
A map of Horizon Europe's calls in 2022-2023

on Sustainable Building and Smart Cities Solutions for the Environmental Challenge

Join the *online seminar* and *B2B event* [C2Future for Horizon](#)

June 15th, 2022 - 3:00 pm CET

Register on-line on [Smart Matchmaking Platform](#)

Summary of the topics

The issues of energy efficiency and climate neutrality of the "built environment" are addressed across the board, for new and existing buildings, residential buildings and neighbourhoods, infrastructures, and cultural heritage, with a **budget of almost 140 million euros**, integrating

- **digital solutions**
 - smart and innovative models of prediction, monitoring, management along the entire life cycle of buildings (demand response, BACS, DSS, BIM, digital twins, big data, digital building logbooks, smart devices, active sensors, ...)
 - optimization of user benefits with attention to "privacy by design" and data protection;
 - smart readiness of buildings
- **materials**
 - "cost-effective" high performance, multifunctional, adaptable and self-sensing materials
 - local products and solutions, reuse or recycling of construction products, secondary raw materials
- **energy**
 - energy positive home, renewable sources, energy saving, energy harvesting
 - micro-grids, energy storage, demand response
 - grid - buildings integration, interoperability
- **social innovation**
 - active involvement of users, professionals, administrations, stakeholders
 - participatory planning
 - economic and social sustainability, energy poverty
- **processes**
 - Natural Based Solutions
 - whole life cycle
 - modular, standard, prefabricated solutions
 - interoperable solutions
 - adding manufacturing

See the next section for a more detailed "keywords – map" with additional info on the topics, budget, deadlines.

Keywords of the selected topics and calls

Efficient, sustainable and inclusive energy use (HORIZON-CL5-2022-D4-01) – deadline Sept 6, 2022

Highly energy-efficient and climate neutral EU building stock

- [HORIZON-CL5-2022-D4-01-01: Demand response in energy-efficient residential buildings:](#)
 - **Scope:** Address the large but untapped potential of the residential sector for Demand Response (as a measure for reducing energy load in response to supply constraints, e.g. during periods of peak demand) with a view to support the energy transition at system level while respecting user privacy, comfort and ownership.
 - **Keywords:** New control modes; privacy by design; data protection; elicit user preferences; regulatory frameworks; social and economic enablers; social innovation and citizen engagement.
 - **Other elements:** At least three demonstration sites located in different climatic regions
 - **Type of action:** Innovation Action
 - **Budget:** 12 mln€: expected 2 projects, from 4 to 6 mln€
 - **Technology Readiness Level:** TRL 6-7 by the end of the project
- [HORIZON-CL5-2022-D4-01-02: Renewable-intensive, energy positive homes](#)
 - **Scope:** The aim is to move beyond NZEB (nearly zero-energy buildings) for new constructions and to the extent possible, for renovations, and to streamline energy positive buildings, ensuring buildings can marry high energy performance with maximum flexibility and adaptability to a changing society in a cost-effective manner.
 - **Keywords:** energy positive home; residential building; renovation of residential building; multi-family/multi-storey; integrated design and construction concepts and processes; affordable, high performance construction products; integration of energy production; smart management technologies; involvement of building professionals; social and economic sustainability.
 - **Other elements:** At least three demonstration sites located in different climatic regions for at least 12 months
 - **Type of action:** Innovation Action
 - **Budget:** 12 mln€: expected 2 projects, from 4 to 6 mln€
 - **Technology Readiness Level:** TRL 6-7 by the end of the project
- [HORIZON-CL5-2022-D4-01-03: Smarter buildings for better energy performance](#)
 - **Scope:** Improvement and cost-reduction of technologies to predict, assess, monitor and control in real time the energy performance of buildings, including energy efficiency, renewables, storage and their optimisation.
 - **Keywords:** interoperability; BACS; security and privacy by design; energy savings; energy management solutions; smart technical building systems; predictive controllers; smart devices; active sensors; smart readiness of buildings; user-friendliness; user satisfaction; digital building logbook.
 - **Other elements:** At least three demonstration sites located in different climatic regions. Liaison and synergies with the European Partnership on “People-centric sustainable built environment”
 - **Type of action:** Innovation Action
 - **Budget:** 12 mln€: expected 2 projects, from 4 to 6 mln€
 - **Technology Readiness Level:** TRL 8 by the end of the project

Safe, Resilient Transport and Smart Mobility services for passengers and goods (HORIZON-CL5-2022-D6-02) – deadline Sept 6, 2022

- [HORIZON-CL5-2022-D6-02-06: Smart and efficient ways to construct, maintain and decommission with zero emissions from transport infrastructure](#)
 - **Scope:** whole life cycle of transport infrastructures; new methods and technologies; lowering emissions; modular, standard, prefab solutions; additive manufacturing techniques; smart and efficient energy management; energy harvesting; self-powered signalling; adaptive lighting systems; innovative tunnel ventilation;
 - **Other elements:** at least three demonstration pilots, considering different environments and phases of the infrastructure life cycle (design, construction, maintenance and decommissioning); proposal should build on previous results from projects on sensing, digitalisation, asset management, decision support and automation in the construction and maintenance of infrastructures
 - **Type of action:** Innovation Action
 - **Budget:** 10 mln€: expected 2 project
 - **Technology Readiness Level:** TRL 7 by the end of the project

Resilient Infrastructure 2022 (HORIZON-CL3-2022-INFRA-01) - deadline Nov 23, 2022

- [HORIZON-CL3-2022-INFRA-01-01: Nature-based Solutions integrated to protect local infrastructure](#)
 - **Scope:** NBS in cities and urban areas infrastructures; natural and man-made hazards; storms, floods, and heatwaves; NBS and local knowledge; improved resilience; complementing existing methods; strong involvement of citizens, government/public authorities
 - **Other elements:** active involvement, as beneficiaries, of at least two local or regional government authorities from at least 2 different EU Member States or Associated countries; international cooperation with countries pioneering NBS
 - **Type of action:** Research and Innovation Action, costs as a lump sum
 - **Budget:** 5 mln€: expected 1 project
 - **Technology Readiness Level:** TRL 4-5 by the end of the project

Efficient, sustainable and inclusive energy use (HORIZON-CL5-2022-D4-02) – deadline Jan 24, 2023

- [HORIZON-CL5-2022-D4-02-01: Designs, materials and solutions to improve resilience, preparedness & responsiveness of the built environment for climate adaptation \(Built4People\)](#)
 - **Scope:** new and existing buildings; broad spectrum of natural risks; natural, easy to manage, evolutive materials against global warming; increased durability, resilience of building and infrastructures, incl. foundations; self-sensing and adaptable materials; social innovation and citizen engagement; interoperable tools for monitoring, detection and response to critical situations; protection of people; self-sustained temporary solutions (e.g. off-grid energy supply, water purification); application also to cultural heritage; cost-effectiveness
 - **Other elements:** at least 3 large-scale demonstrations of the solutions in diverse geographical areas, with various environmental, social, and economic condition; clustering with projects from HE Partnerships on “Driving urban transitions”; involvement of SSH experts, institutions; ambitious international outreach strategies
 - **Type of action:** Innovation Action, costs as lump sum
 - **Budget:** 15 mln€: expected 2 projects, from 5 to 7 mln€
 - **Technology Readiness Level:** TRL 6-7 by the end of the project

- [HORIZON-CL5-2022-D4-02-02: Solutions for the sustainable, resilient, inclusive and accessible regeneration of neighbourhoods enabling low carbon footprint lifestyles and businesses \(Built4People\)](#)
 - **Scope:** regeneration of neighbourhoods; participatory planning processes; local sources of raw materials; local energy generation and consumption at district level; optimising energy balancing at local level; micro-grids; demand response; involve all stakeholder groups, incl. elderly, people with disability; energy poverty; where relevant, energy circularity; where relevant, application to cultural heritage buildings; social innovation and digital tools
 - **Other elements:** at least 3 large-scale demonstrations of the solutions in diverse geographical areas, with various environmental, social, and economic condition; clustering with projects from HE Partnerships on “Driving urban transitions”; involvement of SSH experts, institutions
 - **Type of action:** Innovation Action
 - **Budget:** 15 mln€: expected 2 projects, from 5 to 7.5 mln€
 - **Technology Readiness Level:** TRL 6-7 by the end of the project
- [HORIZON-CL5-2022-D4-02-03: Sustainable and resource-efficient solutions for an open, accessible, inclusive, resilient and low-emission cultural heritage: prevention, monitoring, management, maintenance, and renovation \(Built4People\)](#)
 - **Scope:** cultural heritage built environment; improvement and preservation; technically and socially innovative, sustainable, energy and resource efficient solutions; cost-effectiveness; whole life cycle; reduce maintenance and operational costs; digital technologies; renewable energy sources; involve relevant stakeholders; social innovation
 - **Other elements:** clustering with projects from HE Partnerships on “Driving urban transitions”; involvement of SSH experts, institutions
 - **Type of action:** Research and Innovation Action
 - **Budget:** 20 mln€: expected 4 projects, from 4 to 5 mln€
 - **Technology Readiness Level:** TRL 5 by the end of the project
- [HORIZON-CL5-2022-D4-02-04: Smart-grid ready and smart-network ready buildings, acting as active utility nodes \(Built4People\)](#)
 - **Scope:** building-to-grid integration solutions; cost-effectiveness; simple to use/install/maintain; interoperability between building and grids, electricity and other energy carriers; on-site energy storage/sources; big-data applications for real time management; predictive maintenance; smart readiness of buildings; digital models, BIM at building and district level; comfort and user satisfaction; viability of business models; large scale interoperable platforms with ESCOs, aggregators, DSOs, etc.
 - **Other elements:** clustering with projects from HE Partnerships on “Driving urban transitions”; projects expected to contribute to BRIDGE activities, w.r.t. data exchange and interoperability
 - **Type of action:** Innovation Action
 - **Budget:** 18 mln€: expected 2 projects, from 6 to 9 mln€
 - **Technology Readiness Level:** TRL 7 by the end of the project
- [HORIZON-CL5-2022-D4-02-05: More sustainable buildings with reduced embodied energy / carbon, high life-cycle performance and reduced life-cycle costs \(Built4People\)](#)
 - **Scope:** design, construction, and renovation methods; minimise overall life-cycle environmental impact, energy consumption and carbon footprint; full building demonstrations; validated performance measurements; include local products and solutions; local reused or recycled construction products; secondary raw materials; advanced, market-ready prefabs;

multifunctional materials and components; digital building logbook; digital tools, digital twins in the entire life cycle

- **Other elements:** demonstrate solutions in diverse geographical areas, with various local environmental, social, and economic conditions; clustering with projects from HE Partnerships on “Driving urban transitions”
- **Type of action:** Innovation Action
- **Budget:** 18 mln€: expected 2 projects, from 6 to 9 mln€
- **Technology Readiness Level:** TRL 6-7 by the end of the project