Horizon 2020 - Green Deal call

Area 4: Energy and resource efficient buildings

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Topic LC-GD-4-1-2020: Building and renovating in an energy and resource efficient way

• Indicative budget: €60 million
• Indicative EU contribution per proposal: €10 to 20 million
• Innovation Action (IA)
• Technology Readiness Level: TRL 5/6 to TRL 7/8
Topic LC-GD-4-1-2020: Specific challenge

- Decarbonisation by 2050: role of the buildings sector
- Buildings as zero-emission/zero-pollution, positive energy powerhouses within green neighbourhoods
- Design and construction to reduce embodied emissions and operational energy efficiency
- Transition to energy positive buildings using renewable energy
- Creation of green neighbourhood « living labs »
Overall objective to test innovations across whole value chain, adapt the value chain to new operation patterns resulting from innovations.

Set up or use existing innovation clusters to demonstrate, evaluate and replicate innovative solutions across different building types and climatic zones

Green neighbourhood « living labs » to raise awareness, facilitate social innovation, promote education & training for sustainable living

Coordination on standards and regulatory aspects to ensure operational efficiency, address design-built performance gap
Topic LC-GD-4-1-2020: Scope (2)

- At least two (residential and non-residential, new and/or retrofitted) large-scale demonstrations in different regions of Europe
- Design of green, positive energy neighbourhoods embedded in sites’ context
- Energy and resource efficient construction/renovation workflows for off-site manufacturing, reducing embodied energy and occupant disruption
- Ensure replicability, long-term performance (maintenance, air quality etc.), potential for future adaptation, reuse or deconstruction
- No negative effects on fire and seismic safety
Topic LC-GD-4-1-2020: Scope (3)

- Post-construction monitoring of energy performance and component durability.
- Sustainable, energy efficient building design adapted to local conditions.
- Active-passive solutions.
- Digital and EGNSS based methods of design, construction, monitoring, tracking of processes.
- Innovative and more energy efficient Building Integrated Photovoltaics.
• Innovative, cost and energy efficient renewable energy generation in buildings combined with urban service facilities & HVAC technologies

• Energy storage systems with bidirectional charging that don’t limit use of living space

• Energy efficient building operation at reduced maintenance costs and long-term performance with digital technologies to optimise energy at neighbourhood scale

• Digital technologies to ensure comfortable & healthy living environment: dynamic matching, demand response; smart home services, advanced controls; etc.
Primary energy savings triggered by the project (GWh/year);
Investments in sustainable energy triggered by the project (million Euro);
High energy performance buildings (NZEB for retrofitted; positive energy for new)
Reduction of GHG emissions towards zero (tCO2-eq/year) for total life cycle
- 50% embodied energy in buildings
Reduction of air pollutants towards zero (kg/year) for total life cycle
• Demonstration of high replicability potential using new or existing innovation clusters incorporating the whole value chain
• - 30% construction/retrofitting time and cost
• - 30% dust and noise during retrofit works leading to higher user satisfaction
• + 30% improved indoor environment quality
• Proposals should state relevant indicators & metrics with baselines
Horizon 2020 – ongoing work and achievements

Selected highlights for Area 4
H2020 and EU policy support – the example of the Energy Performance of Buildings Directive (EPBD)
Building renovation – market uptake

- 7 projects removing market barriers to deep renovation
- Example: transition-zero.eu
- Introduced the Dutch « Energiesprong » to UK & FR, also IT & DE, and improved in NL
- Focus on social housing.
- Consumer-focused standard product with performance guarantee, emphasis on desirability and non-energy benefits
R&I on industrialising renovation processes

• 11 innovation projects on industrialising building renovation processes

• Example: www.more-connect.eu

• 5 pilot demonstrations of renovation using prefabrication, digital tools & robots in CZ, DK, EE, LV, NL

• Guide for prefabricated retrofit packages
Energy Performance Certification

• revalue-project.eu led to new RICS guidance to surveyors to account for energy efficiency in valuations, based on study of 120,000 properties

• 7 new projects on next generation EPCs, aiming at strengthening implementation: convergence, smart readiness indicator, combining operational and asset ratings
BUILD UP Skills initiative

- 73 projects since 2011, upskilling the construction workforce for high energy performance
- Expanded from blue collar to include professionals, new digital tools, address demand for skills
- Skills gap analysis (3 million workers); training & qualification schemes; recognition
Building-integrated photovoltaics: supporting the transition towards NZEB

- 8 projects demonstrating different photovoltaic technologies in buildings:
  - PV elements become a construction material.
  - Example: [www.pvsites.eu](http://www.pvsites.eu): seven demonstration buildings in Europe.
  - Project outputs already commercialized in the international market.
Building-integrated photovoltaics: supporting the transition towards NZEB

- 3 projects addressing the whole BIPV value chain: from the architectural design to advanced manufacturing, installation and operation & maintenance
- Drastic cost reduction in the medium and long term complying with the SET Plan
Information sources

- Green Deal Call

- Funding & tenders portal
  https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home

- EASME

- INEA
  https://ec.europa.eu/inea

- BUILD UP
  www.buildup.eu
Thank you