THE EU FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020

H2020 - Energy Calls 2016-2017

European Commission

Content overview

- Context
- Relevant Calls 2016-2017
  - Energy Efficiency (EE)
  - Competitive Low-Carbon Energy (LCE)
  - Smart and Sustainable Cities – Smart Cities and Communities (SCC)
  - SME instrument
  - Fast track to Innovation
- Cross-cutting issues
- Rules for Participation
- Support

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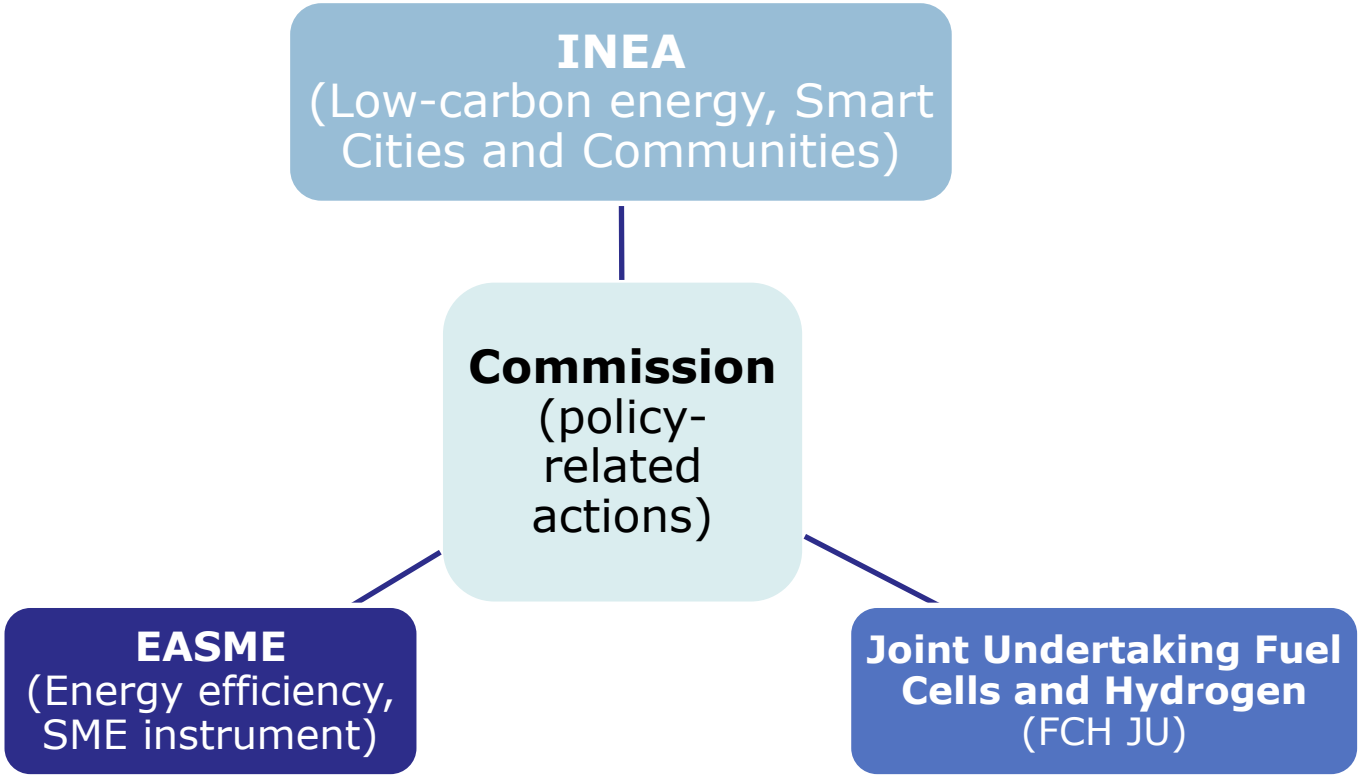
Implementation of the Energy Challenge



Implementation of the Energy Challenge

European Commission	Executive Agency
Defines the policy • Defines strategy, objectives and priority areas/work programmes • Selects projects for co-financing • Makes programme decisions • Evaluates the programme and the Agency's performance	**Turns policy into action** • Organises Calls for proposals • Monitors the technical and financial implementation of projects • Ensures sound financial management • Manages project life-cycle

Political Context

2030 Climate-Energy Package

- 40% reduction of Greenhouse Gases
- 27% of renewable energy
- 27% improvement in energy efficiency

Energy Union

- *Energy security, solidarity and trust*
- *A fully integrated internal energy market*
- *Energy efficiency first*
- *Transition to a low-carbon society*
- *An Energy Union for Research, Innovation and Competiveness*

SET-Plan

- *Integrated Roadmap*
- *Communication on Integrated SET-Plan (COM[2015]6317)*

Horizon 2020 – Overall Objectives

The 2016-2017 calls of the Energy Challenge

Energy Efficiency (EE)
- Heating and Cooling
- Engaging consumers
- Buildings
- Industry, services and Products
- Innovative financing

Competitive low-carbon energy Technologies (LCE)
- Energy system (grids, storage)
- Renewable energies
- Decarbonising fossil fuels
- Socio-economic research
- European Research Area in energy

Smart Cities and Communities (SCC)
- Light-house demonstration projects

SME instrument (SIE)

Call budgets (in Mio €)

Call	2016	2017
EE	93	101
LCE	352,66	367,62
SCC	60	71,50
SME	46	50

Types of actions

Research and Innovation Action (RIA)

- establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution

- 100% funding rate

- At least 3 legal entities from 3 different MS/AC

Innovation Action (IA)

- producing plans/arrangements or designs for new, altered or improved products, processes or services (incl. prototyping, testing, demonstrating, piloting, large-scale product validation and market replication)

- 70% funding rate (but 100% for non-profit organisations)

- At least 3 legal entities from 3 different MS/AC

Coordination and Support Action (CSA)

- accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services

- 100% funding rate

- At least 1 legal entity from MS/AC

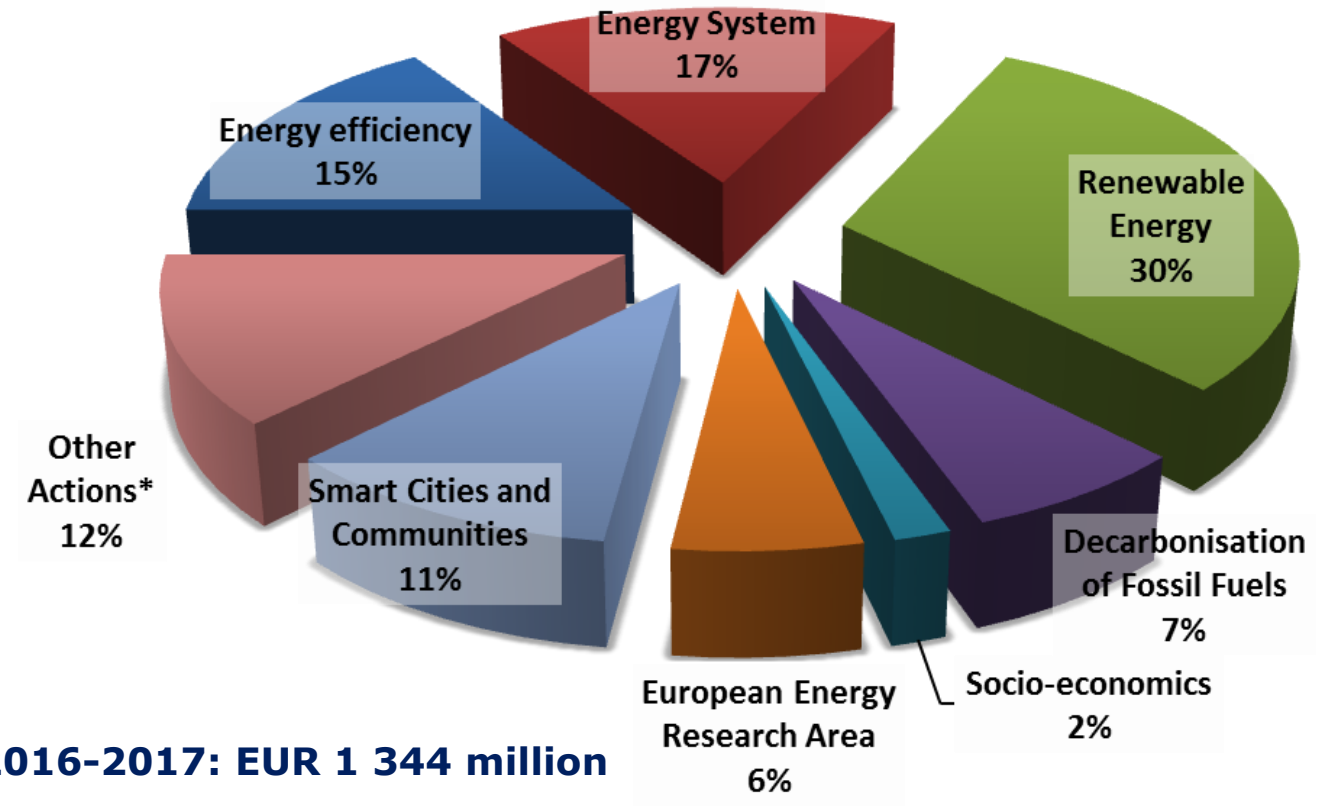
ERA-NET Cofund

- support public-public partnerships in their preparation, networking, design, implementation and coordination of joint activities as well as EU topping-up of a trans-national call for proposals

- At least 3 legal entities from 3 different MS/AC

- participants must be 'research funders'

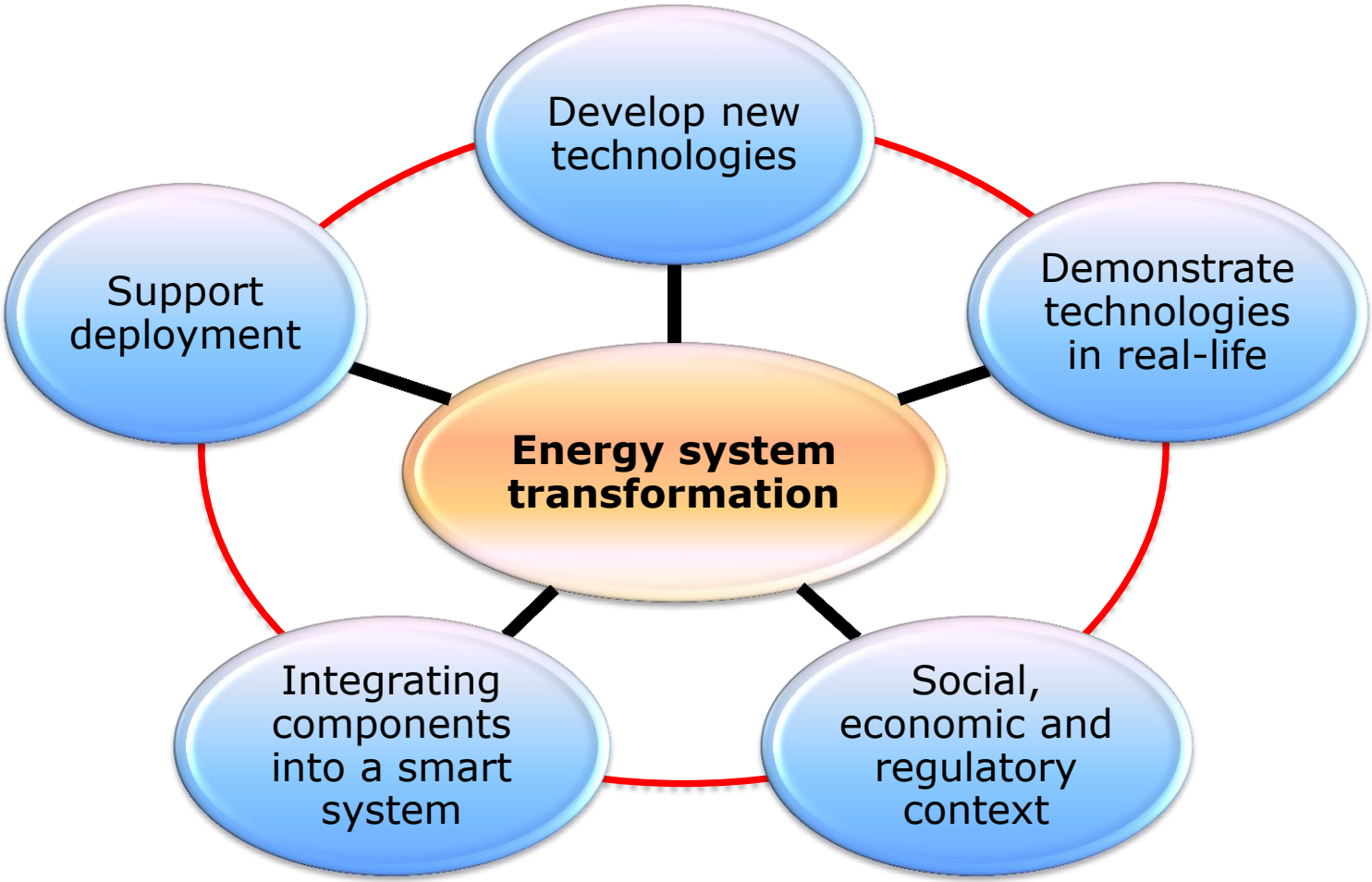
Indicative budget distribution per area for Energy calls 2016-2017



Total budget 2016-2017: EUR 1 344 million

* ***Other Actions*** = actions not implemented through calls for proposals (e.g. Risk Finance, procurements, subscriptions, contributions, grant to identified beneficiaries)

Systemic approach of the Energy Challenge



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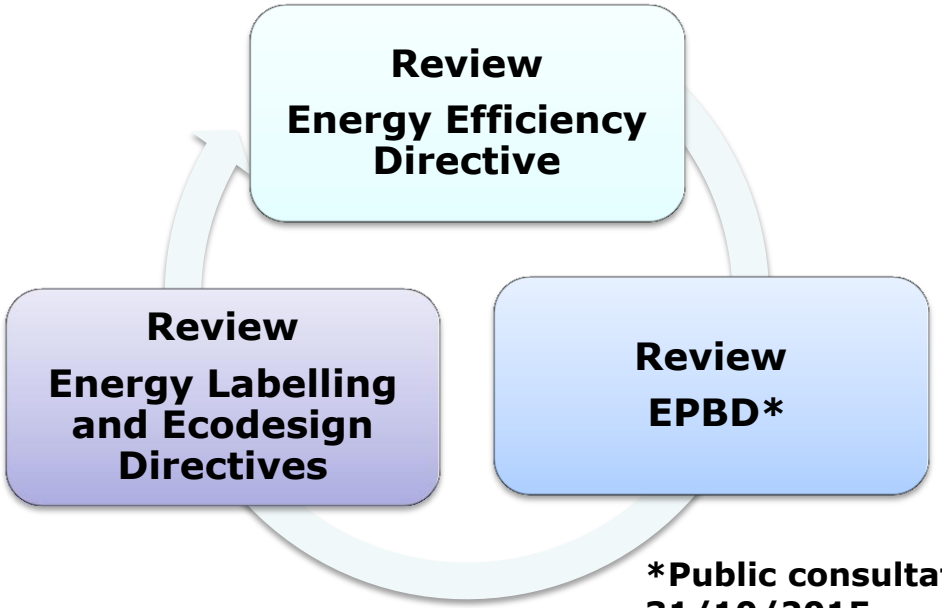
Policy context

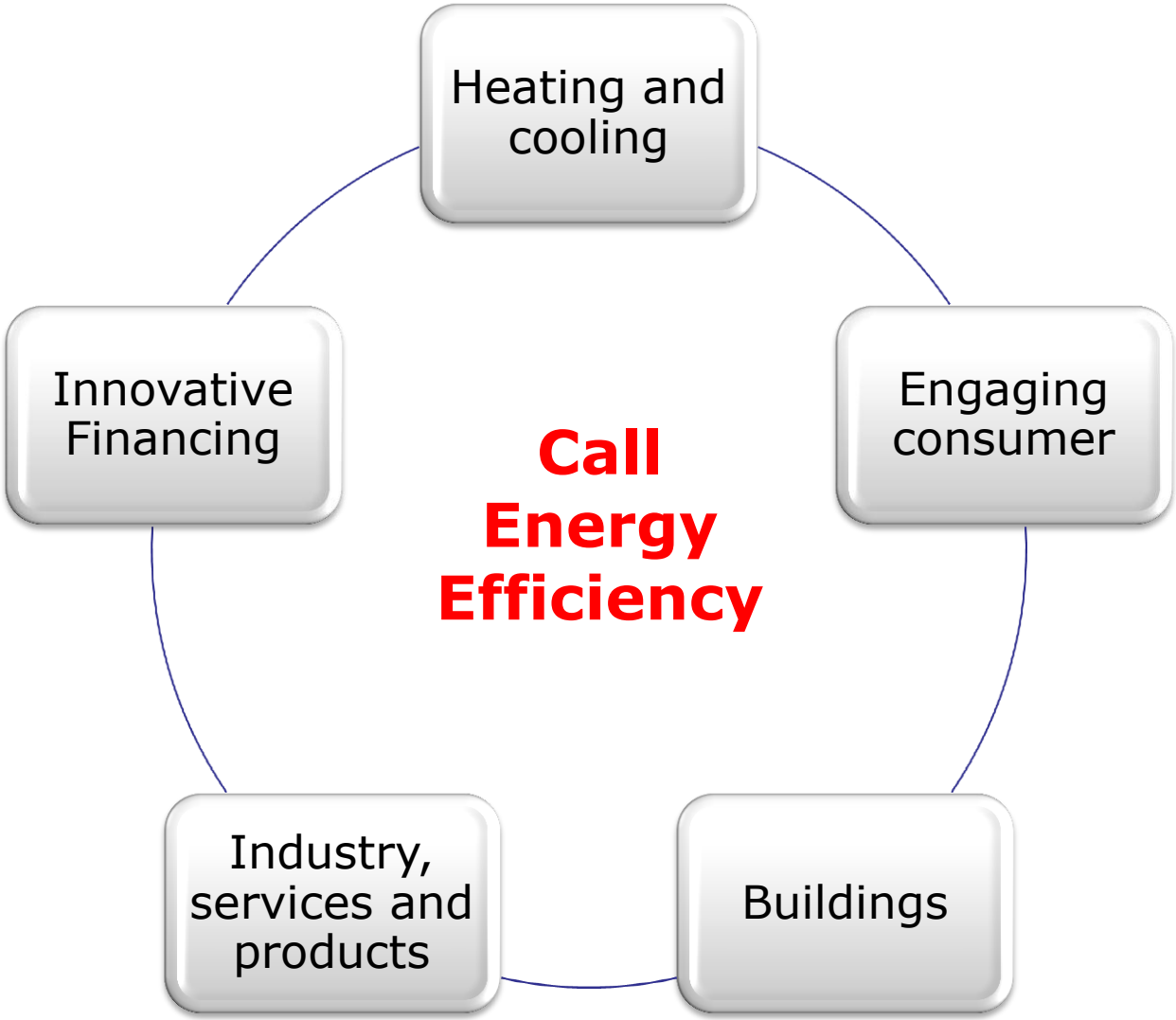
- 2020 & 2030 Framework for Climate and Energy
- Energy Union and its third pillar – Energy Efficiency



***Public consultation until 31/10/2015**

WP 2016-2017:

- Focussing on consumer-related issues
- More topics on heating and cooling
- Multi-level approach to eliminate market barriers to finance for energy efficiency

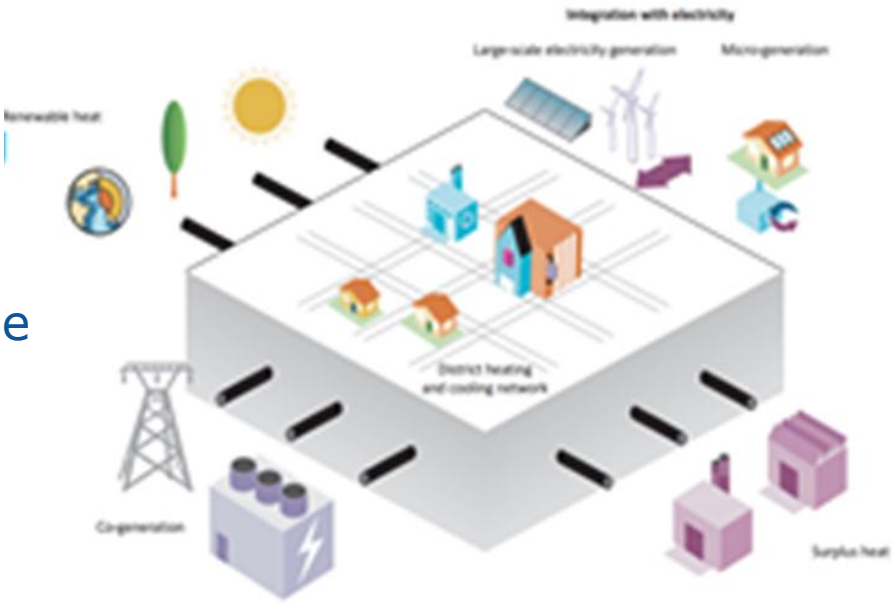

Heating and cooling
Engaging consumer
Buildings
Industry, services and products
Innovative Financing
Call Energy Efficiency

Heating & Cooling

Communication on policy strategy foreseen beginning 2016, based on broad consultation of stakeholders

Objectives :

- Tackling H&C consumption – Moderating demand
- Increasing energy efficiency in supply
- Maximising use of local sustainable and renewable energy sources
- Recovering waste heat
- Linking with electricity system
- Achieving affordable costs



Heating & Cooling – Topics 2016-2017

Innovation in **waste heat recovery** and **reuse technologies** (in cities and industry)

- *Topics EE-1-2017, EE-17-2016-2017, EE-20-2017*

District heating networks: innovation in urban waste heat reuse in DH, replication of efficient retrofitting of DH networks

- *Topics EE-1-2017, EE-2-2017*

Research and innovation of **efficient and low-carbon H&C technologies**

- *Topic EE-3-2016, EE-4-2016-2017*

Consumer in the centre

New deal for energy consumers:

- ✓ Empowering consumer
- ✓ Deploying demand side response
- ✓ Using smart technologies
- ✓ Protecting vulnerable customers

Objectives:

- ➢ Achieve a deeper understanding of consumer behaviour and motivation structures
- ➢ Inform, engage and activate consumers

WP 2016-2017 :

- ➢ A specific consumer-focused area with four dedicated topics
- ➢ Consumer-oriented approach in other parts

Consumer engagement – Topics 2016-2017

Engaging private consumers towards sustainable energy

- *Topic EE-6-2016-2017*

Behavioural change toward energy-efficiency through ICT

- *Topic EE-7-2016-2017*

Socio-economic research on consumer's behaviour related to energy efficiency

- *Topic EE-8-2016*

Engaging and activating public authorities

- *Topic EE-9-2016-2017*

- ***Consumer empowerment*** *through smart homes system and demand response EE-12-2017*
- ***Consumer information*** *through EU product efficiency legislation* EE-16-2016-2017

Buildings

Buildings account for 40% of the final energy consumption

Challenges

- Increasing the rate, quality and effectiveness of renovation to reduce the energy use in buildings, as well as their replication capacity;
- Integration of demand response in energy management systems while ensuring interoperability;
- Reducing the cost of designing and constructing new Near-Zero Energy Buildings (NZEBs) in order to increase their market uptake;
- Building capacity and provide support for sustainable energy policy implementation.

Buildings – Topics 2016-2017

Deep renovation of buildings

- *Topics EE-10-2016 (EeB-PPP), EE-11-2016-2017*

Demand response in energy management systems

- *Topic EE-12-2017 (EeB-PPP)*

Cost reduction of new Nearly Zero-Energy buildings

- *Topic EE-13-2016*

Construction skills

- *Topic EE-14-2016-2017*

Industry, services and products – Topics 2016-2017

Industry and service sectors represent more than 39% of the EU's final energy consumption

Challenges

- Energy efficiency investments in industrial & service sectors are not implemented due to a combination of market factors & barriers;
- Waste heat recovery in large industrial systems is not fully exploited and waste energy from one industry could be a resource for another;
- European industry needs to develop a global technological leadership in energy efficiency solutions
- Non-compliance with EU legislation (Eco-design and Energy labelling) is reducing savings;
- Demand for computing and data handling is driving increased energy consumption for data centres;
- Public sector spending means that it can act as a driver for procurement of innovative energy efficiency solutions

Industry, services and products – Topics 2016-2017

Capacity building in industry and energy services for industrial parks

- *Topic EE-15-2017, EE-18-2017*

Waste heat recovery / Energy symbiosis in industrial systems

- *Topic EE-17-2016-2017 (SPIRE-PPP)*

Joint energy-efficiency R&I efforts in industry & services (ERA-NET Cofund)

- *EE-21-2016*

Effective implementation of EU product legislation

- *Topic EE-16-2016-2017*

Energy efficient and integrated data centres

- *Topic EE-20-2017*

Public procurement of innovative energy efficiency solutions

- *Topic EE-19-2017*

Financing Energy Efficiency

100 bn € investments/year needed to achieve EE targets

Existing framework :

EFSI, ESIF, H2020, Smart Finance for Smart Buildings

Challenge:

- Improve supply of **large-scale finance** at a low cost for by:
  - Providing **Project Development Assistance** to public and private sectors to deliver innovative and bankable sustainable energy investments;
  - Development of **innovative financing schemes** insuring flow of private finance for EE investments;
  - Increase "readability" of market fundamentals for financiers and investors through **benchmarking and standardisation** of EE investments;
  - Develop, demonstrate and standardise new types of **energy efficiency services and business models**

Financing Energy Efficiency – Topics 2016-2017

Aggregation - Project development assistance

- *Topic EE-22-2016-2017*

De-risking - Standardisation and benchmarking

- *Topic EE-24-2016*

Market based culture - Energy efficiency services and innovative financing schemes

- *Topic EE-25-2016, EE-23-2017*

Energy Efficiency call 2016 - Overview

Deadline 21 January 2016

- Sub-budget: EUR 16 million
  - EE-10
  - EE-17
- Sub-budget: EUR 34 million
  - EE-3
  - EE-4
  - EE-5
  - EE-7
  - EE-8

IA – green
RIA – blue
CSA- orange
ERA-NET - black

Deadline 15 September 2016

- Sub-budget: EUR 30 million
  - EE-6
  - EE-9
  - EE-11
  - EE-13
  - EE-14
  - EE-16
  - EE-24
  - EE-25
- Sub-budget: EUR 8 million
  - EE-22
- Sub-budget: EUR 5 million
  - EE-21

Energy Efficiency call 2017 - Overview

Deadline 19 January 2017

- Sub-budget: EUR 16 million
  - EE-12
  - EE-17
- Sub-budget: EUR 30 million
  - EE-1
  - EE-4
  - EE-7
  - EE-20

IA – green
RIA – blue
CSA- orange
ERA-NET – black
PPI - purple

Deadline 7 June 2017

- Sub-budget: EUR 47 million
  - EE-2
  - EE-6
  - EE-9
  - EE-11
  - EE-14
  - EE-15
  - EE-16
  - EE-18
  - EE-19
  - EE-23
  - EE-24
- Sub-budget: EUR 8 million
  - EE-22

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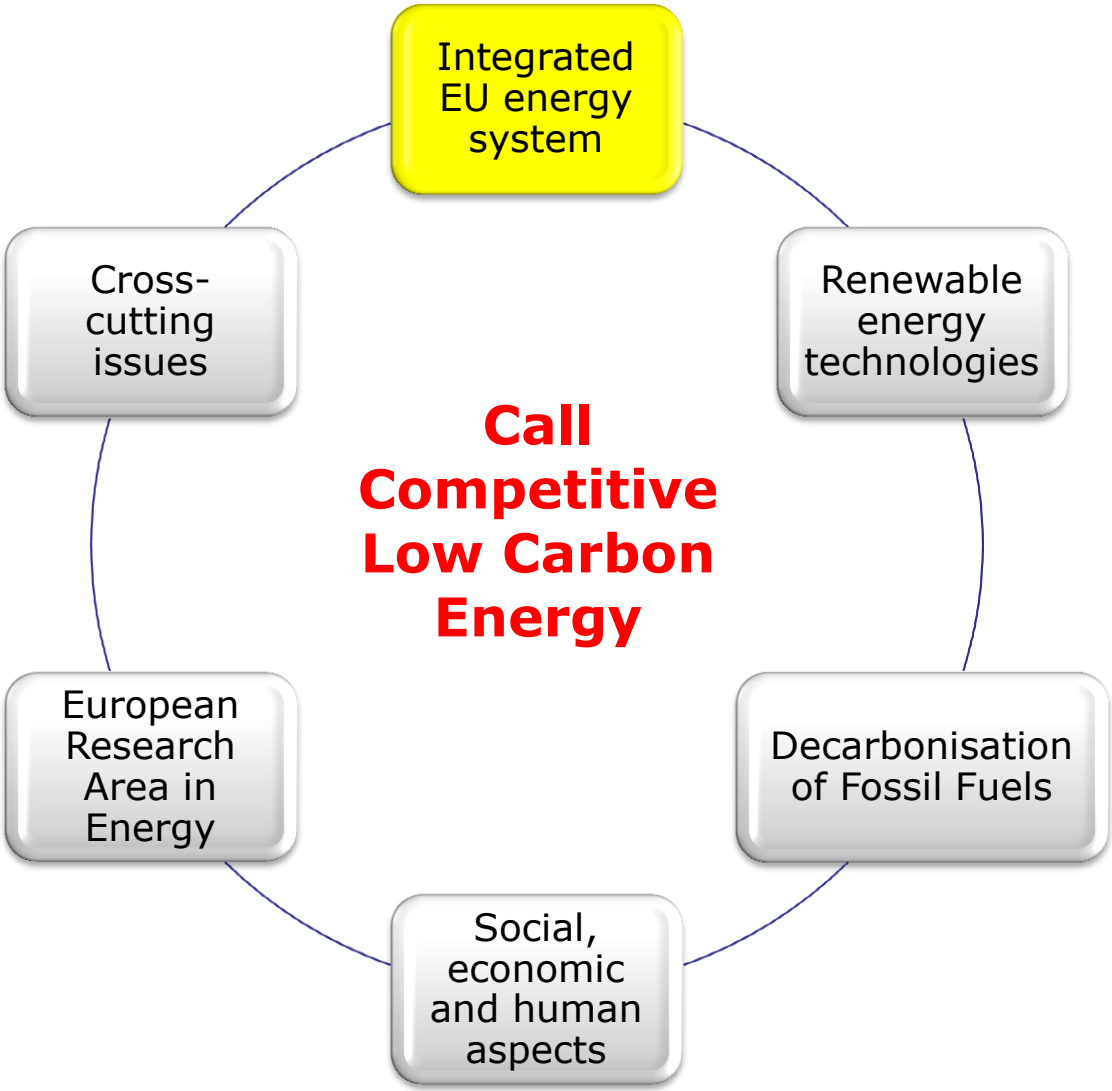

Integrated EU energy system
Renewable energy technologies
Decarbonisation of Fossil Fuels
Social, economic and human aspects
European Research Area in Energy
Cross-cutting issues
Call Competitive Low Carbon Energy

Energy system – Context

Challenges for the European energy system

- Increasing electricity generation and consumption
- Increasing share of renewable energies in electricity generation
- Strong growth of variable RES (wind, solar)
- Huge differences between national energy systems

Energy system – topics 2016

LCE-1
Next generation Distribution Technologies

Research and Innovation Action (TRL 3-6)

2-4 M€/project

Budget: 20 M€

Address either
- Storage or
- Synergies between networks

LCE-2
Demonstration of Distribution Technologies

Innovation Action (TRL 5-8),

12-15 M€/project

Budget: 73,46 M€

Address at least 3 :
- Demand response
- Smartening the distribution grid
- Energy storage and management
- Integration of transport needs

LCE-3
Support to R&I strategy

Coordination and Support Action (CSA)

1 proposal for up to 4 M€

- Develop R&I Roadmap
- Analyse R&I landscape/projects
- Organise workshops

Energy system – topics 2017

LCE-1
Next generation Distribution Technologies

Research and Innovation Action (TRL 3-6)

2-4 M€/project

Budget: 18 M€

Address either
- Demand response
or
- Smart grids

LCE-4
Demonstration of Transmission Technologies

Innovation Action (TRL 5-8),

15-20 M€/project

Budget: 65,12 M€

Address at least 2 :
- Power transmission
- Large-scale storage
- ICT/tools for flexibility
- Wholesale market

LCE-5
Support to R&I strategy

Research and Innovation Action

2-4 M€/project

Budget: 28 M€

Address at least 1:
- energy system planning
- Tools for TSO/DSO coordination
- Data handling
- Synergies between gas and electricity
- socio-economics

Energy system - Overview

Deadline 5 April 2016

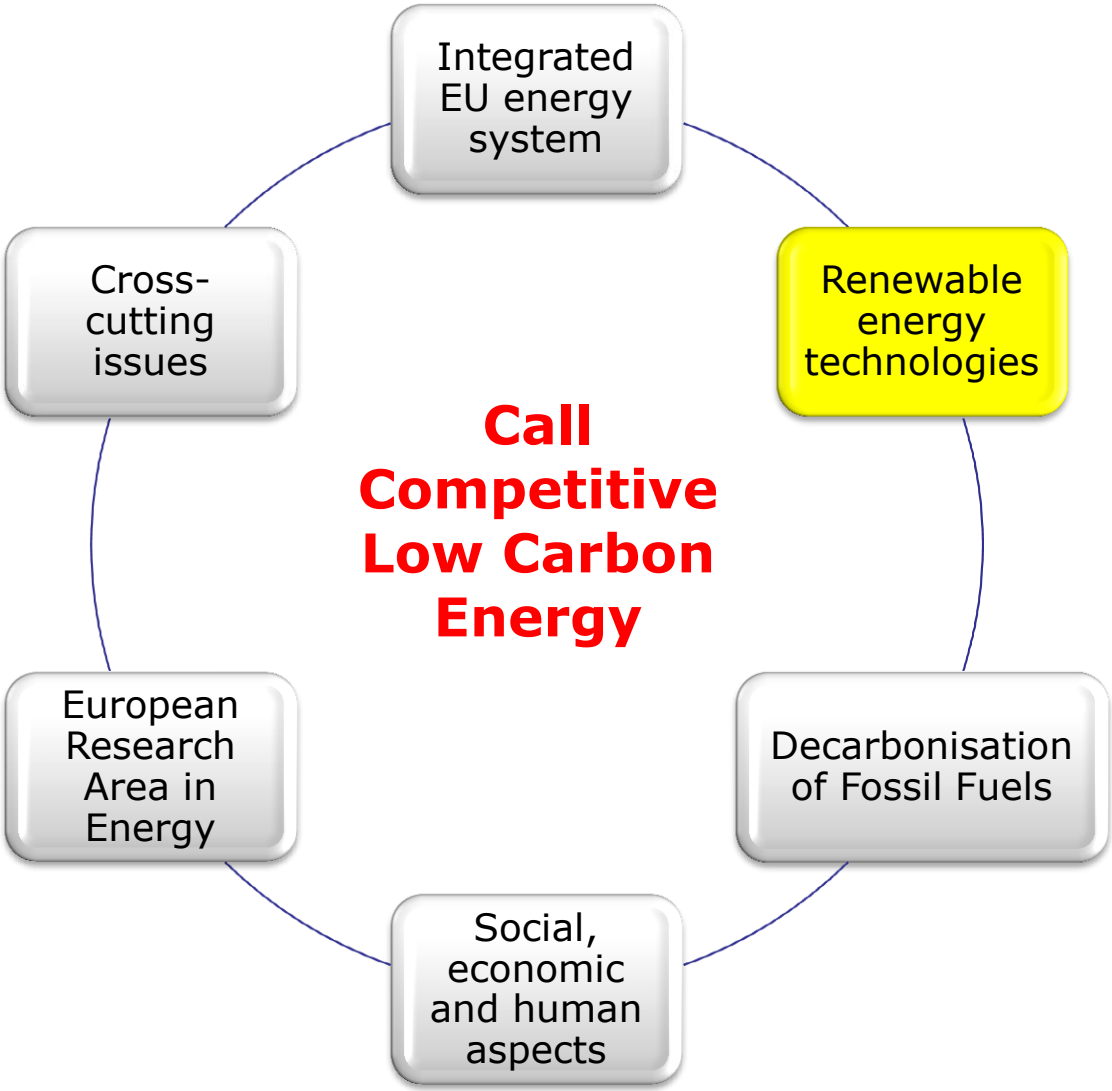
- LCE-1 – budget 20 M€
- LCE-2 – budget 73.46 M€
- LCE-3 – budget 4 M€

Deadline 14 February 2017

- LCE-1 – budget 18 M€
- LCE-4 – budget 65.12 M€
- LCE-5 – budget: 28 M

IA – green
RIA – blue
CSA- orange

N.B.: Revision of topics and budgets for 2017 in early next year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Renewable energies - Overview

<table>
<tr><th></th><th>Basic Research (TRL <4)</th><th>Advanced Research (TRL 3-5)</th><th>Demonstration (TRL 5-7)</th><th>Market uptake</th></tr>
<tr><td>PV</td><td rowspan="12">LCE-6</td><td rowspan="9">LCE-7</td><td>LCE-9, LCE-10</td><td rowspan="2">LCE-21</td></tr>
<tr><td>CSP</td><td>LCE-11</td></tr>
<tr><td>Solar Heating and Cooling</td><td>LCE-12</td><td></td></tr>
<tr><td>Wind Energy</td><td>LCE-13, LCE-14</td><td rowspan="7">LCE-21</td></tr>
<tr><td>Ocean Energy</td><td>LCE-15, LCE-16</td></tr>
<tr><td>Hydropower</td><td></td></tr>
<tr><td>Geothermal Energy</td><td>LCE-17, LCE-23, LCE-18</td></tr>
<tr><td>CHP</td><td rowspan="2"></td></tr>
<tr><td>RES integration in the system</td></tr>
<tr><td>Bio- and Renewable Alternative Fuels</td><td>LCE-8, LCE-22</td><td>LCE-19, LCE-20</td></tr>
</table>

Photovoltaics (PV)

Rationale:

- High power generation potential;
- Reducing the total cost of installed solar energy systems and grid-integration bottlenecks remains a priority for the sector;
- PV R&D is necessary to re-launch an innovative and worldwide competitive industry relying on the existing PV technology knowledge-base in Europe.

Basic research

- Upscaling technologies currently at lab-scale (!excluding activities funded under NMBP 19-2016!) - *LCE-6-2017*

Advanced research

- Next generation of c-Si (2016) and perovskite (2017) PV cells and modules – *LCE-7-2016-2017 (no ringfenced budget)*

Demonstration

- Manufacturing innovations at pilot-line level for industrial production of cells and modules – *LCE-9-2016 (EUR 25 million)*
- Reducing cost of PV electricity – *LCE-10-2017 (EUR 10 million)*

Market-uptake

- Tackling the bottlenecks of high penetration levels of PV electricity into the electric power network – *LCE-21-2017 (no ringfenced budget)*

Concentrated Solar Power (CSP)

Rationale:

- Strong European industrial presence but the larger share of the market is outside Europe. The competition is growing.
- Need to reduce further the capital and the operational costs as well as to improve system operations, performances and environmental footprint (water consumption).

Basic research

- Upscaling technologies currently at lab-scale - *LCE-6-2017*

Advanced research

- Innovative components and configurations for reducing costs of CSP plants – *LCE-7-2016*
- New cycles and power blocks for reducing costs of CSP plants – *LCE-7-2017*

Demonstration

- Reducing water consumption of CSP plants – *LCE-11-2016 (EUR 12 million)*

Market-uptake

- Facilitating the supply of electricity from CSP plants in Southern Europe to Central and Northern European countries – *LCE-21-2017*

Solar Heating and Cooling

Rationale:

- Mature technology exists but it still remains under-exploited;
- New technology is needed to enlarge the application sectors;
- Issues of cost, performance and operability still exist;
- Cost competitiveness and acceptability of solar heating systems need to be improved.

Basic research

- Upscaling technologies currently at lab-scale - *LCE-6-2017*

Advanced research

- Innovative components for solar compact hybrid systems – *LCE-7-2016*
- Development of components for residential single-family solar-active houses – *LCE-7-2017*

Demonstration

- Solar heat in industrial processes – *LCE-12-2016 (EUR 8 million)*

Geothermal energy

Rationale:

- Geothermal energy has great untapped potential for diversifying the energy mix.
- "Shallow geothermal": retroffiting existing installations with improved technology;
- Enhanced geothermal systems (EGS): reduction of drilling costs and risks; demonstration of viable technologies to create new reservoirs.

Basic research

- Upscaling technologies currently at lab-scale - *LCE-6-2017*

Advanced research

- Improving borehole heat exchanger (shallow geothermal) – *LCE-7-2016*
- Materials for geothermal installations (deep geothermal) – *LCE-7-2017*
- International cooperation with Mexico (deep geothermal) – LCE-23-2016 (EUR 10 million)

Demonstration

- Geothermal systems for retrofitting buildings – *LCE-17-2016 (EUR 8 million)*
- EGS in different geological conditions – *LCE-18-2017 (EUR 10 million)*

Market-uptake

- Tackling bottlenecks for high penetration – *LCE-21-2017*
- Accelerating the penetration of heat pumps for heating and cooling – *LCE-21-2017*

Wind energy

Rationale:

- European industries are still world leaders but the competition is growing;
- Cost reductions for all components essential, in particular for offshore;
- Offshore considered as the future market - large turbines to be demonstrated
- Issues remain on environmental and social impact, and on public acceptance

Basic research

- Improved understanding of the physics of wind as primary energy source and wind energy technology - *LCE-6-2017*

Advanced research

- Advanced control of large-scale wind turbines and farms – *LCE-7-2016*
- Reduction of environmental impact – *LCE-7-2017*

Demonstration

- Solutions for reduced maintenance, increased reliability and extended life-time of off-shore wind turbines/farms – *LCE-13-2016 (EUR 10 million)*
- Large >10 MW wind turbines – *LCE-14-2017 (EUR 25 million)*

Market-uptake

- Increase market share of wind energy – *LCE-21-2017*

Ocean energy

Rationale:

- European industries are leading the emergence of the technologies.
- Many devices developed / prototypes tested, but market potential yet to be realised.
- Demonstration of reliable and survivable systems essential.
- Environmental, social and public impacts to be addressed

Basic research

- Upscaling technologies currently at lab-scale - *LCE-6-2017*

Advanced research

- Increased performace and reliability of ocean energy sub-systems – *LCE-7-2016*
- Innovative power take-off systems and control strategies – *LCE-7-2017*

Demonstration

- Scaling up in the ocean energy sector to arrays – *LCE-15-2016 (EUR 15 million)*
- Design tools for ocean energy devices and arrays development/deployment – *LCE-16-2017 (EUR 7 million)*

Market uptake

- Multi-use of the oceans' marine space, offshore and near-shore: compatibility, regulations, environmental and legal issues (CSA), *BG-3-2016*, Budget: EUR 2 million

Combined Heat and Power (CHP)

Rationale:

- CHP installations already in use, commercial applications exist and have been supported under previous framework programmes
- Market potential for residential scale and for specific industrial applications to increase generation flexibility.

Basic research

- Upscaling technologies currently at lab-scale - *LCE-6-2017*

Advanced research

- Highly efficient, low emission, medium- and large-scale biomass-based CHP systems – *LCE-7-2016*
- Transforming renewable energy into intermediates – *LCE-7-2017*

Integration of RES in the energy system

Rationale:

- Growing share of renewable energy sources requires rethink of system management;
- Complementing activities supported under the area *'Integrated EU energy system'*, integration is also addressed from the perspective of the generation sources in order to share burden and costs.

Advanced research

- LCE-7-2016-2017:
  - Developing system support functions enabling RES technologies to contribute - at transmission and distribution grid level - to a stable and safe energy system;
  - Define most suitable pathways for including integration considerations into the different RES development roadmaps

Biofuels (1/2)

Rationale:

- European industries have leading technologies, but currently little deployment in EU;
- Biofuels are medium-term solution for road and maritime transports and the only solution for air transport;
- Both biological and thermo-chemical pathways are necessary to provide technology diversity, but the challenges in each pathway are different;
- Large scale demonstrations are needed to boost market access;
- Research needed to reduce cost, improve environmental impact and performance efficiency.

Basic research

- Diversification of renewable fuel production through novel conversion routes/fuels - *LCE-6-2017*

Advanced research

- LCE-8-2016-2017: Next generation of:
  - *Paraffinic biofuels from sugar through chemical and/or biochemical pathways (2016)*
  - *Biofuels from pyrolysis or hydrothermal liquefaction (2016)*
  - *Synthetic biufuels/hydrocarbons through biomass gasification (2016)*
  - *Biofuels from CO2 in industrial waste flue gases or other waste through different pathways (2017)*
  - *Biofuels from phototropic algae / bacteria (2017)*

Biofuels (2/2)

Advanced research

- Cooperation with Brazil on advanced lignocellulosic biofuels - *LCE-22-2016 (EUR 5 million)*

Demonstration

- *LCE-19-2016-2017* (EUR 15 million for each 2016 and 2017)
  - Biomass gasification (2016)
  - Biomass pyrolysis and torrefaction to intermediate bioenergy carriers (2016)
  - Biochecmical conversion to diesel and jet fuels (2016)
  - Biofuels from waste flue gases / other wastes and residues (2017)
  - Biomass from aquatic biomass (2017)
- Pre-commercial production of advanced aviation biofuels – LCE-20-2016-2017 (EUR 15 million in 2016; EUR 10 million in 2017)

Market-uptake

- Market roll-out of liquid advanced biofuels and liquid renewable alternative fuels – *LCE-21-2017*

Renewable energy – Topic overview

Deadline 16 February 2016

- LCE-7 – budget 61,3 M€
- LCE-8 – budget 10 M€
- LCE-23 – budget 10 M€

Deadline 5 January 2017

- LCE-6 – budget 20 M€
- LCE-7 – budget 66,5 M€
- LCE-8 – budget: 10 M€
- LCE-21 – budget 15 M€

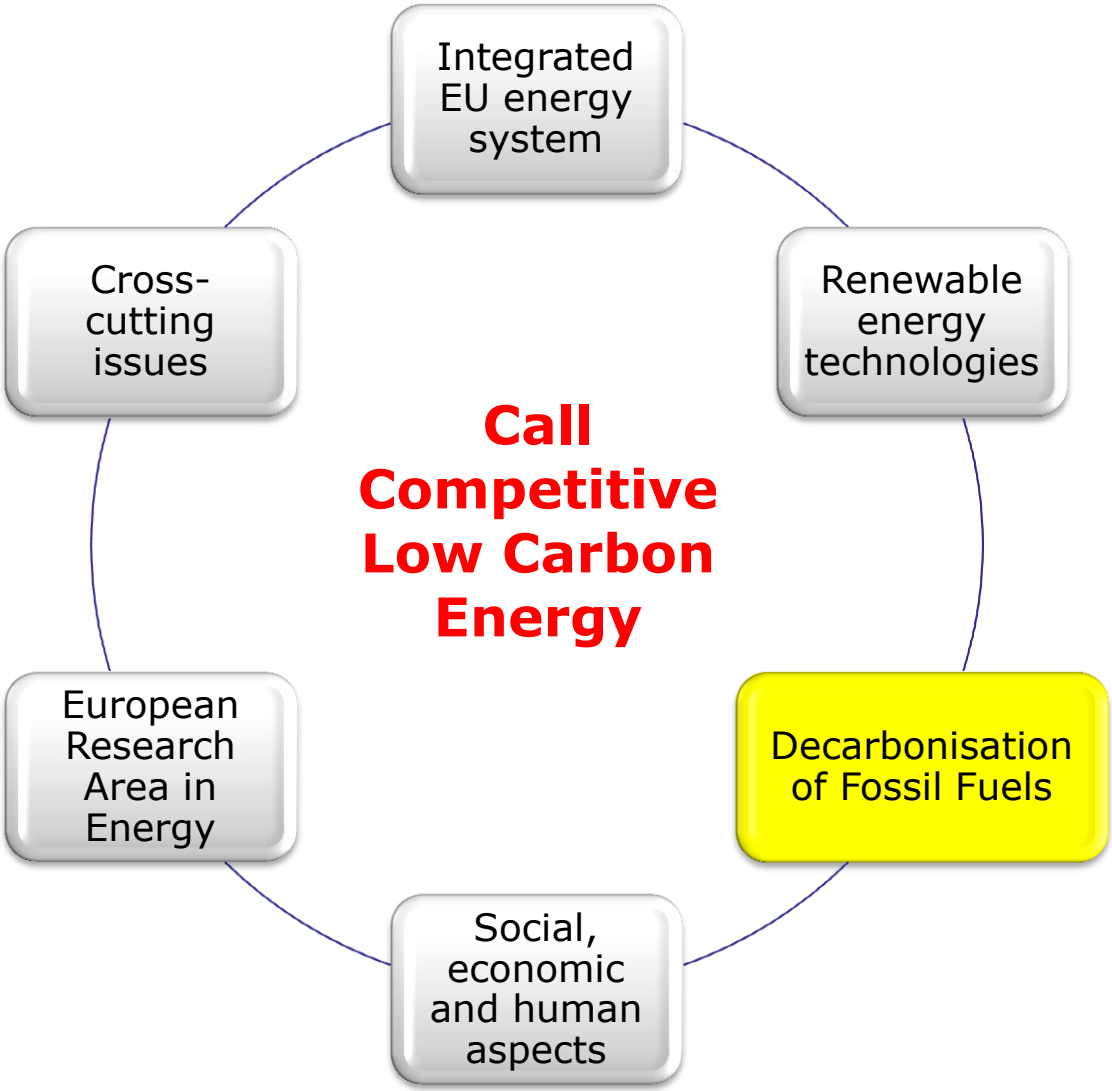
Deadline 8 September 2016

- LCE-9 – budget 25 M€
- LCE-13 – budget 10 M€
- LCE-15 – budget 15 M€
- LCE-19 – budget 15 M€
- LCE-20 – budget 15 M€
- LCE-22 – budget 5 M€

IA – green
RIA – blue
CSA- orange

Deadline 7 September 2017

- LCE-10 – budget 10 M€
- LCE-11 – budget 12 M€
- LCE-12 – budget: 8 M
- LCE-14 – budget 25 M€
- LCE-16 – budget 7 M€
- LCE-17 – budget 8 M€
- LCE-18 – budget 10 M€
- LCE-19 – budget 15 M€
- LCE-20 – budget 10 M€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Decarbonisation of Fossil Fuels - Context

- Fossil fuels will be used in Europe's power generation as well as in industrial processes for decades to come.
- A forward-looking approach to **Carbon Capture and Storage (CCS)** and **Carbon Capture and Use (CCU)** for the power and industrial sectors is crucial for reaching the 2050 climate objectives in a cost-effective way.
- **Shale gas** can contribute to our energy security, provided that issues of public acceptance and **environmental impact** are adequately addressed.
- The integration of (fluctuating) renewable electricity generation in our energy system requires new solutions for fossil fuel power plants to provide **highly flexible yet efficient back-up power** to stabilise the grid.

Decarbonisation of Fossil Fuels – Topics 2016

Activities supported in **2016**

LCE-24: New generation high-efficiency capture processes

- TRL 2/3 -> 5; Budget: EUR 17 million (~ 2-5 M€/project)
- Twinning with South Korean projects

LCE-25: Utilisation of captures CO2 as feedstock for the process industry

- TRL 5/6 -> 6/7; Budget EUR 10 million (~ 6-10 M€/project)

LCE-26: ERA-NET on Applied Geosciences

- Covering ground water, raw materials and geo-energy
- Produce reliable scientific information on resources and potential consequences of their exploitation
- Budget: EUR 10 million; ERA-NET Cofund

Decarbonisation of Fossil Fuels – Topics 2017

Activities supported in **2017**

LCE-27: Measuring, monitoring and controlling the risks of CCS, EGS and unconventional hydrocarbons

- Scope to be defined in 2016

LCE-28: Highly flexible and efficient fossil fuel power plants

- TRL 3 -> 4-6; Budget EUR 15 million (~ 3-6 M€/project)

LCE-29: CCS in industry, including Bio-CCS

- TRL 4/5 -> 7; *budget to be confirmed 2016*

LCE-30: Geological storage pilots

- TRL 4/5 -> 6; *budget to be confirmed 2016*

ERA-NET on Commercial Scale Demonstration of CCS

to be confirmed 2016

Decarbonising Fossil Fuels – Topic overview

Deadline 16 February 2016

- LCE-24 – budget 17 M€
- LCE-25 – budget 10 M€

Deadline 16 February 2016

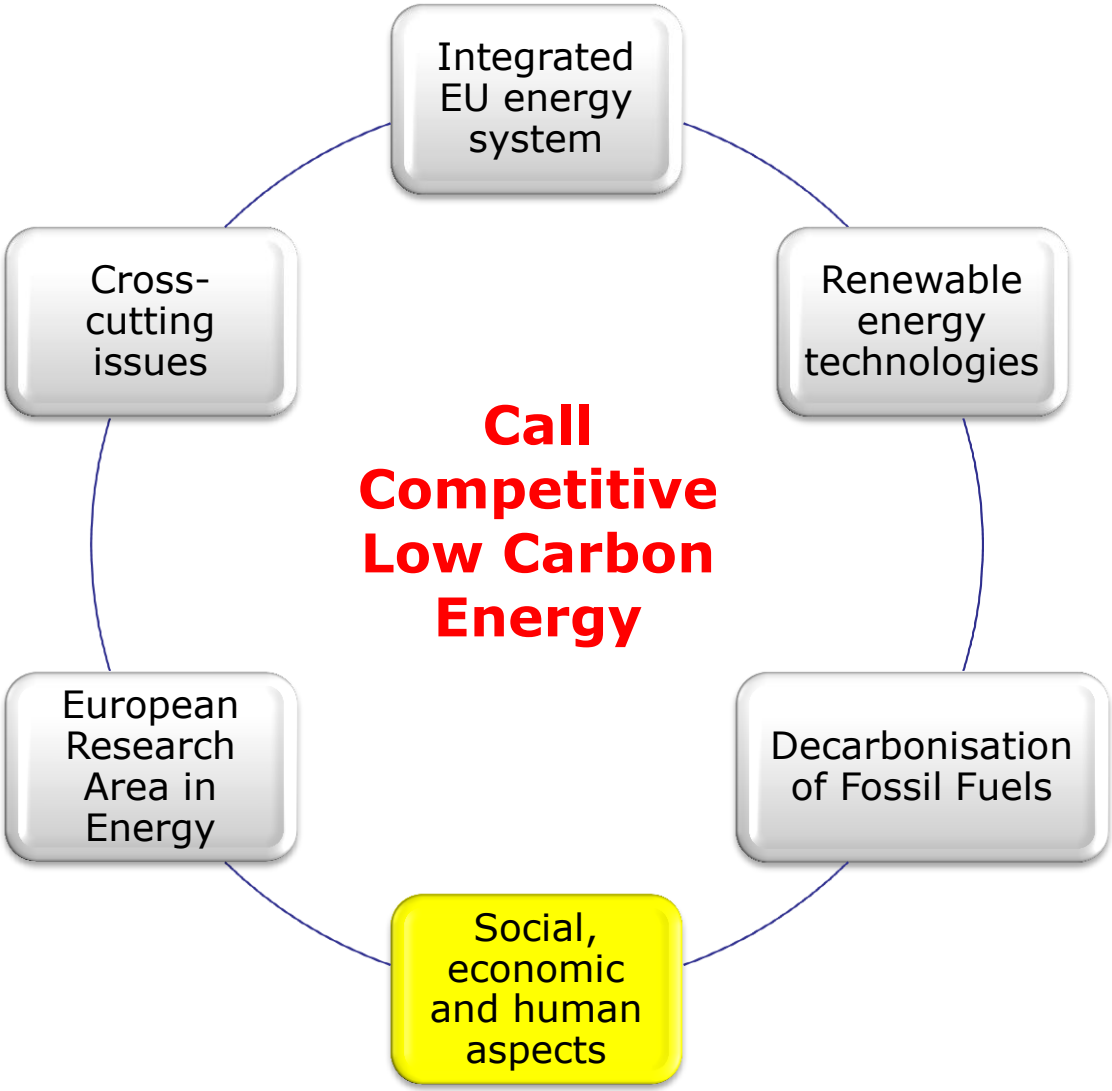
- **LCE-26 – budget 10 M€**

Deadline 5 January 2017

- LCE-27 – budget 15 M€
- LCE-28 – budget 15 M€
- LCE-29*
- LCE-30*

** The budget for topics LCE-29 and LCE-30 will be confirmed in the first half 2016. In case the ERA-NET on CCS demonstration will be supported, both topics will be withdrawn due to budget constraints.*

RIA – blue
ERA-NET - black


Integrated EU energy system
Renewable energy technologies
Decarbonisation of Fossil Fuels
Social, economic and human aspects
European Research Area in Energy
Cross-cutting issues
Call Competitive Low Carbon Energy

Social Sciences and Humanities (SSH)

Transition to a low-carbon energy system is a **complex societal problem** because it changes the interrelations between all relevant actors in the system (-> policy, economic, governance challenges)

- ***Horizon 2020****: Commitment to embed SSH aspects across all the research support provided.*
- ***Energy Union****: SSH aspects as enablers for tackling related priorities (e.g. citizen involvement, social dialogue, social innovation)*
- ***SET Plan:*** *SSH considerations cut across and inform other challenges – 'main-streaming' of SSH (modelling, societal impacts, innovation support)*

SSH-related topics

Social Sciences in support of the Energy Union (*LCE-31-2016-2017*)

- **Focus 2016**: Energy-related choices and behaviour (individually and collectively)
- **Focus 2017**: Socioeconomic incentive structures, and political, institutional and organizational (i.e. governance) frameworks
- **Budget**: EUR 10 million for both 2016 and 2017 (~ 2-4 M€/project)
- **Deadlines**: 16 February 2016; 5 January 2017

European Platform for energy-related SSH research *(LCE-32-2016)*

- Setting up a new European platform to integrate existing energy-related SSH networks, identify research gaps for SSH in the energy field and strengthen the dialogue among different stakeholders
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- **Budget**: EUR 1.7 million (Coordination and Support Action – CSA)
- **Deadline**: 5 April 2016
- **Budget**: EUR 1.7 million (Coordination and Support Action – CSA)
- **Deadline**: 5 April 2016

Main-streaming of SSH

- For example topics EE-8, LCE-6, LCE-7, LCE-11, LCE-15, LCE-17, LCE-18, LCE-19, LCE-20, LCE-22, LCE-28

Content overview

- Context
- Relevant Calls 2016-2017
  - Energy Efficiency (EE)
  - Competitive Low-Carbon Energy (LCE)
  - Smart and Sustainable Cities – Smart Cities and Communities (SCC)
  - SME instrument
  - Fast track to Innovation
- Cross-cutting issues
- Rules for Participation
- Support

Call Smart Cities and Communities

- Improving quality of live, competitiveness and sustainability
- Exporting European knowledge in a strong growth market estimated globally at €1.3 trillion in 2020

Smart Cities and Communities

Topic SCC-1-2016-2017:

- Sustainable, cost-effective and replicable district-scale solutions at the intersection of energy and transport enabled by ICT
- Intelligent, user-driven and demand-oriented city infrastructure and services
- Continuation of the 'Lighthouse project' approach
- Integrating smart buildings, smart grids, energy storage, electric vehicles, smart charging infrastructures and the latest generation of ICT platforms based on open specifications

- **Budget**: 60 M€ in 2016 and 71,5 M€ for 2017 (12-18 M€ per project)
- **Deadlines**: 5 April 2016 and 14 February 2017
- Part of the **'Smart and Sustainable Cities'** call which also includes actions on sustainable cities through nature-based solutions

Additional eligibility criteria set in the WP

EE-19-2017	**PPI at 35% funding rate (instead of 20%)**
EE-02-2017, EE-06-2016-2017, EE-09-2016-2017, EE-11-2016-2017, EE-13-2016, EE-15-2017, EE-18-2017, EE-23-2017, EE-24-2016-2017, EE-25-2016	**CSA but three minimum participants**
EE-16-2016-2017	**CSA but three minimum participants Market surveillance authorities included**
LCE-22-2016	**Coordination with Brazil**
LCE-23-2016	**Coordination with Mexico**
LCE-20-2016-2017	**Off-take agreement requirement**
SCC-1-2016-2017 SCC-02-2016-2017	**Minimum "front-runner"/"follower" and "lighthouse"/"follower" cities**

Thank you for your attention

WP General Annexes

A. LIST OF COUNTRIES ELIGIBLE FOR FUNDING

B. STANDARD ADMISSIBILITY CONDITIONS AND RELATED REQUIREMENTS

C. STANDARD ELIGIBILITY CONDITIONS

D. TYPES OF ACTION: SPECIFIC PROVISIONS AND FUNDING RATES

E. SPECIFIC REQUIREMENTS FOR INNOVATION PROCUREMENT (PCP/PPI)

F. MODEL RULES OF CONTEST (ROC) FOR PRIZES

G. TECHNOLOGY READINESS LEVELS (TRL)

H. EVALUATION RULES

I. BUDGET FLEXIBILITY

J. ACTIONS INVOLVING CLASSIFIED INFORMATION

K. ACTIONS INVOLVING FINANCIAL SUPPORT TO THIRD PARTIES