

Horizon 2020 – opportunities 2016-17

Brussels, 23rd Sept 2015– **Geothermal Panel meeting**
Philippe DUMAS, EGEC



Horizon 2020 - Work programme 2016 & 2017

Industrial leadership

5. Leadership in enabling and industrial technologies (LEITs)

- i. Information and communication technologies
- ii. Nanotechnologies, Advanced materials, Advanced manufacturing and processing, Biotechnology

Societal challenges

10. Secure, clean and efficient energy

11. Transport

12. Climate action, environment, resource efficiency and raw materials

17. Cross-cutting activities (Focus Areas)

Leadership in enabling and industrial technologies (LEITs)

i. Information and communication technologies

No specific reference to energy supply technologies in this WP 2016-2017

Leadership in enabling and industrial technologies (LEITs)

ii. Advanced materials and nanotechnologies for energy applications

NMBP-18-2016: Advanced materials enabling the integration of storage technologies in the electricity grid

to start at TRL 5 and target TRL 6. Innovation action

EU contribution between EUR 6 and 8 million

Deadline: 08 Dec 2015 (First stage) and 24 May 2016 (Second stage)

Leadership in enabling and industrial technologies (LEITs)

ii. Nanotechnologies, Advanced materials, Advanced manufacturing and processing, Biotechnology

Call for EeB – Energy-efficient Buildings

EEB-01-2016: Highly efficient insulation materials with improved properties

EEB-02-2016: Performance indicators and monitoring techniques for energy-efficiency and environmental quality at building and district level

EEB-03-2016: Integration of advanced technologies for heating and cooling at building and district level

EEB-04-2016: New technologies and strategies for the development of pre-fabricated elements through the reuse and recycling of construction materials and structures

EEB-05-2017: Development of near zero energy building renovation

EEB-06-2017: Highly efficient hybrid storage solutions for power and heat in residential buildings and district areas, balancing the supply and demand conditions

EEB-07-2017: Integration of energy harvesting at building and district level

EEB-08-2017: New business models for energy-efficient buildings through adaptable refurbishment solutions

Leadership in enabling and industrial technologies (LEITs)

ii. Nanotechnologies, Advanced materials, Advanced manufacturing and processing, Biotechnology

Call for EeB – Energy-efficient Buildings

EEB-03-2016: Integration of advanced technologies for heating and cooling at building and district level

focus on Technology Readiness Levels 5 to 7 and to be centred around TRL 6. Innovation action, Contribution EUR 5 and 7 million

Deadline: 21 Jan 2016

EEB-05-2017: Development of near zero energy building renovation

focus on Technology Readiness Levels 5 to 7 and to be centred around TRL 6. Innovation action, Contribution EUR 5 and 7 million, **deadline: 19 Jan 2017**

EEB-06-2017: Highly efficient hybrid storage solutions for power and heat in residential buildings and district areas, balancing the supply and demand conditions

focus on Technology Readiness Levels 4 to 6. Research and Innovation action, Contribution EUR 4 and 6 million, **deadline: 19 Jan 2017**

Leadership in enabling and industrial technologies (LEITs)

ii. Nanotechnologies, Advanced materials, Advanced

The topic	Potential R&D
Underground components	<ul style="list-style-type: none">- Thermal and hydraulic design of heatexchangers- Heatexchanger applications & materials- Foundation heatexchangers
Underground installation	<ul style="list-style-type: none">-Improved productivity-Long term quality (thermal & enviromental)-Working conditions, Health and Safety
Integrated design	<ul style="list-style-type: none">-Site investigation, in situ testing, models-Dynamic relation: building-installation-underground-Hybrid installation design-Operating strategies, control strategies
Sustainability Environmental impact	<ul style="list-style-type: none">-Underground interference between systems-Thermal storage effects-Design tools for long term environmental evaluation-Low cost environmentally friendly antifreeze

Societal challenges

10. Secure, clean and efficient energy

Call for Energy-efficiency

1. Heating and Cooling
2. Consumers
3. Buildings
4. Industry, services and products
5. Innovative financing for energy efficient investments

Call for Competitive low carbon energy

1. Towards an integrated EU energy system
2. Renewable energy technologies
3. Enabling decarbonisation of the use of fossil fuels

SME Instrument

Fast track to innovation pilot

Other actions

Societal challenges

10. Secure, clean and efficient energy

Call for Energy-efficiency: 1. Heating and cooling

EE-02-2017: Improving the performance of inefficient district heating networks

EUR 1 and 2 million, Coordination and support action, **deadline: 07 Jun 2017**

EE-03-2016: Standardised installation packages integrating renewable and energy efficiency solutions for heating, cooling and/or hot water preparation

Technology Readiness Level (TRL) 6-8, EUR 3 and 4 million, **deadline: 21 Jan 2016**

EE-04-2016-2017: New heating and cooling solutions using low grade sources of thermal energy

Technology Readiness Level (TRL) 4-6, EUR 3 and 4 million, **deadline: 21 Jan 2016 and 19 Jan 2017**

Societal challenges

10. Secure, clean and efficient energy

Call for Energy-efficiency: 1. Heating and cooling

EE-05-2016: Models and tools for heating and cooling mapping and planning

Technology Readiness Level (TRL) 5-7, Research and Innovation action, EUR 2.5 and 3 million

deadline: 21 Jan 2016

Societal challenges

10. Secure, clean and efficient energy

Call for Energy-efficiency: 2. Engaging consumers

EE-06-2016-2017: Engaging private consumers towards sustainable energy

EUR 1 and 2 million, Coordination and support action, **deadline: 15 Sep 2016 and 07 Jun 2017**

EE-09-2016-2017: Engaging and activating public authorities

EUR 1 and 2 million, Coordination and support action, **deadline: 15 Sep 2016 and 07 Jun 2017**

Societal challenges

10. Secure, clean and efficient energy

Call for Energy-efficiency: 3. Buildings

EE-10-2016: Supporting accelerated and cost-effective deep renovation of buildings through Public Private Partnership (EeB PPP)

Technology Readiness Level (TRL) 6-8, Innovation action, EUR 3 and 4 million,
deadline: 21 Jan 2016

EE-11-2016-2017: Overcoming market barriers and promoting deep renovation of buildings

EUR 1 and 2 million, Coordination and support action, **deadline: 15 Sep 2016 and 07 Jun 2017**

EE-13-2016: Cost reduction of new Nearly Zero-Energy buildings

EUR 1 and 2 million, Coordination and support action, **deadline: 15 Sep 2016**

Societal challenges

10. Secure, clean and efficient energy

Call for Energy-efficiency: 5. Innovative financing for energy efficiency investments

EE-23-2017: Innovative financing schemes

EUR 1 and 2 million, Coordination and support action

deadline: 07 Jun 2017

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

2. Renewable energy technologies

Developing the next generation of renewable energy technologies

LCE-06-2017: New knowledge and technologies

New renewable energy technologies: *Developing the new energy technologies that will form the backbone of the energy system by 2030 and 2050*

between EUR 2 to 4 million, The results of this research are expected to move the technology involved to TRL 4, Research and Innovation action

deadline: 05 Jan 2017

Societal challenges

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deadline: 05 Jan 2017

GSHP for retrofit buildings
Smart thermal grids with geoDH
UTES with high temperature storage
EGS for cogeneration and high temperature industrial process heat

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

2. Renewable energy technologies

Developing the next generation of renewable energy technologies

LCE-07-2016-2017: Developing the next generation technologies of renewable electricity and heating/cooling

2016

g. Geothermal Energy: Shallow geothermal (low temperature) Improving borehole heat exchangers

2017

g. Geothermal Energy: Deep Geothermal (medium-high temperature):
Materials for geothermal installations

bring technology solutions to TRL 4-5 at the end of the action. EUR 2 to 5 million. **deadline: 16 Feb 2016 and 05 Jan 2017**

Societal challenges

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Developing the next generation of renewable energy technologies

LCE-07-2016-2017: Developing the next generation technologies of renewable electricity and heating/cooling

2016

g. Geothermal Energy: Shallow geothermal (low temperature) Improving borehole heat exchangers

2017

a. Geothermal Energy: Deep Geothermal (medium-high temperature):

Improved installation technologies and geometries for ground Heat Exchange technology

Improved pipe materials for borehole heat exchangers (BHE) and horizontal ground loops. New pipes for higher temperatures. Better thermal transfer fluid.

Societal challenges

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Developing the next generation of renewable energy technologies

LCE-07-2016-2017: Developing the next generation technologies of renewable electricity and heating/cooling

2016

g. Geothermal Energy: Shallow geothermal (low temperature) Improving borehole heat exchangers

2017

g. Geothermal Energy: Deep Geothermal (medium-high temperature):
Materials for geothermal installations

bring technology solutions to TRL 4-5 at the end of the action. EUR 2 to 5

New materials for deep GT (corrosion, scaling etc.)

High temperature, high pressure

Production pumps

Reinjection in Pannonian basin

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

2. Renewable energy technologies

Developing the next generation of renewable energy technologies

LCE-07-2016-2017: Developing the next generation technologies of renewable electricity and heating/cooling

h. Combined Heat and Power: Transforming renewable energy into intermediates: Biomass and other renewable

a. RES integration in the energy system: RES system support functions for the future energy system

bring technology solutions to TRL 4-5 at the end of the action. EUR 2 to 5 million. **deadline: 16 Feb 2016 and 05 Jan 2017**

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

2. Renewable energy technologies

Demonstrating innovative renewable energy technologies

LCE-17-2017: Easier to install and more efficient geothermal systems for retrofitting buildings

TRL 7 shall be achieved at the end of the project, EUR 5 to 8 million

LCE-18-2017: EGS in different geological conditions

TRL 7 shall be achieved at the end of project activities, EUR 6 to 10 million

deadline: 07 Sep 2017

Societal challenges

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TRL 7 shall be achieved at the end of project activities, EUR 6 to 10 million

reducing manual work in drilling and installation, by automation and robotics

use of geothermal activated structures

High performance, quickly installed, low cost grout, including specialized machinery/plant.

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

2. Renewable energy technologies

Demonstrating innovative renewable energy technologies

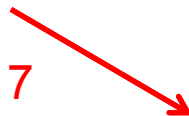
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LCE-18-2017: EGS in different geological conditions

TRL 7 shall be achieved at the end of project activities, EUR 6 to 10 million

deadline: 07 Sep 2017



Upscaling

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

2. Renewable energy technologies

Supporting the market uptake of renewable energy technologies

LCE-21-2017: Market uptake of renewable energy technologies

2. Heat Pumps: Accelerate the penetration of heat pumps for heating and cooling purposes:

5. Geothermal energy: Tackling the bottlenecks of high penetration levels for geothermal energy systems

EUR 1 to 3 million, Coordination and support action

deadline: 05 Jan 2017

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

2. Renewable energy technologies

Fostering international cooperation in the area of renewable energy

LCE-23-2016: International Cooperation with Mexico on geothermal energy

moving from TRL 3-4 to TRL 4-5. around EUR 10 million. Research and Innovation action

deadline: 16 Feb 2016

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

3. Enabling the decarbonisation of the use of fossil fuels during the transition to a low-carbon economy

LCE-26-2016: Cross-thematic ERA-NET on Applied Geosciences

deadline: 05 Apr 2016

LCE-27-2017: Measuring, monitoring and controlling the risks of CCS, EGS and unconventional hydrocarbons in the subsurface

Research and Innovation action

deadline: 05 Jan 2017

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

SME INSTRUMENT

SMEInst-2016-2017: Stimulating the innovation potential of SMEs for a low carbon and efficient energy system

FAST-TRACK-TO-INNOVATION PILOT

OTHER ACTIONS

2. Horizon prize for a Combined Heat and Power (CHP) Installation in a hospital using 100% Renewable Energy Sources

Indicative prize amount: EUR 1 million

15. Study on heat market design including coordination, pricing and trading mechanisms, business models, as well as consumer protection, engagement and participation models and conditions

Public Procurement - EUR 0.70 million from the 2016 budget

Societal challenges

11. Smart, green and integrated transport

MG-4.2-2017: Supporting 'smart electric mobility' in cities

€ 4-6 million, Innovation action

Deadline: 26 Jan 2017 (First stage), 19 Oct 2017 (Second stage)

12. Climate action, environment, resource efficiency and raw materials

Climate action, environment, resource efficiency and raw materials

Towards a low-carbon Europe

SC5-06-2016-2017: Pathways towards the decarbonisation and resilience of the European economy in the timeframe 2030-2050 and beyond

Deadline: 08 Mar 2016

SC5-07-2017: Coordinating and supporting research and innovation actions on the decarbonisation of the EU economy

Deadline: 07 Mar 2017

Societal challenges

17. Cross-cutting activities (Focus Areas)

Call - Smart and sustainable cities

Smart Cities and Communities

SCC-1-2016-2017: Smart Cities and Communities lighthouse projects
Sustainable cities through nature-based solutions

Deadline: 05 Apr 2016 and 14 Feb 2017

SCC-02-2016-2017: Demonstrating innovative nature-based solutions in cities

Deadline: 08 Mar 2016 (First stage) and 06 Sep 2016 (Second stage)

07 Mar 2017 (First stage), 05 Sep 2017 (Second stage)

SCC-03-2016: New governance, business, financing models and economic impact assessment tools for sustainable cities with nature-based solutions (urban re-naturing)

Deadline: 08 Mar 2016

Information on Calls

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html>



Thank you
for your kind attention