

Horizon 2020 – opportunities 2017

Brussels, 8th Sept 2016– **Geothermal Technology
Workshop**

Philippe DUMAS, EGEC

Horizon 2020 - Work programme 2016 & 2017

Update July 25th, 2016

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

17. Cross-cutting activities (Focus Areas)

Leadership in enabling and industrial technologies (LEITs)

ii. Advanced materials and nanotechnologies for energy applications

Call - CALL FOR ENERGY-EFFICIENT BUILDINGS

**Call - CALL FOR NANOTECHNOLOGIES, ADVANCED MATERIALS, BIOTECHNOLOGY AND PRODUCTION
ADVANCED MATERIALS AND NANOTECHNOLOGIES FOR ENERGY APPLICATIONS**

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-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 manufacturing and processing, Biotechnology

Building renovation:

Develop geothermal solutions for retrofitting of existing infrastructure:

- Design tools for combined thermal and mechanical-structural calculations ;
- Design an installation method that allows the complete structure to be used for the heat exchanger
- Shallow geothermal energy use in historic buildings
- Upgrade of heat/cold recovery via lowering the building/grid supply and return temperatures, implementation of low temperature heating systems in existing buildings/dwellings

Storage:

- Investigation of behaviour and energy losses of high temperature heat storage in the reservoir
- Integration through (thermal) storage potential as controllable load into smart electrical grids on small and large scale

Call

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Leadership in enabling and industrial technologies (LEITs)

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

Call - CALL FOR NANOTECHNOLOGIES, ADVANCED MATERIALS, BIOTECHNOLOGY AND PRODUCTION, ADVANCED MATERIALS AND NANOTECHNOLOGIES FOR ENERGY APPLICATIONS

NMBP-03-2016: Innovative and sustainable materials solutions for the substitution of critical raw materials in the electric power system (start at TRL 3 and target TRL 5: Research and Innovation action)

NMBP-06-2017: Improved material durability in buildings and infrastructures, including offshore (start at TRL 4 and target TRL 6: Research and Innovation action)

27 Oct 2016 (First stage)

04 May 2017 (Second stage)

NMBP-18-2016: Advanced materials enabling the integration of storage technologies in the electricity grid (start at TRL 5 and target TRL 6: Innovation action)

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-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: 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-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**

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: first stage 29 Nov 2016 and second stage 22 aug 2017

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

2. Renewable energy technologies

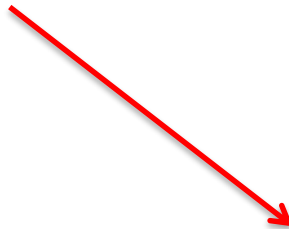
Developing the next generation of renewable energy technologies

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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

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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: first stage 29 Nov 2016 and second stage 22 aug 2017**

Societal challenges

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

High temperature, high pressure

Production pumps

Reinjection in Pannonian basin

Societal challenges

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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

i. 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: first stage 29 Nov 2016 and second stage 22 aug 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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2. Renewable energy technologies

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deadline: 07 Sep 2017

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

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Call for Competitive low carbon energy:

2. Renewable energy technologies

Demonstrating innovative renewable energy technologies

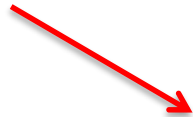
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deadline: 07 Sep 2017



Upscaling, Replication

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

Supporting the market uptake of renewable energy technologies

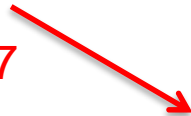
LCE-21-2017: Market uptake of renewable energy technologies

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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



Specific challenges related to deep and shallow geothermal require separate considerations

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

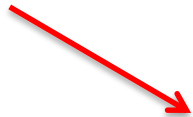
Research and Innovation action

deadline: 05 Jan 2017

LCE-36-2016-2017: Support to the energy stakeholders to contribute to the SET-Plan

2017: Geothermal energy.

deadline: 16 Feb. 2017



Supporting ETIP activities. around EUR 0.6 million for a period of 2 years.

Societal challenges

10. Secure, clean and efficient energy

Call for Competitive low carbon energy:

SME INSTRUMENT

SMEInst-09-2016-2017: Stimulating the innovation potential of SMEs for a low carbon and efficient energy system (deadline every trimester until end 2017)

FAST-TRACK-TO-INNOVATION PILOT

three cut-off dates in 2016: March 15, June 1 and October 25 (17:00 Brussels time). The 25 October 2016 cut-off is the last of the pilot FTI scheme.

OTHER ACTIONS

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 ; 2Q2017

Societal challenges

17. Cross-cutting activities (Focus Areas)

Call - Smart and sustainable cities

Smart Cities and Communities

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

Deadline: 05 Apr 2016 and 14 Feb 2017

SCC-02-2017: 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)

Information on Calls

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

Thank you
for your kind attention