



# HORIZON EUROPE

## INFO DAYS

CLUSTER 5  
**CLIMATE, ENERGY  
& MOBILITY**

17 October 2023



Research and  
Innovation

## Destination 5:

Clean and competitive solutions for  
all transport modes





# Thematic area

## Zero-emission road transport (2ZERO)

**Guido SACCHETTO - Maurizio MAGGIORE**  
*DG RTD*



# HORIZON-CL5-2024-D5-01-01

## Smart, low-cost pervasive stationary slow charging and bi-directional solutions synergic with the grid for EV mass deployment



### SCOPE



- Exhaustive coverage of **high-efficiency, low-power, low-cost on-street smart charging points**, with optimisation of civil works and grid requirements.
- Address **users' needs and requirements** in different socio-cultural contexts.
- Demonstration of **smart and bi-directional operation** in overnight publicly accessible environments for long-term (and for opportunistic) charging.
- Development of **innovative optimisation functions** exploiting real-time access to battery information.
- Solutions are expected to be provided on **non-discriminatory terms** between users and classes of users and avoid consumers lock-in.
- Optimise the use of **energy resources and infrastructures**.

# HORIZON-CL5-2024-D5-01-01

## Smart, low-cost pervasive stationary slow charging and bi-directional solutions synergic with the grid for EV mass deployment



### EXPECTED OUTCOME

- **Removing barriers to EV user acceptability** in densely populated areas from technological, investment costs and costs of charging point of view.
- **Innovative conductive solutions** optimising efficiency and reducing costs, but ideally reducing visual and physical intrusion.
- Analytical **methodology** including **EU-wide scale models** to ensure efficient planning for mass deployment, with improvement of business models/gaps.
- **Socio-cultural databases** at city, regional and national level.
- Analysis of potential **regulatory aspects and barriers** for standardization.
- Multilevel **systemic architecture/solutions** for smart and bi-directional charging power management

# HORIZON-CL5-2024-D5-01-01

## Smart, low-cost pervasive stationary slow charging and bi-directional solutions synergic with the grid for EV mass deployment



### TYPE OF ACTION

- IA –Innovation Action
- Expected **TRL 7-8** by the end of the project



### EU CONTRIBUTION

- Per project: **7-8 M€**
- Total: **15 M€**

Funding rate:  
60%!



### TIMING

- Call opening: **07 December 2023**
- Call closing: **18 April 2024**

*Contribute to the BRIDGE initiative when relevant*

➤ *Report on the results to 2ZERO partnership for KPIs monitoring*

# HORIZON-CL5-2024-D5-01-02

## Integration and testing of next generation post-800V electric powertrains



### SCOPE

- **Holistic assessment of impacts** of higher voltage levels at vehicle and powertrain level, defining the best option for the **post-800V EV generation**.
- Development and integration of **power-electronic components with new concepts** for component miniaturisation and modularity. Topologies adapted to advanced wide-bandgap semiconductors and new materials.
- **Modular powertrain platforms** coming closer to a full mechanical, electrical or thermal integration of the main systems.
- Defining suitable **testing and validation procedures** and demonstrating on a suitable use case, analysing regulatory aspects and barriers to EU standards.
- Small-sized, **‘ready for integration’ power modules** for design flexibility while optimizing costs.

# HORIZON-CL5-2024-D5-01-02

## Integration and testing of next generation post-800V electric powertrains



### EXPECTED OUTCOME

- **Very fast charging, ultra-efficient EVs** for broad mass markets.
- Demonstrate **cost reduction of minimum 20%** of power electronic modules and inverters for a given power, and for the whole powertrain.
- **Fast charging** (C segment EV) **20% to 80% in 10 min** with 350kW chargers; practical range increases over travel time (~20% with same battery weight) with overall higher efficiency and easier thermal management.
- Significant advancements in **efficiency** (reduction of losses by 25%).
- Backwards **compatibility** and **reliability**; improved safety and robustness.
- **Improved resource efficiency**, better lifecycle impact and recycling capability.



# HORIZON-CL5-2024-D5-01-02

## Integration and testing of next generation post-800V electric powertrains



### TYPE OF ACTION

- RIA – Research and Innovation Action
- Expected **TRL 5** by the end of the project



### EU CONTRIBUTION

- Per project: **4-6 M€**
- Total: **15 M€**



### TIMING

- Call opening: **07 December 2023**
- Call closing: **18 April 2024**

- *Support the constant drive to improve efficiency and performance while increasing affordability.*
- *Exploitation of outcomes/knowledge from ECSEL/KDT partnership projects foreseen where applicable*
- *Report on the results to 2ZERO partnership for KPIs monitoring*

# HORIZON-CL5-2024-D5-01-03

## Advanced battery system integration for next generation vehicles



### SCOPE

- Structural **battery pack design and integration** optimising trade-offs in all areas.
- **Smart thermal management systems** contributing to system efficiency and optimizing the overall battery system, also in consideration of passenger comfort.
- **Novel cooling system** concepts exploiting **gen-4 cells lower thermal demands** reducing impact on system mass and costs.
- Take into account the technical **communication channel** for **access and exchange of relevant data** from the BMS, **enhancing communication between battery and vehicle control units** for a more efficient battery operation by synchronizing ECUs of the BMS and the EV .
- **Digital twin** of thermal behavior of EV and battery for optimal chemistry / energy management and safety assessment of batteries.

# HORIZON-CL5-2024-D5-01-03

## Advanced battery system integration for next generation vehicles



### EXPECTED OUTCOME

- **Novel and innovative approaches** to battery integration **exclusively focusing on gen-4 cells**, considering modular systems, capable for instance of temporary expansion.
- Improvement of **fast-charging capabilities** (at least 3C), and aiming for higher capabilities for high energy cells, independent of battery topology in the vehicle.
- **Increase gravimetric energy density** of the integrated pack (excluding contributions by cell chemistry) by at least 25%, and **volumetric energy density** by 70%.
- **Reduced battery system cost** (excluding contributions by cell chemistry, below EUR 100/kWh for light duty EVs by 2030); **specific safety aspects** of prototype cells to be considered, aiming however at optimizing for serial production cells.

# HORIZON-CL5-2024-D5-01-03

## Advanced battery system integration for next generation vehicles



### TYPE OF ACTION

- RIA – Research and Innovation Action
- Expected **TRL 5** by the end of the project



### EU CONTRIBUTION

- Per project: **5 M€**
- Total: **10 M€**



### TIMING

- Call opening: **07 December 2023**
- Call closing: **18 April 2024**

- *Links with projects funded under topic HORIZON-CL5-2023-D5-01-02: Innovative BMS*
- *Take into account access to battery information (RED proposal, COM(2021)557 of 14 July 2021)*
- *Report on the results to 2ZERO partnership for KPIs monitoring*

# HORIZON-CL5-2024-D5-01-04

## Integrated flexible multipoint megawatt charging systems for electric truck mass deployment



### SCOPE

- Consider **typical demands** along TEN-T corridors (also under severe weather and peak traffic conditions) and **opportunities for sharing/balancing power supply** within studied **areas** (e.g., logistics terminals, truck stops, car-parkings)
- **Input** from EU **MS/AC maps** (aggregated charging demands and expected high power charging station localisations) and from **grid operators** on power system is expected. Terminals/ hubs should offer **charging on non-discriminatory basis**.
- Focus on real needs of **end users**, including optimised infrastructure locations, its reverse impact on the traffic flow, interoperable protocols; also with **identification and analysis of regulatory aspects / barriers** for relevant standardisation.
- Tools to **map the optimal locations** for fast/high-power charging infrastructure offering **planning**, taking into account on-board EV system characteristics.

# HORIZON-CL5-2024-D5-01-04

## Integrated flexible multipoint megawatt charging systems for electric truck mass deployment



### EXPECTED OUTCOME

- Improved **multipoint megawatt charging systems** for future mass HDV deployment.
- **Tools** to identify **energy needs** and the **charging profiles** of HD EV.
- Integrated and flexible **interaction control** and **energy management** based on interoperable and open protocols.
- Improved **modelling of optimal geographical locations** for large-scale megawatt charging hubs (for HDV, MDV and LDV) considering the grid challenges.
- **Tools/services** for planning, operation, availability and reliability of charging multipoint hubs from users' perspectives, grid operators and energy providers.
- **Highly energy efficient megawatt-charging hubs**: demonstrate at least 4 flexible charging points (>1MW) each capable of recharging 4+ lighter vehicles (150-350 kW).

# HORIZON-CL5-2024-D5-01-04

## Integrated flexible multipoint megawatt charging systems for electric truck mass deployment



### TYPE OF ACTION

- IA – Innovation Action
- Expected **TRL 8** by the end of the project



### EU CONTRIBUTION

- Per project: **7-8,5 M€**
- Total: **17 M€**



### TIMING

- Call opening: **07 December 2023**
- Call closing: **18 April 2024**

- *On-board and off-board sub-systems design has been, as a first step, covered in topic HORIZON-CL5-2022-D5-01-08*
- *Topic open to international collaboration, in particular regarding interface specifications*
- *Report on the results to 2ZERO partnership for KPIs monitoring*

# HORIZON-CL5-2024-D5-01-05

## Advanced digital development tools to accelerate the development of software defined vehicles that enable zero-emission mobility



### SCOPE

- **Design and validation of robust digital tools** to efficiently and effectively develop complex EVs, increasingly software-defined.
- Advanced **methods** for development of trustworthy (24/7 available, secure, safe) **software-defined EV solutions**.
- **Promoting use and adaption** of conceptual tools and **demonstrate integration** into development frameworks for virtual approval **applicable to all EV types** (from L-category to Heavy Duty vehicles).
- Concepts enabling the **feedback to and use of all types of data** (e.g., engineering data, real-life operational data of EVs) in the **product development** of software-defined vehicle functions including automated update.



# HORIZON-CL5-2024-D5-01-05

## Advanced digital development tools to accelerate the development of software defined vehicles that enable zero-emission mobility



### EXPECTED OUTCOME

- **Design and validation of digital tools** for the automotive industry for digital development and operation enabling up to **20% energy consumption reduction** and ensuring performance, security, safety and reliability by design.
- Increased **speed of innovation** by optimising the **utilisation of data**.
- Solutions for **reliable ‘virtual’ decision-making** based on **digital twins**.
- **Method and tools** for reliable **modelling and simulation** of **total vehicle systems**.
- **Enhanced capabilities** in “software-defined” EV.
- Improved product quality, decision making, and exploiting data contributing to the **reduction of the overall development time**.

# HORIZON-CL5-2024-D5-01-05

## Advanced digital development tools to accelerate the development of software defined vehicles that enable zero-emission mobility



### TYPE OF ACTION

- RIA – Research and Innovation Action
- Expected **TRL 4-5** by the end of the project



### EU CONTRIBUTION

- Per project: **4-5 M€**
- Total: **10 M€**



### TIMING

- Call opening: **07 December 2023**
- Call closing: **18 April 2024**

- *Topic expected to go far beyond current development addressed in H2020 topics (e.g. H2020-GV-2018).*
- *Close collaboration is expected between selected projects.*
- *Report on the results to 2ZERO partnership for KPIs monitoring*

# HORIZON-CL5-2024-D5-01-06

## New designs, shapes, functionalities of Light Commercial Vehicles



### SCOPE

- Engage with **users**, define **requirements, expectations**, potential **developments**.
- **Develop and demonstrate** new designs, shapes and functionalities of **LCV** to meet **current and future needs**, including **safety** aspects.
- **Demonstrate vehicles and concepts** for current and future demands in growing **e-commerce market** addressing the challenges holistically, and **in operations**.
- Establish synergies with **new logistics concepts** (such as the **Physical Internet**).
- Concept and demonstration of **combined usage of people and freight**, fleet utilization, optimisation in dense-urban areas (**optionally, additionally to freight**).
- Development of **operational and control strategies** to optimise **energy recuperation** and reduce **brake/tyre particle emissions** and **environmental impact** in urban areas.

# HORIZON-CL5-2024-D5-01-06

## New designs, shapes, functionalities of Light Commercial Vehicles



### EXPECTED OUTCOME

- Demonstrated **innovative, mission-focused and efficient LCV** battery electric concepts in **cities** increasing the **affordability and scalability** of the solutions.
- Demonstrated **scalable zero emission real life operations** in the city environment including **charging** – building **synergies** between the new **LCVs** and zero emission **HDV** operations to address user needs in a sustainable and safe manner.
- **User and mission-centric definition of requirements** on vehicles, infrastructure and system from mobility operators and logistics companies considering new and innovative solutions.

# HORIZON-CL5-2024-D5-01-06

## New designs, shapes, functionalities of Light Commercial Vehicles



### TYPE OF ACTION

- IA – Innovation Action
- Expected **TRL 7-8** by the end of the project



### EU CONTRIBUTION

- Per project: **10 M€**
- Total: **10 M€**



### TIMING

- Call opening: **07 December 2023**
- Call closing: **18 April 2024**

- *Focus on overcoming main barriers for new LCV concepts for urban and sub-urban logistics and freight*
- *Report on the results to 2ZERO partnership for KPIs monitoring*

# HORIZON-CL5-2024-D6-01-13

## EU Member States/Associated countries research policy cooperation network to accelerate zero-emission road mobility



### SCOPE

- Address **zero-emission road mobility (people and goods R&I programmes)** in all phases, also building on the policy cooperation network of previous ERA-NET activities
- Develop a **long-lasting network** of public and private stakeholders (under the **2ZERO States Representative Groups (SRG)**) to share knowledge, coordinate activities, synergies and complementarity in R&I plans, efforts, etc.
- **Support MS/AC** in implementing and accelerating **priority actions** identified in the 2ZERO SRIA, in coordination with 2ZERO SRG
- **Collect and share information** on EU and national **R&I funding programmes and related activities** in the field of zero emission mobility in Europe and beyond
- Exchange **knowledge and experiences** building on and connecting with existing database (such as TRIMIS, 2ZERO events, RTR conferences series, other MS/stakeholders' information sharing portals).

# HORIZON-CL5-2024-D6-01-13

## EU Member States/Associated countries research policy cooperation network to accelerate zero-emission road mobility



### EXPECTED OUTCOME

- Stronger **harmonised national policy plans, efforts, approaches** on R&I funding programmes of EU MS/AC to accelerate zero-emission road mobility
- **Synergy effects, pooled resources and aligned R&I programmes** to support the CO2 emission goals in an affordable and effective way
- **Exchange of knowledge and experiences, coordination at multiple levels** (EU/ national / regional / cities, stakeholders, funding organisations, OEMs, fleets, users, etc.)
- **Holistic overview of policy plans and R&I programmes** across MS/AC to maximise synergy effects and utilisation of resources (e.g. recovery packages and cohesion funds)
- Clear **overview of the national projects**
- Data on **national projects** (at least equivalent to CORDIS database) to be made available by MS/AC, with **harmonised registration** of data
- Strong coordination/cooperation EC, MS/AC and stakeholders, facilitated by 2Zero SRG

# HORIZON-CL5-2024-D6-01-13

## EU Member States/Associated countries research policy cooperation network to accelerate zero-emission road mobility



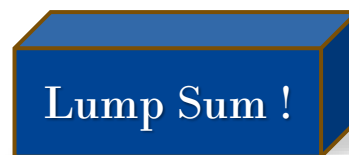
### TYPE OF ACTION

- **CSA** – Coordination and Support Actions



### EU CONTRIBUTION

- Per project: **1,5 M€**
- Total: **1,5 M€**



### TIMING

- Call opening: **07 May 2024**
- Call closing: **05 September 2024**



# #HorizonEU

<http://ec.europa.eu/horizon-europe>



© European Union 2023

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

Image sources: ©ivector, #235536634, #241215668, #244690530, #245719946, #249868181, #251163013, #251163053, #252508849, #266009682, #273480523, #362422833, #222596698, #333945171, #225172715, #225172828, #298595650, #292684095, #318273051, #357709743, #261604727, #261604828; ©Hanna, #343035399; ©pavelvinnik, #265065833; 2020/21. Source: Stock.Adobe.com



# CLUSTER 5 Climate, Energy, Mobility

Virtual INFO DAY 2023 – 17 October 2023

Go to [www.sli.do](https://www.sli.do)

Enter the code #CL5INFODAY

Select the appropriate room

Ask your question or vote for an existing one



# CLUSTER 5 Climate, Energy, Mobility



Virtual INFO DAY 2023 – 17 October 2023

Go to [www.sli.do](http://www.sli.do)

Enter the code #CL5INFODAY

Select the appropriate room



**Take part in the live 1-2 mins poll now!**

# Coffee break – back at 11:45 (CEST)

European  
Commission

#HorizonEU

# HORIZON EUROPE

## INFO DAYS

CLUSTER 5  
**CLIMATE, ENERGY  
& MOBILITY**

17 October 2023



***Submit feedback on Sli.do - #CL5INFODAY***



# HORIZON EUROPE

## INFO DAYS

CLUSTER 5  
**CLIMATE, ENERGY  
& MOBILITY**

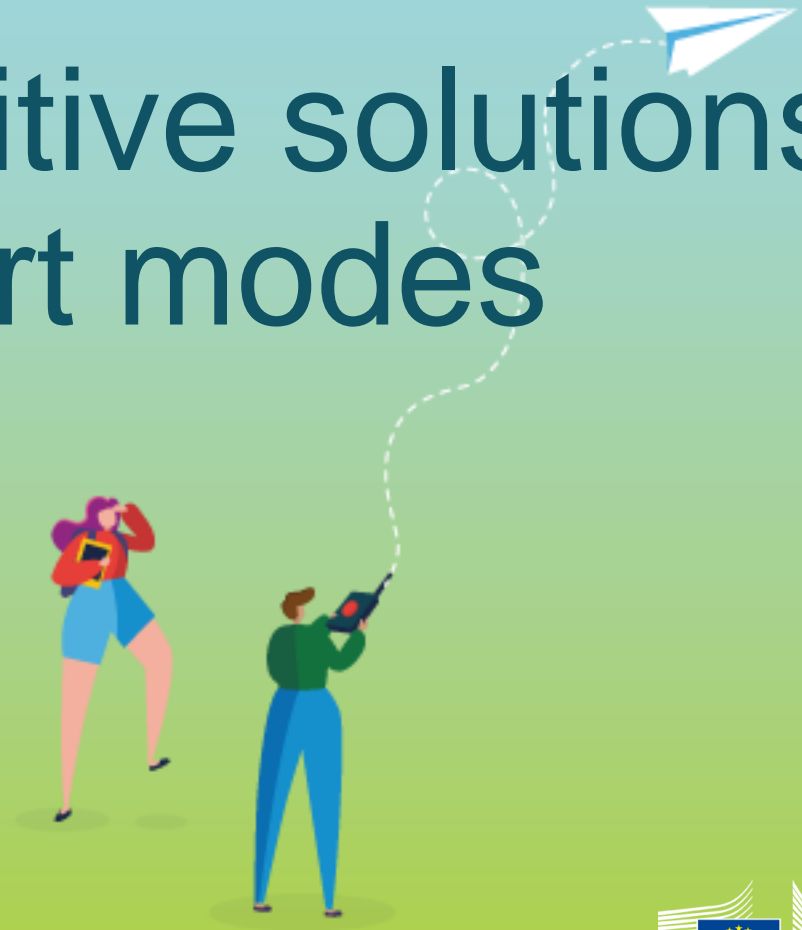
17 October 2023



Research and  
Innovation

## Destination 5

Clean and competitive solutions  
for all transport modes





# Thematic area

## Waterborne Transport

María GUILLÉN MOLINA  
*DG RTD*



# HORIZON-CL5-2024-D5-01-11

## Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)



### SCOPE

- Design low weight **high voltage on board battery installations**, designed to be integrated on board for AC and DC distribution systems
- Development of a battery safety concept, including battery real-time condition monitoring systems
- Design and control of conversion systems, insulation design and insulation coordination
- Sustainability and circularity criteria for whole life on-board
- Identification or development of new standards and certification procedures
- Ensure synergies with the Horizon Europe Batteries Partnership



# HORIZON-CL5-2024-D5-01-11

## Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)



### EXPECTED OUTCOME

- Battery installation: Demonstrating low weight high energy density **battery installations above 1MWh** in **high voltage on board distribution systems**
- Battery monitoring: Development and validation of battery real-time condition monitoring with predictive analytics algorithms
- **Modular conversion system: AC/DC and high, medium and low voltage battery modules**
- Demonstrator: low weight high energy density battery concept for maritime and IWT applications, including on-board battery safety

# HORIZON-CL5-2024-D5-01-11

## Achieving high voltage, low weight, efficient electric powertrains for sustainable waterborne transport (ZEWT Partnership)



### TYPE OF ACTION

- RIA –Research and Innovation Action
- Expected **TRL 5** by the end of the project



### EU CONTRIBUTION

- Per project: **7.5 M€**
- Total: **15 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

➤ *Links to CL5-2021-D2-01-02 - Advanced high-performance Generation 3b (high capacity / high voltage) Li-ion batteries supporting electro mobility and other applications and CL5-2021-D2-01-03 - Advanced high-performance Generation 4a, 4b (solid-state) Li-ion batteries supporting electro mobility and other applications*

## Combining state-of-the-art emission reduction and efficiency improvement technologies in ship design and retrofitting for contributing to the “Fit for 55” package objective by 2030 (ZEWT partnership)



### SCOPE

- Design for operation approach: Direct measurement and verification of actual operation emissions within based on the EU’s MRV will derive in the need to employ modelling and simulation techniques in the vessel design process, to take into account the vessels’ expected operational profile and life cycle
- Develop 3 concept vessels and use cases improving energy efficiency by at least 20% compared to 2022, proposing retrofit for baseline design and completely new design for each
- The close to market technologies combined should include: energy system modelling and fast simulation assessment, open source design assessment tool, operational decision-support or automation systems.

**HORIZON-CL5-2024-D5-01-12**

**Combining state-of-the-art emission reduction and efficiency improvement technologies in ship design and retrofitting for contributing to the “Fit for 55” package objective by 2030 (ZEWT partnership)**



**EXPECTED OUTCOME**

- Three market ready vessel design solutions (IWT, SSS and long distance) combining emission reduction and improved efficiency of technologies that are expected to be already individually demonstrated or developed to TRL 7
- Quantitative assessment towards achieving the Fit for 55 and IMO’s CII through verifiable KPIs. Quantification from a life cycle basis.
- Improvement of existing vessels through measurement and bench marking of operational profiles
- Develop robust business models for high probability of European deployment and the expectation of becoming operational by 2030

# HORIZON-CL5-2024-D5-01-12

## Combining state-of-the-art emission reduction and efficiency improvement technologies in ship design and retrofitting for contributing to the “Fit for 55” package objective by 2030



### TYPE OF ACTION

- IA –Innovation Actions
- Expected **TRL 7** by the end of the project



### EU CONTRIBUTION

- Per project: **7.5 M€**
- Total: **15 M€**

Funding rate:  
60%!



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

# HORIZON-CL5-2024-D5-01-13

## Demonstration of Technologies to minimize underwater noise generated by waterborne transport (ZEWT partnership)



### SCOPE

- Demonstration of technologies to minimize the harmful impacts from waterborne transport URN remains underdeveloped; current URN measurement do not address all potential waterborne transport noise sources
- Case-by-case assessments need to be made, considering environmental, operational and economic factors; prediction of URN at the design stage at equipment design level and at ship integration stage are challenges at the moment
- Addressing noise measurement systems on-board which can provide instantaneous information to the crew on the ship's operational radiated noise and decision support systems to reduce URN while maintaining energy efficiency
- Projects are expected to engage with related projects and activities

# HORIZON-CL5-2024-D5-01-13

## Demonstration of Technologies to minimize underwater noise generated by waterborne transport (ZEWT partnership)



### EXPECTED OUTCOME

- Demonstration of URN reduction through large scale demonstrators or retrofitted ships; assessment through verifiable KPIs
- Demonstration of effectiveness, safety and cost-effectiveness of noise mitigation devices and assessment through verifiable KPIs
- Development of standards for the specification of source noise levels by equipment suppliers and shipyards
- Increased awareness among EU ship owners
- Provide evidence to regulators concerning waterborne transport underwater noise to better take into account operational conditions and environmental impact

# HORIZON-CL5-2024-D5-01-13

## Demonstration of Technologies to minimize underwater noise generated by waterborne transport (ZEWT partnership)



### TYPE OF ACTION

- IA –Innovation Actions
- Expected **TRL 6-8** by the end of the project



### EU CONTRIBUTION

- Per project: **6 M€**
- Total: **6 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**



# HORIZON-CL5-2024-D5-01-14

## Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT partnership)



### SCOPE

- Further progress is required to unlock the full potential of on-board DC grids for large ship applications addressing the entire network. The challenge is to focus not only on secondary distribution, but also on the integration/interconnection of new sustainable primary power systems
- High TRL innovative power electronic systems adapted and certified for waterborne applications, including solutions leveraging the capability of new power electronic systems
- Develop a prototype system at small scale (min 100kW) within waterborne transport environment
- Validate the system with classification societies and developing standards for on-board DC microgrids and communication protocols which are particularly valuable for large ships
- Develop standards for on-board DC microgrids and communication protocols
- Where relevant, collaboration in particular with the Batteries and CH partnerships

# HORIZON-CL5-2024-D5-01-14

## Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWTP partnership)



### EXPECTED OUTCOME

- Demonstration of: i) feasibility of a secondary smart DC grid; ii) smart management and control of hybrid electric plantsm combining energy sources
- Development of: i) a new configuration for the entire power generation architecture ready to be deployed; ii) new power electronic systems for AC/DC converters and DC circuit breakers withing the electrical network with higher efficiency
- Assesment of: i) emission reduction from increased electrification; ii) operating cost reduction and emissions by cutting energy consumption and extending service intervals; iii) efficieny and power density improvements to reduce the overall volume and weight

# HORIZON-CL5-2024-D5-01-14

## Demonstrating efficient fully DC electric grids within waterborne transport for large ship applications (ZEWT partnership)



### TYPE OF ACTION

- IA –Innovation Actions
- Expected **TRL 6-8** by the end of the project



### EU CONTRIBUTION

- Per project: **7,5 M€**
- Total: **15 M€**

Funding rate:  
60%!



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

# HORIZON-CL5-2024-D5-01-15

## Advanced digitalization and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT partnership)



### SCOPE

- Integrated Green Vessel Digital Twins (DT), combining design and operation
- Use of available (simulation) concepts and consider all relevant life-cycle aspects, including end of life disposal
- Incorporate all relevant aspects of physics simulation, design and operational planning and optimisation, as well as data organisation and storage
- Ensure adaptability of the system considering possible relevant retrofits
- Generic and reusable solutions applicable to wider waterborne assets, as well as ensuring interoperability of data models, addressing data ownership, etc
- Test and demonstrate the developed DT model quantifying the improved environmental performance and efficiency

## Advanced digitalization and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT partnership)



### EXPECTED OUTCOME

- Development and demonstration of a platform for integrated Green Vessel Digital Twins that will provide a basis to continuously improve the environmental performance of vessels over their entire life cycle
- Improved environmental performance through verifiable KPIs
- Proven applicability of the platform to a wide variety of vessel operations throughout the vessels' lifetime, by using model-based systems engineering, simulation and hardware in the loop approaches

# HORIZON-CL5-2024-D5-01-15

## Advanced digitalization and modelling utilizing operational and other data to support zero emission waterborne transport (ZEWT partnership)



### TYPE OF ACTION

- IA –Innovation Actions
- Expected **TRL 6-7** by the end of the project



### EU CONTRIBUTION

- Per project: **7,7 M€**
- Total: **7,7 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

## Structuring the Waterborne transport sector, including through changed business and industrial models in order to achieve commercial zero-emission waterborne transport (ZEWT partnership)



### SCOPE



- While Europe is still a worldwide leader in advanced, digital and green shipping, there is a lack of take up of new technologies within the wider waterborne transport market
- There is a need to objectively analyse the segments of the waterborne transport sector, categorizing business models and identifying barriers to the take up of innovations
- Identifying business, financial and commercial barriers, including responsibilities and business motivations between different agents of the supply chain
- Analyse the needs and timing to retrofit and replace the current EU fleet as well as disincentives for deployment, considering the investment decision cycle
- Communication and exploitation activities towards relevant stakeholders
- Assure a beneficial societal impact from the activities

# HORIZON-CL5-2024-D5-01-16

## Structuring the Waterborne transport sector, including through changed business and industrial models in order to achieve commercial zero-emission waterborne transport (ZEWT partnership)



### EXPECTED OUTCOME

- Full understanding of the business model, labour, financial and commercial barriers to the take up of innovative low and/or zero-emission solutions for waterborne transport
- Identification of potential solutions to overcome business and commercial barriers
- Understanding of the industrial capacity and how it would be scheduled to retrofit and /or replace the current European fleet to meet 2030 and 2050 targets
- Increase commitment from the wider waterborne sector



# HORIZON-CL5-2024-D5-01-16

## Structuring the Waterborne transport sector, including through changed business and industrial models in order to achieve commercial zero-emission waterborne transport (ZEWT partnership)



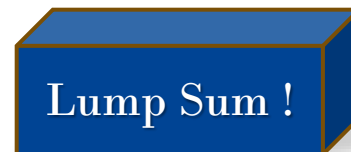
### TYPE OF ACTION

- **CSA** – Coordination and Support Actions



### EU CONTRIBUTION

- Per project: **0.85 M€**
- Total: **0.85 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

## Coordinating and supporting the combined activities of member and associated states towards the objectives of the Zero Emission Waterborne Transport partnership (ZEWT partnership)



### SCOPE

- After the valuable cooperation established between national and European research under H2020 ERA-NET Co-fund MarTERA, further synergies towards the achievement of common goal aligning with the ZEWT partnership objectives are needed
- National administrations are best placed to facilitate this alignment and the increased participation of critical mass accelerating the implementation of the partnership's SRIA
- Facilitate collaboration among MS and associated countries in different actions, as long as they don't include support to the projects and their management
- Reinforcing complementarity of national schemes towards market uptake and deployment
- Reinforcing synergies between ZEWT related actions with those of the MS and other EU programmes

## Coordinating and supporting the combined activities of member and associated states towards the objectives of the Zero Emission Waterborne Transport partnership (ZEWT partnership)



### EXPECTED OUTCOME

- Increase the impacts arising from the ZEWT partnership towards achieving zero emission waterborne transport for both European and national benefit
- Leverage the efficiency of national and EU R&I investment to accelerate the development and deployment of zero emission waterborne transport for both European and national benefit
- Further align national programs with the activities and outcomes of the partnership
- Establish a cooperation mechanism between EU MS and Associated countries to jointly fund research related to the objectives of the ZEWT partnership
- Creating a critical mass and excellence in precompetitive breakthroughs related to the partnership's objectives
- Reinforced synergies between actions under HE, MS and other EU programs

# HORIZON-CL5-2024-D5-01-17

## Coordinating and supporting the combined activities of member and associated states towards the objectives of the Zero Emission Waterborne Transport partnership (ZEWT partnership)



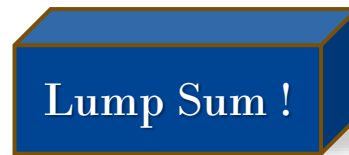
### TYPE OF ACTION

- **CSA** – Coordination and Support Actions



### EU CONTRIBUTION

- Per project: **1.5 M€**
- Total: **1.5 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

# #HorizonEU

<http://ec.europa.eu/horizon-europe>



© European Union 2023

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

Image sources: ©ivector, #235536634, #241215668, #244690530, #245719946, #249868181, #251163013, #251163053, #252508849, #266009682, #273480523, #362422833, #222596698, #333945171, #225172715, #225172828, #298595650, #292684095, #318273051, #357709743, #261604727, #261604828; ©Hanna, #343035399; ©pavelvinnik, #265065833; 2020/21. Source: Stock.Adobe.com



# CLUSTER 5 Climate, Energy, Mobility

Virtual INFO DAY 2023 – 17 October 2023

Go to [www.sli.do](https://www.sli.do)

Enter the code #CL5INFODAY

Select the appropriate room

Ask your question or vote for an existing one



# CLUSTER 5 Climate, Energy, Mobility



Virtual INFO DAY 2023 – 17 October 2023

Go to [www.sli.do](http://www.sli.do)

Enter the code #CL5INFODAY

Select the appropriate room



**Take part in the live 1-2 mins poll now!**

# Lunch break – back at 14:00 (CEST)

European  
Commission

#HorizonEU

# HORIZON EUROPE

## INFO DAYS

CLUSTER 5  
**CLIMATE, ENERGY  
& MOBILITY**

17 October 2023



***Submit feedback on Sli.do - #CL5INFODAY***





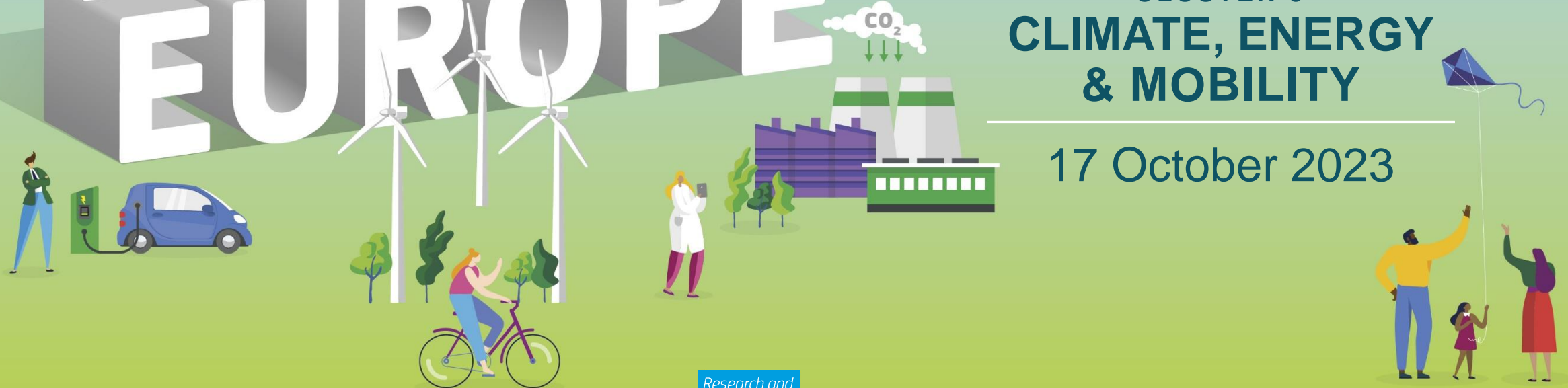


# HORIZON EUROPE

## INFO DAYS

CLUSTER 5  
**CLIMATE, ENERGY  
& MOBILITY**

17 October 2023



Research and  
Innovation

## Destination 4

Efficient, sustainable and  
inclusive energy use





## Thematic area

Highly energy-efficient and climate neutral European building stock

—

Energy Efficient Buildings

Rebecca KANELLEA - Eleftherios BOURDAKIS  
*CINEA*



## Low-disruptive renovation processes using integration of prefabricated solutions for energy-efficient buildings



### SCOPE

- Develop **streamlined processes for deep energy-efficient renovation**: at least NZEB level & using prefabricated modules
- Use relevant **available technologies** to **reduce quality gaps** between off-site manufacturing and on-site deployment of prefabricated modules
- Develop processes for **seamless integration of prefabricated solutions** into a variety of existing constructions
- Ensure the processes **minimize the disturbance** for building owners, tenants and users
- At least **three demonstrations** covering different building categories (residential or tertiary) and various building typologies, such as single or multi-storey, single or multi-use, etc.
- Demonstrate less-disruptive retrofitting processes that are **more attractive and more cost-effective** for building owners, tenants and users

## Low-disruptive renovation processes using integration of prefabricated solutions for energy-efficient buildings



### EXPECTED OUTCOME

- **Reduction of on-site construction activities** to 1-2 days per dwelling/building unit
- **Cost reduction** of at least 25% compared to conventional renovation processes
- Significant **reduction of dust, noise and waste** on the construction site compared to conventional renovation processes
- Significant **reduction in occupant disturbance** during the renovation
- **Improved** levels of **occupancy comfort** (e.g. Indoor Air Quality and Indoor Environmental Quality) after renovation
- **Reduction of negative impacts of renovation** on biodiversity, considering adaptability as well (e.g. to climate change, different use, evolving societal needs, etc.) and resilience of buildings to disruptive events

# HORIZON-CL5-2024-D4-01-01

## Low-disruptive renovation processes using integration of prefabricated solutions for energy-efficient buildings



### TYPE OF ACTION

- IA –Innovation Action
- Expected **TRL 6 - 8** by the end of the project



### EU CONTRIBUTION

- Per project: **5 M€**
- Total: **10 M€**



### TIMING

- Call opening: **07 December 2023**
- Call closing: **18 April 2024**

# HORIZON-CL5-2024-D4-01-02

## Smart grid-ready buildings



### SCOPE

- Develop new or upgrade existing **building-to-grid integration solutions** and demonstrate them in **real-life pilots**
- Enhance **interoperability between buildings and grids** for electricity and other energy carriers
- Enhance synergies between **on-site energy storage** (e.g. home batteries, e-vehicles, etc.) and **on-site renewable energy sources**.
- Develop and pilot innovative and competitive **energy balancing, storage and generation services** in buildings

# HORIZON-CL5-2024-D4-01-02

## Smart grid-ready buildings



### EXPECTED OUTCOME

- Improved **integration of buildings with energy carriers** (e.g. electricity grid, district heating networks) and **non-energy services** (e.g. mobility)
- Improved **buildings flexibility** for grid and network management
- Increase in **renewable energy production and storage** at building level
- **Empowerment of end-users** by having increased control over their buildings' energy services and contracts



# HORIZON-CL5-2024-D4-01-02

## Smart grid-ready buildings



### TYPE OF ACTION

- IA –Innovation Action
- Expected **TRL 6-8** by the end of the project



### EU CONTRIBUTION

- Per project: **5 M€**
- Total: **10 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

➤ *Active contribution to the BRIDGE initiative*



# Thematic area

## Industry

Eric LECOMTE  
*DG ENER*



# HORIZON-CL5-2024-D4-01-03

## Alternative heating systems for efficient, flexible and electrified heat generation in industry



### SCOPE

- Cost effective and improved designs for **at least two** alternative heat sources technologies
- Integration and demonstration of the system at industrial scale of **at least one** alternative heat source technology in **at least one industrial process**; demonstrate the financial viability and develop a business case
- Make a preliminary estimation of the future equipment cost
- Make an analysis of the potential industrial deployment and related benefits of at least one alternative heat source technology in three industrial sectors, in the EU and (if data are available) in the Associated States and, by extrapolation, at global level

## Alternative heating systems for efficient, flexible and electrified heat generation in industry



### EXPECTED OUTCOME

- Take full advantage of alternative heating systems for electrified, **efficient and precisely focussed heat generation in industry**, that create the possibility for new, decarbonised and flexible processes, reducing fossil fuel imports dependency, maximising primary energy savings and CO2 emission reduction compared to present state-of-the-art, demonstrated by LCA or similar studies (assuming decarbonised electricity use)
- Environmental and technical performances, health protection, safety and economic viability of novel heating technologies demonstrated and validated in industrial processes
- Better awareness of the challenges and benefits of alternative heating systems in the relevant industrial sectors.

# HORIZON-CL5-2024-D4-01-03

## Alternative heating systems for efficient, flexible and electrified heat generation in industry



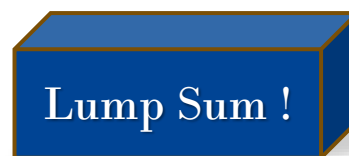
### TYPE OF ACTION

- IA –Innovation Action
- Expected **TRL 6-7** by the end of the project



### EU CONTRIBUTION

- Per project: **5.3 M€**
- Total: **16 M€**



### TIMING

- Call opening: **07 December 2023**
- Call closing: **18 April 2024**

➤ [Link to CL5-2024-D4-01-03](#) - *Alternative heating systems for efficient, flexible and electrified heat generation in industry*



## Thematic area

Highly energy-efficient and climate neutral European building stock

—

Built4People Partnership

Rebecca KANELLEA - Eleftherios BOURDAKIS  
*CINEA*



## Industrialisation of sustainable and circular deep renovation workflows (Built4People Partnership)



### SCOPE

- Investigate innovative approaches for **industrialised deep circular renovation**, covering the **whole workflow**
- Ensure the proposed approaches aim to achieve the highest level of energy performance (at least NZEB level), ensuring a **high level of indoor environment quality**, keeping costs in an attractive range for owners and investors
- Make use of innovative processes and technologies, such as design based on circularity principles, prefabricated components, and digital tools that allow to **optimise workflows**
- Apply the proposed workflows to **at least three demonstrations**. The demonstrations can be either single buildings or clusters of buildings, and **at least one of the demonstrations has to address residential buildings**

## Industrialisation of sustainable and circular deep renovation workflows (Built4People Partnership)



### EXPECTED OUTCOME

- Streamlining resource-efficient nearly zero-energy performance renovation processes
- Renovations with reduction of at least 30 % waste, 25% cost, and 30% work time (to 1-2 days per dwelling/building unit), compared to current deep renovation processes
- Reduced energy performance gap between as-built and as-designed, higher construction quality
- Innovative, tailored business models for deep renovation, generating economies of scale and contributing to an increased rate of renovation
- Improved comfort, Indoor Air Quality and Indoor Environmental Quality



# HORIZON-CL5-2024-D4-02-01

## Industrialisation of sustainable and circular deep renovation workflows (Built4People Partnership)



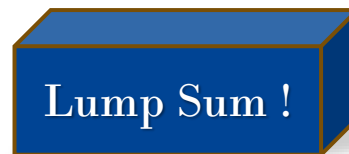
### TYPE OF ACTION

- IA –Innovation Action
- Expected **TRL 6-8** by the end of the project



### EU CONTRIBUTION

- Per project: **8 M€**
- Total: **16 M€**



### TIMING

- Call opening: **17 September 2024**
- Call closing: **21 January 2025**

➤ *Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters*

# HORIZON-CL5-2024-D4-02-02

## Robotics and other automated solutions for construction, renovation and maintenance in a sustainable built environment (Built4People Partnership)



### SCOPE

- Investigate the use of **robotic systems** (including those used for 3D printing) and automation for construction and deep renovation
- Develop **robotic and automated design and construction techniques** that increase energy efficiency and reduce greenhouse gas emissions from construction and renovation works on-site
- Investigate the use of **automated technologies** for surveying, inspection and monitoring of the site
- Test and validate the prototyped solutions in **at least three prototypes**. These prototypes should be validated in a lab or another relevant environment. The testing and validation are expected to **address both new construction and renovation**

# HORIZON-CL5-2024-D4-02-02

## Robotics and other automated solutions for construction, renovation and maintenance in a sustainable built environment (Built4People Partnership)



### EXPECTED OUTCOME

- Reduction of construction and renovation time on-site (at least 40% reduction)
- Reduction of errors in construction and renovation works
- Improved resource efficiency
- Reduction of construction and renovation costs
- Reduction of greenhouse gas emissions resulting from, and improved energy efficiency of the works on-site
- Reduced environmental impact of construction works, including pollution, particulate matter and noise, in the immediate vicinity
- Reduction of waste generated from the works on-site

# HORIZON-CL5-2024-D4-02-02

## Robotics and other automated solutions for construction, renovation and maintenance in a sustainable built environment (Built4People Partnership)



### TYPE OF ACTION

- RIA – Research & Innovation Action
- Expected **TRL 4-5** by the end of the project



### EU CONTRIBUTION

- Per project: **4 M€**
- Total: **8 M€**



### TIMING

- Call opening: **17 September 2024**
- Call closing: **21 January 2025**

- *Contribute to the activities of the Built4People partners and to the Built4People network of innovation clusters*
- *The Joint Research Centre (JRC) may participate as member of the consortium selected for funding*

# HORIZON-CL5-2024-D4-02-03

## BIM-based processes and digital twins for facilitating and optimising circular energy renovation (Built4People Partnership)



### SCOPE

- Develop and integrate **solutions based on BIM and Digital Twins** to support the whole buildings life cycle from design to deconstruction and reuse, including operation. Ensure that the solutions
  - Support optimal, adaptable and reversible building design
  - Allow to track buildings materials and construction products
  - Integrate buildings operational data into an interoperable Digital Twin for automated, optimised building performance monitoring
- Apply the solutions on **a set of real-life residential and non-residential building construction and renovation projects**

# HORIZON-CL5-2024-D4-02-03

## BIM-based processes and digital twins for facilitating and optimising circular energy renovation (Built4People Partnership)



### EXPECTED OUTCOME

- Reduced buildings construction and renovation **time and costs**
- Increased buildings material **reuse and recycling**
- Improvement of buildings **performance**
- Enhanced, **interoperable and accessible buildings information** across the lifecycle
- Improvement of **interoperability with existing** BIM and Digital Twin solutions

# HORIZON-CL5-2024-D4-02-03

## BIM-based processes and digital twins for facilitating and optimising circular energy renovation (Built4People Partnership)



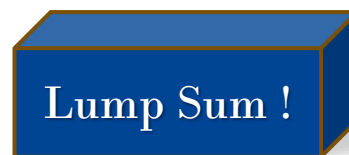
### TYPE OF ACTION

- IA –Innovation Action
- Expected **TRL 6-8** by the end of the project



### EU CONTRIBUTION

- Per project: **4 M€**
- Total: **8 M€**



### TIMING

- Call opening: **17 September 2024**
- Call closing: **21 January 2025**

## Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy (Built4People Partnership)



### SCOPE



- **Validate construction and renovation solutions** based on the integration of innovative tools, products, techniques, processes and methods, that facilitate deconstruction and reuse, based on life-cycle approaches across the value chain
- **Validation** of the solutions in a **relevant environment** (real-life or close to real-life) that:
  - Covers residential and non-residential projects, half of which at least should be renovation projects
  - Covers at least two different countries, with diverse climatic conditions
  - Involves local and regional value chains, in particular SMEs
  - Results in clear and, where relevant, quantified and measurable indicators on the improvements due to the use of the solutions
- Deliver **guidance & recommendations** for technology providers, regulatory authorities, certification and standardisation bodies



## Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy (Built4People Partnership)



### EXPECTED OUTCOME

- **Improved adaptability** of buildings and building units to new uses
- Increased **reuse and recycling** of building elements and products
- **Extended service life** of buildings
- **Increased awareness** on best practices for design for adaptability, reuse and deconstruction

# HORIZON-CL5-2024-D4-02-04

## Design for adaptability, re-use and deconstruction of buildings, in line with the principles of circular economy (Built4People Partnership)



### TYPE OF ACTION

- RIA – Research and Innovation Action
- Expected **TRL 5-6** by the end of the project



### EU CONTRIBUTION

- Per project: **4 M€**
- Total: **8 M€**



### TIMING

- Call opening: **17 September 2024**
- Call closing: **21 January 2025**

- *Report on results to Built4People in support of the monitoring of its KPIs*
- *The Joint Research Centre (JRC) may participate as member of the consortium selected for funding*

## Digital solutions to foster participative design, planning and management of buildings, neighbourhoods and urban districts



### SCOPE

- Climate neutrality / resilience
- Complement / build on existing tools / standards
- Engage citizens / end-users / stakeholders in the development process
- Tailored to laypersons incl. vulnerable / minority / disadvantaged groups
- Demonstrate prototypes in three real-life urban development projects



# HORIZON-CL5-2024-D4-02-05

## Digital solutions to foster participative design, planning and management of buildings, neighbourhoods and urban districts



### EXPECTED OUTCOME

- Greater **engagement of** representative groups of **end users as well as citizens** of the impacted urban context
- Increased **acceptability and uptake of** sustainable **deep renovation solutions**
- Reduced **energy and mobility poverty**
- Increase in **plans for climate neutral and sustainable, aesthetic and inclusive built environments** with enhanced climate adaptation and resilience (e.g. based on naturebased solutions)
- Enhanced **climate change adaptation and resilience** in built environments

# HORIZON-CL5-2024-D4-02-05

## Digital solutions to foster participative design, planning and management of buildings, neighbourhoods and urban districts



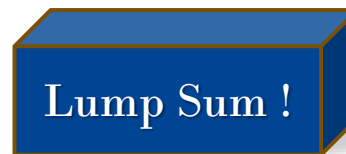
### TYPE OF ACTION

- IA –Innovation Action
- Expected **TRL 6-8** by the end of the project



### EU CONTRIBUTION

- Per project: **5 M€**
- Total: **10 M€**



### TIMING

- Call opening: **17 September 2024**
- Call closing: **21 January 2025**

- *Contribute to co-programmed European Partnership on 'People-centric sustainable built environment' (Built4People)*
- *Contribute to New European Bauhaus (NEB) initiative*

# #HorizonEU

<http://ec.europa.eu/horizon-europe>



© European Union 2023

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

Image sources: ©ivector, #235536634, #241215668, #244690530, #245719946, #249868181, #251163013, #251163053, #252508849, #266009682, #273480523, #362422833, #222596698, #333945171, #225172715, #225172828, #298595650, #292684095, #318273051, #357709743, #261604727, #261604828; ©Hanna, #343035399; ©pavelvinnik, #265065833; 2020/21. Source: Stock.Adobe.com



# CLUSTER 5 Climate, Energy, Mobility

Virtual INFO DAY 2023 – 17 October 2023

Go to [www.sli.do](https://www.sli.do)

Enter the code #CL5INFODAY

Select the appropriate room

Ask your question or vote for an existing one



# CLUSTER 5 Climate, Energy, Mobility



Virtual INFO DAY 2023 – 17 October 2023

Go to [www.sli.do](http://www.sli.do)

Enter the code #CL5INFODAY

Select the appropriate room



**Take part in the live 1-2 mins poll now!**



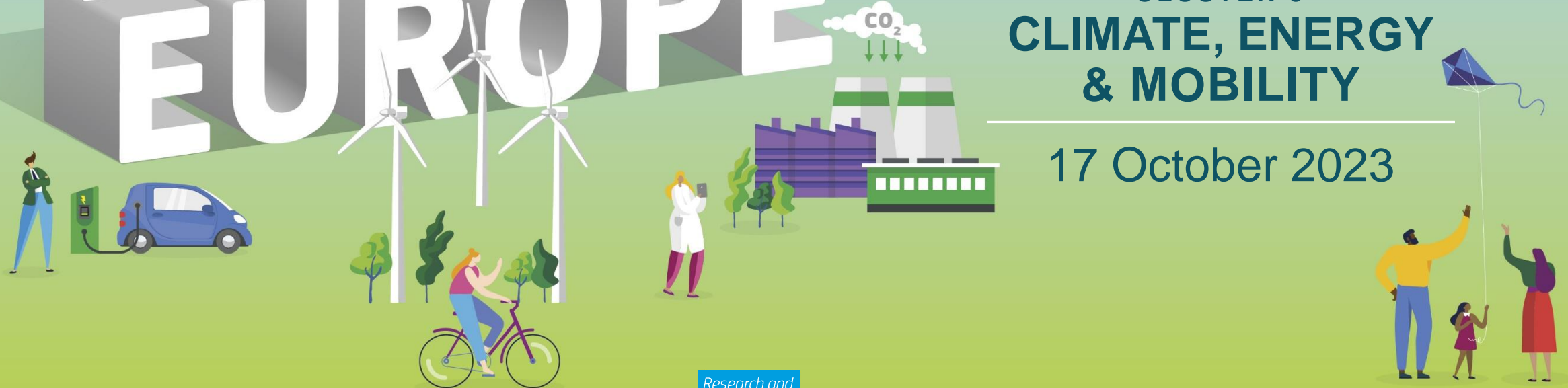


# HORIZON EUROPE

## INFO DAYS

CLUSTER 5  
**CLIMATE, ENERGY  
& MOBILITY**

17 October 2023



Research and  
Innovation

## Destination 5

Clean and competitive solutions  
for all transport modes





# Thematic area

## Aviation

**Michael KYRIAKOPOULOS**  
*DG RTD*



# HORIZON-CL5-2024-D5-01-07

## Accelerating climate neutral aviation, minimising non-CO2 emissions



### SCOPE

- **Non-CO2 emissions** - local geographical character, dependency on atmospheric phenomena, incomplete understanding and uncertainties, operational trade-offs.
- Complex policy issue of mitigating **short-term versus long term climate effects**.
- Avoiding **climate sensitive regions** has a large potential in reducing climate impact at relatively low costs without causing significantly more CO2 emissions.
- Synergies with SESAR3, EASA, Destination Earth.

# HORIZON-CL5-2024-D5-01-07

## Accelerating climate neutral aviation, minimising non-CO2 emissions



### EXPECTED OUTCOME

- **Increase scientific understanding** related to the impact of aerosols on clouds as well as the contribution of aviation NOx emissions to climate change.
- **Support potential policy measures** - EASA study
- Perform detailed analysis of **optimal relation between costs and climate.**
- **Perform engine gas and particle emissions characterization**
- **Perform flight tests and demonstrate the benefits and fuel burn trade-offs**
- **Perform hydrogen and aviation drop-in fuel research** with an eye towards reducing further non-CO2 emissions.

# HORIZON-CL5-2024-D5-01-07

## Accelerating climate neutral aviation, minimising non-CO2 emissions



### TYPE OF ACTION

- RIA – Research Innovation Action
- Expected **TRL 2-4** by the end of the project



### EU CONTRIBUTION

- Per project: **4-5 M€**
- Total: **17 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

- *If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS*
- *Synergies with SESAR3 Joint Undertaking*
- *EC Workshop on Aviation non-CO2 emissions – 13-14 December 2023, Brussels*

**HORIZON-CL5-2024-D5-01-08**

# **Competitiveness and digital transformation in aviation**

## **Advancing further composite aerostructures**



### **SCOPE**

- Advanced **composite design and manufacturing** technologies
- **Cost-competitive** and sustainable manufacturing, characterisation, **maintenance and end-of-life solutions** of composite aerostructures
- Composite **multifunctional** and **multi-material** innovations.
- **Scale-demonstrated** in relevant challenging industrial cases.



#### EXPECTED OUTCOME

- **Advanced composite technologies** - new designs, high-volume sustainable manufacturing with integrated inspection, sustainable and free of toxic substances, recycling and circularity, structures safety requirements (EMC/lighting protection, ice formation, fire, fatigue, crashworthiness and ditching), SHM and additive manufacturing of the new generation of composites.
- Breakthrough technologies in **aerostructures-systems-propulsion integration**.
- Advancements in **physical and digital research infrastructures**



# HORIZON-CL5-2024-D5-01-08

## Competitiveness and digital transformation in aviation

### Advancing further composite aerostructures



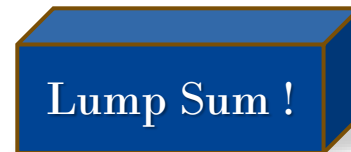
#### TYPE OF ACTION

- RIA – Research Innovation Action
- Expected **TRL 2-4** by the end of the project



#### EU CONTRIBUTION

- Per project: **3-5 M€**
- Total: **21 M€**



#### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

➤ *Synergies with Clean Aviation Joint Undertaking*

# HORIZON-CL5-2024-D5-01-09

## Impact monitoring of EU Aviation R&I



### SCOPE

- **Reference European toolbox** able to assess the impact of European aviation R&I - impact assessments - European Aviation R&I policy
- Incorporate methodological, **science-based and validated models** that can be traced.
- Pay particular attention to **non-CO2 emissions and climate-sensitive regions** as well as address **interdependencies**.
- **Integrate and make use of existing toolboxes** developed in previous EU R&I Framework Programmes (e.g. TEAM\_PLAY, CS2-TE).

# HORIZON-CL5-2024-D5-01-09

## Impact monitoring of EU Aviation R&I



### EXPECTED OUTCOME

- **Deliver a toolbox, including preliminary impact assessments**, that will be the reference choice for the definition and assessment of environmental, climate and competitiveness policy options of future European aviation R&I and regulatory measures
- **Assist EU Member States/Associated Countries, the European Commission and EASA** in ICAO Working Groups and other International regulatory agencies.
- **Perform trade-off studies**, address the most cost-effective policy options as a function of time (towards up to 2070) and allow policy makers, industry and scientists to take **informed decisions**.

# HORIZON-CL5-2024-D5-01-09

## Impact monitoring of EU Aviation R&I



### TYPE OF ACTION

- RIA – Research Innovation Action
- Expected TRL - NA



### EU CONTRIBUTION

- Per project: **3 M€**
- Total: **3 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

➤ *If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).*

# HORIZON-CL5-2024-D5-01-10

## Towards a flying testbed for European leadership in aviation



### SCOPE

- **Experimental aircraft** have been essential to de-risk and understand the possibilities of new solutions before irreversible decisions need to be made.
- **Pan-European approach - sub-scale to full-scale flying demonstrators** for validation and demonstration of new configurations and concepts.
- **Address long-range (>4000km) missions**, where new radical configurations are still needed to be explored.

# HORIZON-CL5-2024-D5-01-10

## Towards a flying testbed for European leadership in aviation



### EXPECTED OUTCOME

- **Design of concepts and validation of an experimental aircraft** that will test, validate and accelerate radical new technologies and aircraft configurations that go well beyond the state-of-the-art;
- **Deliver detailed technical roadmaps** that demonstrate the path towards a flying test bed. Such roadmaps should include a needs and gaps analysis in terms of Technology Infrastructures with respect to radical aircraft configurations and related technology validation and certification;
- **Provide a preliminary implementation and execution plan** for the targeted aircraft concept, including a business and operating model.

# HORIZON-CL5-2024-D5-01-10

## Towards a flying testbed for European leadership in aviation



### TYPE OF ACTION

- RIA – Research Innovation Action
- Expected **TRL 4-5** by the end of the project



### EU CONTRIBUTION

- Per project: **16 M€**
- Total: **16 M€**



### TIMING

- Call opening: **7 December 2023**
- Call closing: **18 April 2024**

# #HorizonEU

<http://ec.europa.eu/horizon-europe>



© European Union 2023

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

Image sources: ©ivector, #235536634, #241215668, #244690530, #245719946, #249868181, #251163013, #251163053, #252508849, #266009682, #273480523, #362422833, #222596698, #333945171, #225172715, #225172828, #298595650, #292684095, #318273051, #357709743, #261604727, #261604828; ©Hanna, #343035399; ©pavelvinnik, #265065833; 2020/21. Source: Stock.Adobe.com





# CLUSTER 5 Climate, Energy, Mobility

Virtual INFO DAY 2023 – 17 October 2023

Go to [www.sli.do](https://www.sli.do)

Enter the code #CL5INFODAY

Select the appropriate room

Ask your question or vote for an existing one



# CLUSTER 5 Climate, Energy, Mobility



Virtual INFO DAY 2023 – 17 October 2023

Go to [www.sli.do](http://www.sli.do)

Enter the code #CL5INFODAY

Select the appropriate room



**Take part in the live 1-2 mins poll now!**

# CLUSTER 5 Climate, Energy, Mobility

INFO DAY 2023 - 17 October 2023

**THANK YOU**  
**See you next time!**

***Submit your EVENT FEEDBACK on  
Sli.do - #CL5INFODAY***

***Visit [cinea.ec.europa.eu](https://cinea.ec.europa.eu) website for  
other EU funding opportunities***

