energy

- *Climate and Energy Package*
- *Strategic Energy Technology Plan (SET-Plan) | Energy technologies and Innovation Communication*
- *Energy Roadmap*
- *European Innovation Partnership (EIP) - Smart Cities and Communities*

Estrutura do Programa de Trabalhos Energia 2014-2015

ENERGY EFFICIENCY – 21 TÓPICOS
Call: *H2020-EE-2014/2015 - 191 M€*

SMART CITIES AND COMMNUNITIES – 5 TÓPICOS
Call: H2020-SCC-2014/2015 – 160,5 M€

BLUE GROWTH– 3 TÓPICOS
(Off-shore challenges)
Call: H2020-BG-2014/2015

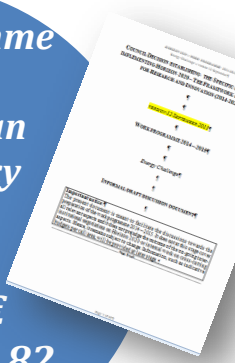
+

LOW CARBON ENERGY – 22 TÓPICOS
Call: H2020-EE-2014/2015 - 736,53 M€

SMES & FAST TRACK INNOVATION – 2 TÓPICOS
Call: H2020-SIE-2014/2015 - 85,21 M€

Work Programme 2014-2015 – Secure, clean and Efficiency Energy

562,07 M€ (2014) / 610,82 M€ (2015)



Call Energy Efficiency

A – Buildings and Consumers **-** reduzir o consumo de energia nos edifícios através de: aumentar taxa, qualidade e eficácia da renovação dos edifícios , comportamento dos consumidores (gestão consumo, smart metering) **12 tópicos | ~1 M€ - 2M€ /projeto**

B- Heating and cooling **-** Sistemas de aquecimento e arrefecimento renováveis, com soluções integradas (ao nível da conceção, tecnologia, construção e mudança comportamental) **2 tópicos | 1,5 M€ - 2M€ /projeto**

C – Industry and products **-** Tecnologias de eficiência energética em termos de processos e da industria transformadora **4 tópicos| ~1,5 M€ - 2M€ /projeto**

D – Finance for sustainable energy **-** Criação de instrumentos financeiros e parcerias com a banca para apoio de serviços/projetos inovadores de eficiência energética **3 tópicos | ~1 M€ - 2M€ /projeco**

Energy Efficiency - Buildings & Consumers

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

- ***Scope:*** *Mainly demonstration activities.*
- ***Impact:*** *Energy savings, reduction renovation costs and time, etc.*

IA | Contr. CE: 3-5M€/projeto | TRL 5-7

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

- ***Scope:*** *Demonstration projects where buildings are active contributors to production and environmental quality (e.g. for new districts planned), etc.*
- ***Impact:*** *Increase the number of 'nearly zero-energy' buildings.*

IA | Contr. CE: 3-5 M€/projeto | TRL 5-7

PPP EEB

Energy Efficiency - Buildings & Consumers

EE 3 – 2014: Energy strategies and solutions for deep renovation of historic buildings

- ***Scope:****Demonstrate the effectiveness of the technologies, methodologies, systems or tools developed and prove the replication potential.*
- ***Impact:*** *Optimised design and implementation of* ***renovation projects for historic buildings****.*

RIA | Contr. CE: 3-5M€/projeto | TRL 4-6

PPP EEB

EE 4 – 2014: Constrution skills*.*

- ***Scope:*** *Upgrade or establishing large-scale* ***qualification and training schemes*** *in order to increase the number of skilled building workers. Includes also qualification and skills of middle and senior level building professionals.*
- ***Impact:****. e.g. 1 million Euro of EU support = increase the skills of at least 2000 craftsmen.*

CSA | Contr. CE: 1-1,5 M€/projeto |

Energy Efficiency - Buildings & Consumers

EE 5 – 2014/2015: Increasing energy performance of existing buildings … and creating a market for deep renovation

- ***Scope:****Development, testing and/or implementation of regulations, decision-making tools for renovation strategies, quality standards and enabling conditions to finance deep renovation of buildings, etc.*
- ***Impact:*** *e.g. renovation of existing buildings towards high energy performance, should result in energy savings of at least 25 GWh/year per million EUR of EU support*

CSA | Contr. CE: 1.5-2M€/projeto

Energy Efficiency - Buildings & Consumers

EE 6 – 2015: Demand response in blocks of buildings

- ***Scope:*** *Cost effective, real time optimisation of energy demand, storage and supply in blocks of buildings with the help of intelligent energy management systems.*
- ***Impact:*** *Demonstrate demand response at the level of blocks of buildings, quantify energy, cost saving, etc.*

IA | Contr. CE: 3-5M€/projeto | TRL 6-7

EE 9- 2014/2015: Empowering stakeholders to assist public authorities in the definition and implementation of sustainable energy policies and measures

- ***Scope:*** *Projects to target specific actors among stakeholders (utilities, industry, financing institutions, non-gov. org., consumer associations, interest groups, trade unions…). Large scale capacity building or engagement activities.*
- ***Impact****: e.g. influence hundreds of stakeholders playing a key role in the definition and successful implementation of national, regional or local policies.*

CSA | Contr. CE: 1,5-2M€/projeto

Energy Efficiency - Buildings & Consumers

EE 10 – 2014/2015: Consumer engagement for sustainable energy

- ***Scope:*** *Reducing market barriers through changing behaviour of consumers using market segmentation and focus on "action"*
- ***Impact:*** *e.g. each million € of EU support expected to deliver annual energy savings of around 10% for at least 5,000 households (around 8 GWh/year of savings).*

CSA | Contr. CE: 1-1,5M€/projeto

EE 11 – 2014/2015: New ICT-based solutions for EE.

- ***Scope:*** *Projects to target specific actors among stakeholders (utilities, industry, financing institutions, non-gov. org., consumer associations, interest groups, trade unions…). Large scale capacity building or engagement activities.*
- ***Impact****: e.g. influence hundreds of stakeholders playing a key role in the definition and successful implementation of national, regional or local policies.*

RIA | Contr. CE: 1,5-2M€/projeto

Energy Efficiency - Heating & Cooling

EE 13 – 2014/2015: Technology for district heating and cooling

- ***Scope:*** *Develop, demonstrate and deploy a new generation of highly efficient, intelligent district cooling and heating systems. Reduce distribution losses. Develop optimisation, control, metering, planning and modelling tools. New solutions for low temperature heat recovery and recirculation.*
- ***Impact:*** *e.g. reduce the energy consumption of space and water heating by 30 to 50% compared to today's level.*

RIA | Contr. CE: 1,5-2M€/projeto |TRL 4-6

EE 14 – 2014/2015: Removing market barriers to the uptake of efficient heating and cooling solutions

- ***Scope:*** *Innovative measures to accelerate the replacement of old, inefficient pace heaters and packaged cooling systems with products having A +++ to A+ energy labels. Inspection of heating and cooling systems.*
- ***Impact:*** *e.g significant impacts should also be measured in terms of investment made by stakeholders in sustainable energy.*

CSA | Contr. CE: 1,5-2M€/projeto

Energy Efficiency - Industry & Products

EE 15 – 2014/2015: Ensuring effective implementation of EU product efficiency legislation

- ***Scope:*** *Building up monitoring, verification and enforcement of the EU's related products policy.*
- ***Impact:*** *e.g. every million Euro of EU support is expected to generate at least 15 GWh/year of energy losses avoided from non-compliance.*

CSA| Contr. CE: 1,5-2M€/projeto

EE 16 - 2014/2015: Organisational innovation to increase energy efficiency in the industry

- ***Scope: Removing market barriers like lack of expertise and information on energy management****. Uptake of cross-cutting innovative technologies. Industrial systems efficiency benchmarking. Sector specific technology pathways.* ***Energy management in SMEs and industry****. Human and organisational change.*
- ***Impact:*** *e.g. every million Euro of EU support is expected to result in savings of at least 25 GWh per year.*

CSA| Contr. CE: 1,5-2M€/projeto

Energy Efficiency - Industry & Products

EE 17 – 2015: Driving energy innovation through large buyer groups

- ***Scope:*** *Actions where groups of buyers can set higher-than-available performance levels which manufacturers of sustainable energy products are called to meet through product innovation.*
- ***Impact:*** *New energy-using or -producing products with at least 25% better performance than the best available products*

CSA| Contr. CE: 1,5-2M€/projeto

EE 18 - 2014/2015: New technologies for utilization of heat recovery in large industrial systems…,

- ***Scope:*** *Research and demonstration of technologies to recover waste heat from industrial processes. Validation at real production conditions with demo sites, testing in industrial facilities.*
- ***Impact:*** *e.g. viable solutions and technologies allowing recovering at least 15% of process heat, etc*

CSA| Contr. CE: 3-4M€/projeto |TRL4-7

Energy Efficiency - Finance for Sustainable energy

EE 19 – 2014/2015: Improving the financeability and attractiveness of sustainable energy investments

CSA| Contr. CE: 1,5-2M€/projeto

EE 20 - 2014/2015: Project development assistance for innovative, bankable and aggregated sustainable energy investment schemes and projects

CSA| Contr. CE: 0,5-2M€/projeto

EE 21 – 2014/2015: Development and market roll-out of innovative energy services and financial schemes for sustainable energy

CSA | Contr. CE: 1-1,5M€/projeto

Call Energy Efficiency: Deadlines

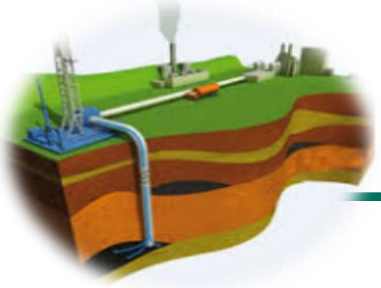
Topics*	2014	2015
EE1, EE3, EE18	20/03/2014	
EE4, EE5, EE7, EE8, EE9, EE10, EE11, EE12, EE13, EE14, EE15, EE16, EE19, EE20, EE21	05/06/2014	
EE2, EE18	09/12/2014	
EE5, EE6, EE7, EE9, EE10, EE11, EE13, EE14, EE15, EE16, EE17, EE19, EE20, EE21		10/06/2015

Call Competitive Low Carbon Energy

Renewable electricity and heating/cooling **-** redução dos custos da produção de energia renováveis, eficiência dos recursos e impacto ambiental, cadeia de oferta e processos de fabrico competitivos. **Tecnologias:** Fotovoltaico, Solar Concentrado, Eólica, Oceanos, hídrica, geotérmica, Aquecimento/arrefecimento

Modernising the single European electricity grid **-** Rede elétrica europeia inteligente, envolvendo grandes inovações tecnológicas para transmissão, distribuição e armazenamento a todos os níveis.

Sustainable biofuels and alternative fuels for the European transport fuel mix **-** Desenvolvimento de biocombustíveis avançados, e combustíveis alternativos



Enabling the sustainable use of fossil fuels in the transition to a low carbon economy **-** Descarbonização do sector energético

Low Carbon Energy - Renewable electricity and heating/cooling

LCE 2 – 2014/2015: Developing the next generation technologies of renewable electricity and heating/cooling

- ***Specific Challenges:*** *Photovoltaics, CSP, Wind Energy, Ocean Energy, Hydropower, Heating and Cooling, Geothermal*
- ***Scope:*** *Proposals should address one or more technologies-specific challenges TRL 4-5. Technical issues, synergies between technologies, socio-economic and environmental aspects (incl. public acceptance, business cases, pre-normative and legal issues, pollution and recycling).*
- ***Impact:*** *increase technology performance, reducing life-cycle environment impact, improving EU energy security, reducing renewable energy technologies installation time and costs,*

RIA | Contr. CE: 3-6 M€/projeto | TRL 6-7

Low Carbon Energy - Renewable electricity and heating/cooling

LCE 3 – 2014/2015: Demonstration of renewable electricity and heating/cooling

- ***Specific Challenges:*** *Photovoltaics, CSP, Wind Energy, Ocean Energy, Heating and Cooling, Geothermal*
- ***Scope:*** *Proposals should address one or more technologies-specific challenges TRL 6-7. Technical issues, synergies between technologies, socio-economic and environmental aspects (incl. public acceptance, business cases, pre-normative and legal issues, pollution and recycling).*
- ***Impact:*** *increase technology performance, reducing life-cycle environment impact, improving EU energy security, reducing renewable energy technologies installation time and costs,etc*

IA | deadline: 20/03/2014 | Contr. CE: 5-20 M€/projeto | TRL 6-7

LCE 4 - 2014/2015: Market uptake of existing and emerging renewable electricity, heating and cooling technologies

- ***Scope:*** *Ensuring sustained public acceptance, ensuring speedy and user friendly permitting procedures, energy policies, codes and legislations, regulation, facilitating the deployment of improved business models and innovative financing schemes for mobilising investments*
- ***Impact:*** *substantial and measurable reductions in the transaction costs for project developers*

IA | deadline: 20/03/2014 | Contr. CE: 5-20 M€/projeto | TRL 6-7

Low Carbon Energy – Electricity Grids

LCE 5 – 2015: Innovation and technologies for the development of meshed off-shore grids

- ***Scope:*** *first phase for deployment of innovative components of interoperable meshed off-shore HVDC network technologies, services and tools architectures. It is expected that the projects will cover TRL6 or 7, bringing them to TRL 8.*
- ***Impact:*** *accelerating the deployment of meshed HVDC off-shore grids, ensuring plug-and-play compatibility ; facilitating the efficient connection of off-shore wind resources to on-shore load*

IA | Contr. CE: 30-40 M€/projeto | TRL 6-7

LCE 6 - 2015: Transmission grid and wholesale market

- ***Scope:*** *Integrating and validating solutions to grid challenges, concentrating on field demonstration of system integration, up-scaling at industrial scale and supporting R&D. Preparing first replication of the solutions, appropriate market models, business cases, user and general public acceptance, regulatory, market up-take, social, environmental and resource efficiency aspects should be included*
- ***Impact:*** *substantial and measurable reductions in the transaction costs for project developers*

IA /RIA | Contr. CE: 12-17 M€/projeto

Low Carbon Energy – Electricity Grids

LCE 7 – 2015: Distribution grid ad retail market

- ***Scope:*** *integrating and validating solutions to grid challenges concentrating on field demonstration of system integration. Preparing first replication of the solutions in different contexts and/or cities integrating retail markets, distributed renewable energy, demand response, new business models, advanced ICT.*
  - *a) Development of ICT tools and services for smart grids - (3 to 4 projects of about 2.5 to 3 M€)*
  - *b) Demonstrate innovative demand response in the real grid - (3 to 4 projects of about 9 to 12 M€)*
  - *c) Cheap smart meters (< 100 €) - (3 to 5 projects of about 2.5 to 3 M€)*
  - *d) Study best future ICT infrastructure - (1 project: about 1 M€)*

- ***Impact:*** *Demand response in real world environments in commercial open; eliver innovative ICT-based services and tools; ctive participation of prosumers, and new players in energy markets; etc*

IA |CSA

Low Carbon Energy – Storage

LCE 8 – 2014: Local / small-scale storage

- ***Scope:*** *The direct/indirect storage must take into account grid interfaces and synergies between electricity, heating/cooling and final applications when they enable a clear benefit to be validated in this context.*

IA | Contr. CE: 8-12 M€/projeto | TRL 5-6

LCE 9 – 2015: Large Scale Energy Storage

- ***Scope:*** *The activities must address the interfaces for **integrating storage in grid management**. Demonstration proposals should include market uptake measures for integrating energy storage in the electricity network and power system management.*

IA | Contr. CE: 20-25 M€/projeto | TRL 6-7

LCE-10: Next Generation Energy Storage

- ***Scope:*** *storage technologies of all sizes relevant to energy applications and all types of locations.*
- *The activities need to take into account grid interfaces and, when appropriate, use synergies between technologies.*

RIA | Contr. CE: 6-9 M€/projeto | TRL 2-5

Low Carbon Energy – Biofuels and alternative fuels

LCE 11 – 2014: Developing next generation technologies for biofuels and sustainable alternative fuels

- ***Scope:*** *Improving conversion efficiency and/or enlargement of the biomass feedstock basis; Developing alternative fuels through use of new and sustainable resources from non-biomass non-fossil sources*
- ***Impact:*** *use of new feedstocksources, , cost of reduction to compete with fossil fuels.*

RIA | Contr. CE: 3-6 M€/projeto | TRL 4-5

LCE 12 – 2014/2015: Demonstrating advanced biofuel technologies

- ***Scope:*** *Proving that advanced biofuels and bioenergy carriers technologies, 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.*
- ***Impact****: testing advanced fuel technologies at large industrial scale to obtain data and experience require for a first-of-a-kind, commercial scale industrial demo projet*

IA | Contr. CE: 5-20 M€/projeto | TRL 6-7

Low Carbon Energy – Biofuels and alternative fuels

LCE 13 – 2014: Partnering with Brazil on advanced biofuels

- ***Scope:*** *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.*
- ***Impact:*** *testing advanced biofuel technologies at pre-commercial industrial scale*

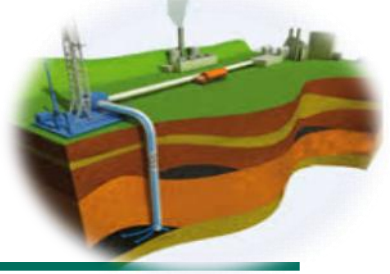
RIA | Contr. CE: 5-10 M€/projeto | TRL 5-7

LCE 14 – 2014/2015: Market uptake of existing and emerging sustainable bioenergy

- ***Scope:*** *Encouraging the EU farmers and foresters to produce also energy and energy intermediaries; Setting up or strengthening sustainable local bioenergy supply chains ; Development of methodologies for the traceability of biomass feedstocks.*
- ***Impact:***

CSA | Contr. CE: 1-2M€/projeto

Low Carbon Energy - Sustainable Use of Fossil Fuels



LCE15 – 2014/2015: Enabling decarbonisation of the fossil fuel-based power sector and energy intensive industry through CCS

RIA | Contr. CE: 9-16 M€/projeto | TRL 6

LCE16 – 2014: Understanding, preventing and mitigating the potential environmental impacts and risks of shale gas exploration and exploitation

RIA | Contr. CE: 1-3 M€/projeto | TRL 5-7

LCE17-2015: Highly flexible and efficient fossil fuel power plants

RIA | Contr. CE: 3-6 M€/projeto | TRL 4-6

Low Carbon Energy - Social, environmental and economic aspects of the energy system

LCE20 – 2014 : The human factor in the energy system

RIA/CSA | Contr. CE: 2-4 M€/projeto | TRL 6

LCE21 – 2014: Modelling and analysing the energy system, its transformation and impacts

RIA | Contr. CE: 2-4 M€/projeto

Call Low Carbon Energy: Deadlines

Topics*	2014		2015
LCE1, LCE2, LCE11, LCE15, LCE16	01/04/2014 (Stage 1)	23/09/2014 (Stage 2)	
LCE22	01/04/2014		
LCE4, LCE7, LCE8, LCE10, LCE14, LCE18	07/05/2014		
LCE1, LCE2, LCE11, LCE15, LCE17	03/09/2014 (Stage 1)		03/03/2015 (Stage 2)
LCE3, LCE12, LCE19, LCE20	10/09/2014		
LCE3, LCE12, LCE19, LCE21 LCE4, LCE5, LCE6, LCE9, LCE14			03/03/2015
LCE18			28/04/2015
LCE13			05/05/2015

Call Smart Cities and Communities

- ✓ Acelerar a implantação de tecnologias inovadoras, soluções organizacionais e económicas para aumentar significativamente os recursos e a eficiência energética, melhorar a sustentabilidade dos transportes urbanos e reduzir drasticamente as emissões de gases de efeito estufa em áreas urbanas.

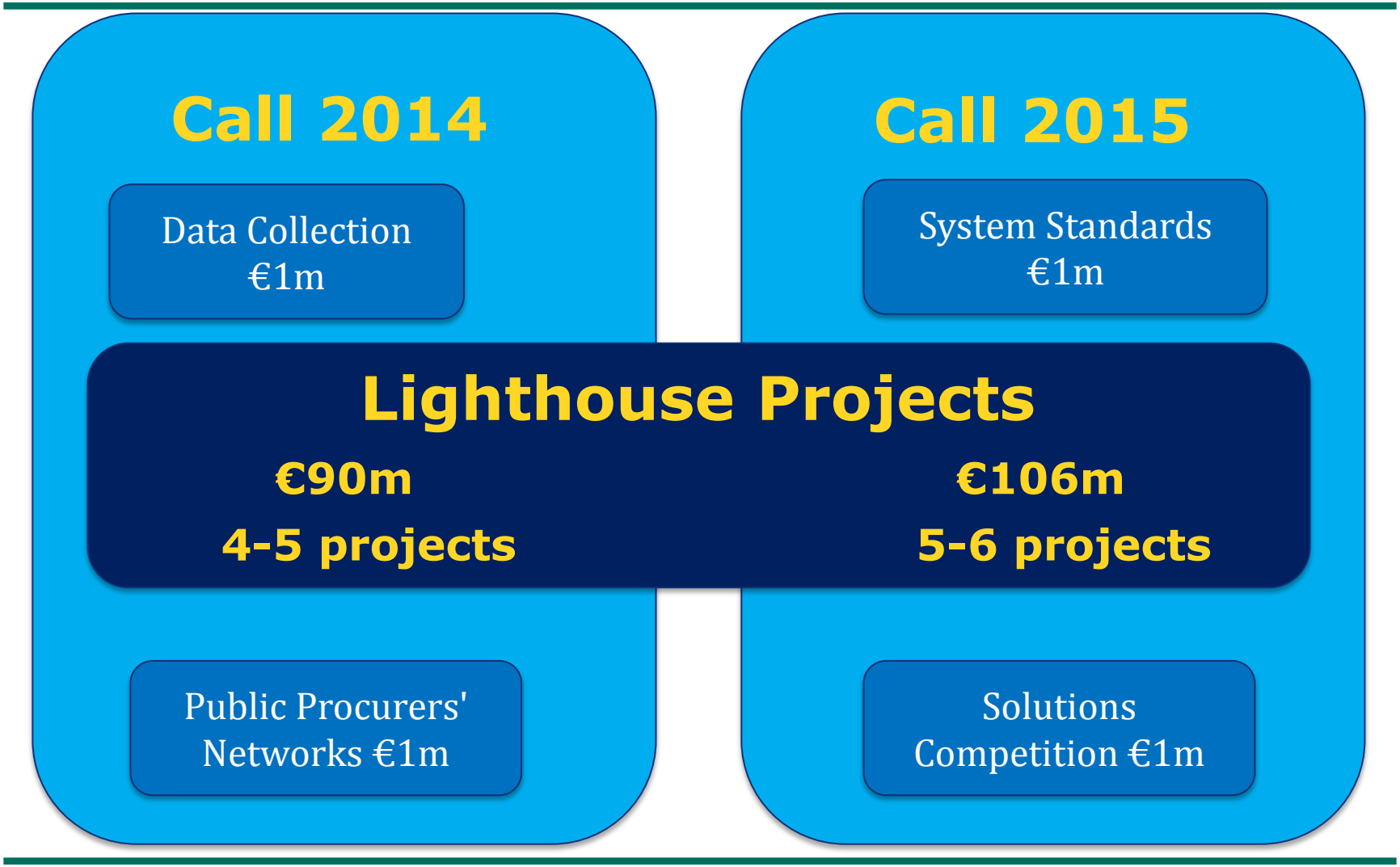
Foco / atividades principais:

✓Investigação e desenvolvimento de soluções tecnológicas avançadas

✓ Validação de novos casos de negócios e modelos de financiamento, standardização, escala e replicabilidade das soluções, a aceitação dos utilizadores e compromisso

✓Intensificação através de parceiras estabelecidas na EIP Smart Cities: *EIP Smart Cities - http://ec.europa.eu/eip/smartcities*

Call Smart Cities and Communities



Call Smart Cities and Communities

SCC 1 – 2014/2015: Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse (large scale demonstration - first of the kind)

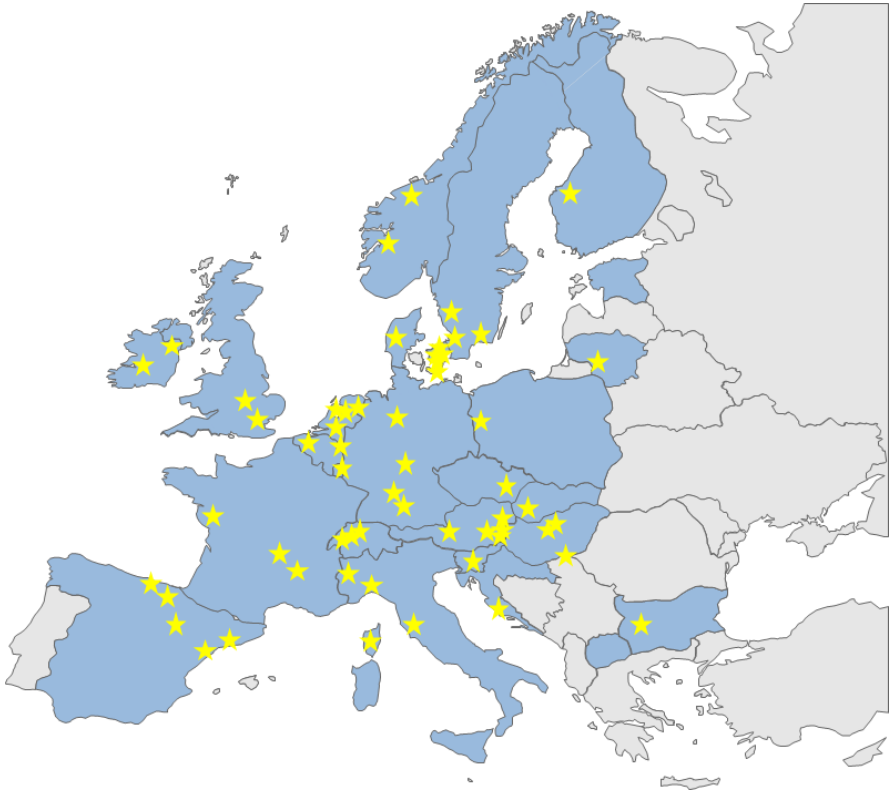
- *Scope (…) creating partnerships **between industries, academics and cities**, empower citizens and ensure the replicability of the solutions. Therefore each project should: (…) include **industry, city planning authorities** which should also reflect the view of the consumer organisations, research community, **local Small and Medium Size Companies (SMEs).***

- ***Impact:** deploy wide-scale, trigger large scale economic investments with the repayment of implementation costs in acceptable time lines (to facilitate the bankability of the projects); increase the energy efficiency of districts and of cities and foster the use of renewables and their integration energy system and enable active participation of consumers; mobility efficiency with lower emissions; reduce the energy costs; decarbonise the energy system; create stronger links between cities in Member States.*

IA | Contr. CE: 18-25M€/projeto

Smart Cities - Innovate: Go beyond what exists

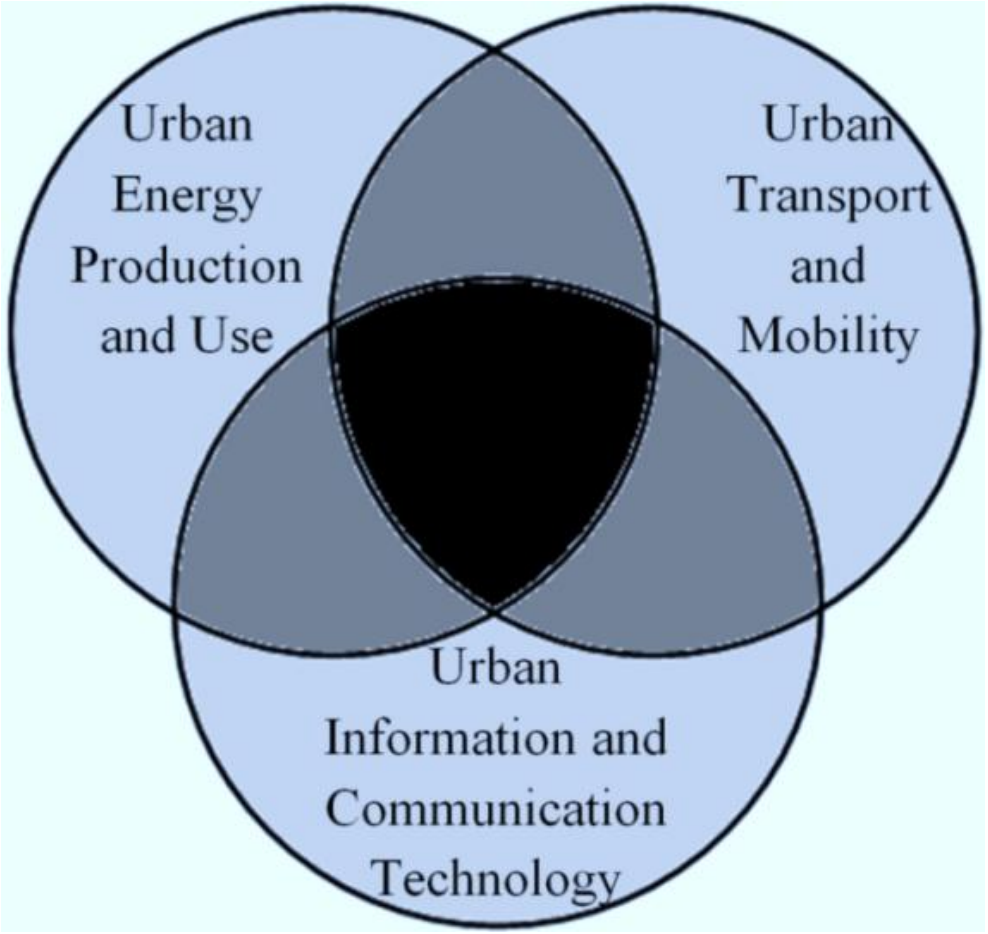
- Concerto in FP6 (2000-2006)
- Smart Cities in FP7 (2007-2013)
- Take to the next level
- www.concerto.eu



22 projects
58 communities

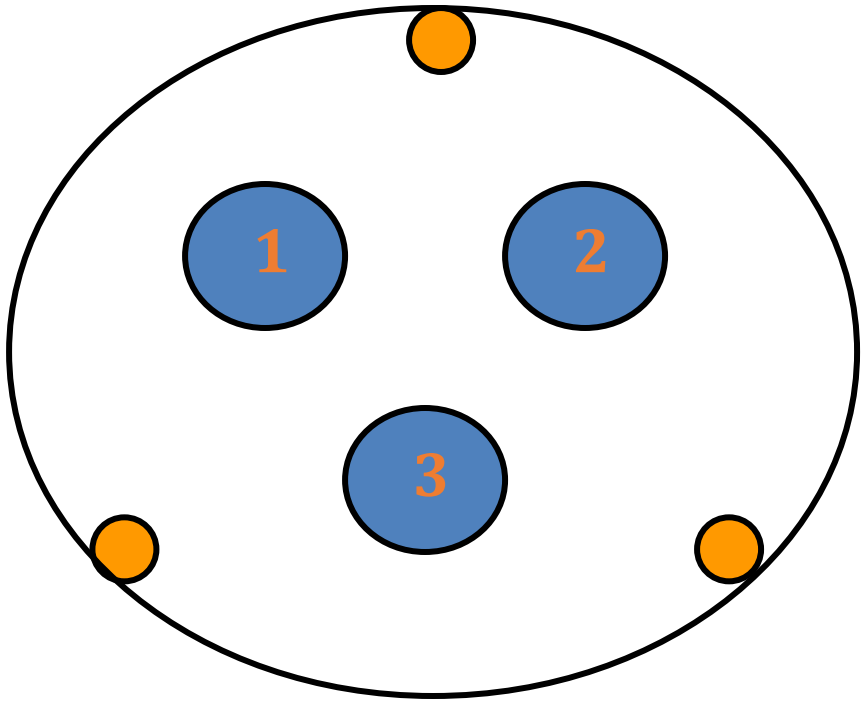
Smart Cities: Integrate

- 3 dimensions
- In same location



Smart Cities: Replicate

- 2-3 Lighthouse cities
- 2-3 Follower cities
- Multi-sector input
- Embedded in urban plans



Smart Cities: Administration

- ≥2 years monitoring
- Costs
- Time to grant
  - Financial viability
  - Commitment

Other Topics: Enhancing the role of Smart Cities

SCC 2 - 2014: Developing a framework for common, transparent data collection and performance measurement to allow comparability and replication between solutions and best-practice identification

CSA | Contr. CE: 0,5-1M€/projeto

SCC 3 – 2015: Development of system standards for smart cities and communities Solutions

CSA | Contr. CE: 0,5-1M€/projeto

SCC 4 – 2014: Establishing networks of public procurers in local administrations on smart city solutions

CSA | Contr. CE: 0,5-1M€/projeto

SCC 5 – 2014: Smart solutions for creating better cities and communities

Call Smart cities & communities: Deadlines

Topics*	2014	2015
SCC1	07/05/2014	
SCC2, SCC4	07/05/2014	
SCC1		03/03/2015
SCC3, SCC5		03/03/2015