



APRE

Agenzia per la Promozione
della Ricerca Europea

Il Work Programme “Climate, Energy and Mobility” – Presentazione delle opportunità di finanziamento

23/11/2021

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APRE

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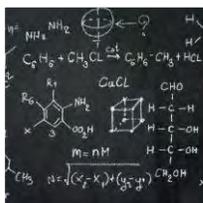
- National Contact Point for Cluster 5 «Climate, energy and mobility» - Horizon Europe
- National Contact Point for Societal Challenge 4 «Smart, green and integrated transport» & Societal Challenge 5 «Climate action, environment, resource efficiency and raw materials» - Horizon 2020



Horizon Europe

Horizon Europe is the EU's funding programme for research and innovation from 2021-2027 with budget of €95.5 billion.

Science & technology



- Fuel EU's scientific and technological excellence and the strengthen the ERA

Society



- tackle policy priorities, including green and digital transitions and SDGs

Economy



- boost Europe's innovation uptake, competitiveness and jobs



Rules for Participation

Source: Regulation establishing Horizon Europe

Entities eligible for participation



Art. 18: «Any legal entity, regardless of its place of establishment, including legal entities from non associated third countries or international organisation may participate in actions under the Programme, provided that the conditions laid down in this Regulation have been met together with any conditions laid down in the work programme or call»

New eligibility condition: Gender Equality Plan (applicable only from 2022 on)

Participants that are public bodies, research organisations or higher education establishments from Members States and Associated countries **must have a gender equality plan**, covering minimum process-related requirements.

- A self-declaration will be requested at proposal stage (for all types of participants).
- Included in the entity validation process (based on self-declaration)



Entities eligible for funding

EU COUNTRIES

- Member States (MS) including their outermost regions
- The Overseas Countries and Territories (OCTs) linked to the MS.

NON-EU COUNTRIES

- Countries associated to Horizon Europe (AC)
- Low and middle income countries: See [HE Programme Guide](#).
- Other countries when announced in the call or exceptionally if their participation is essential

SPECIFIC CASES

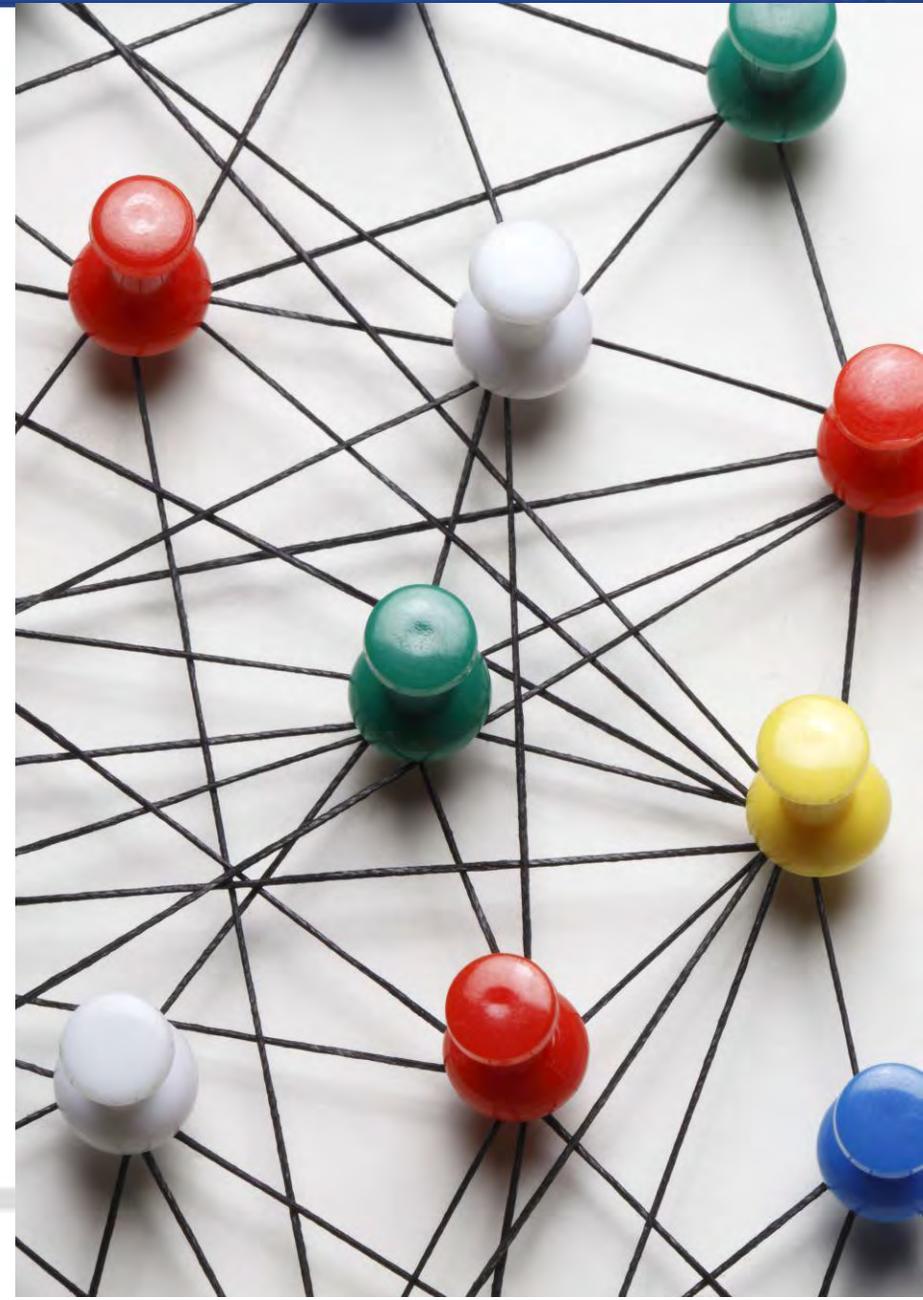
- Affiliated entities established in countries eligible for funding.
- EU bodies
- International organisations (IO):
 - International European research organisations are eligible for funding.
 - Other IO are not eligible (only exceptionally if participation is essential)
 - IO in a MS or AC are eligible for funding for Training and mobility actions and when announced in the call conditions

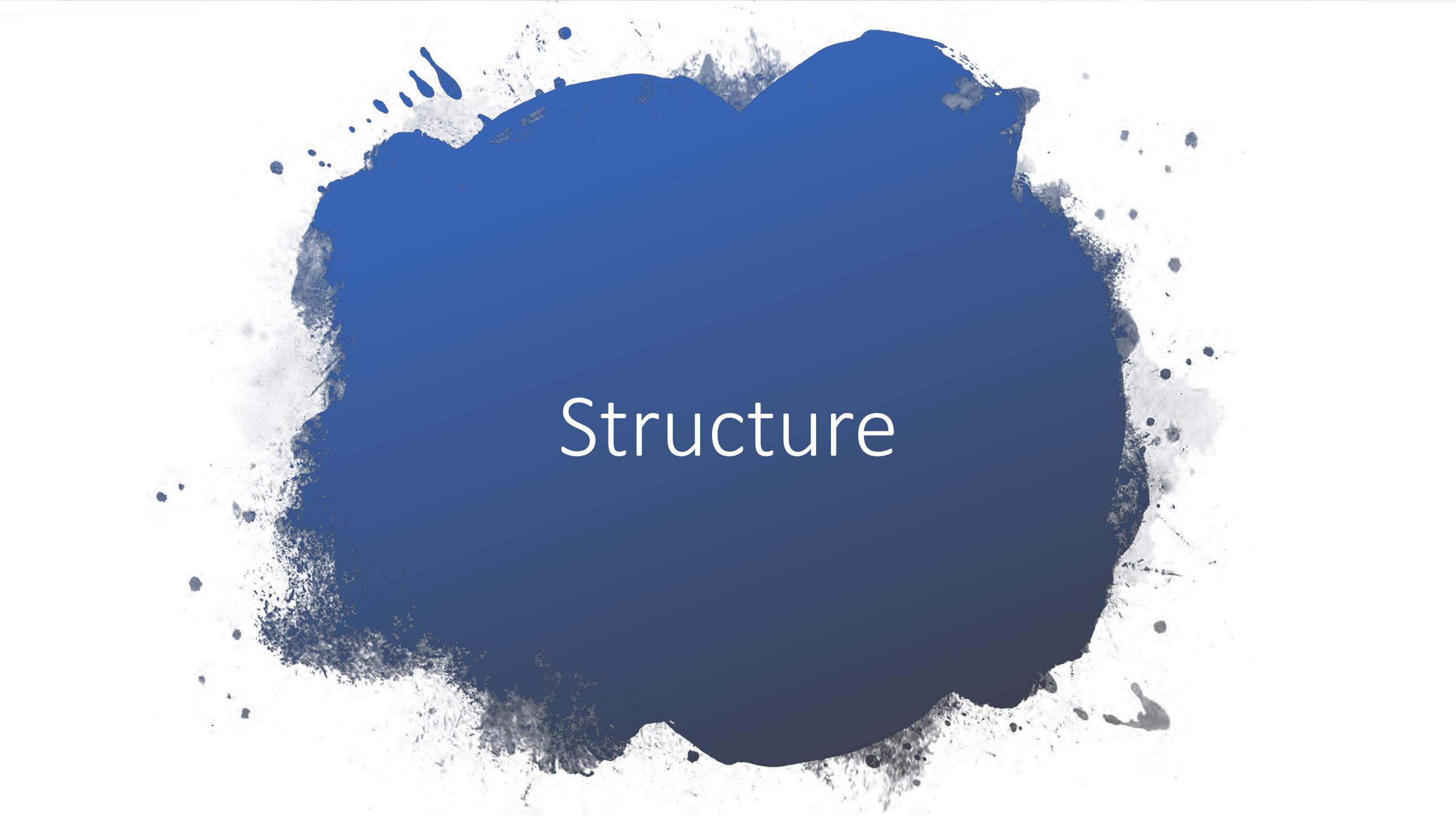
Minimum requirements

- Art. 18: «Entities shall be part of a consortium that shall include at least three independent legal entities each established in a different Member State or associated country and with at least one of them established in a Member State, unless:
- (a) the work programme provides otherwise, if duly justified”

SPECIAL/ADDITIONAL CONDITIONS

MAY BE OUTLINED IN THE WORK PROGRAMME (No of participants, type of participants)

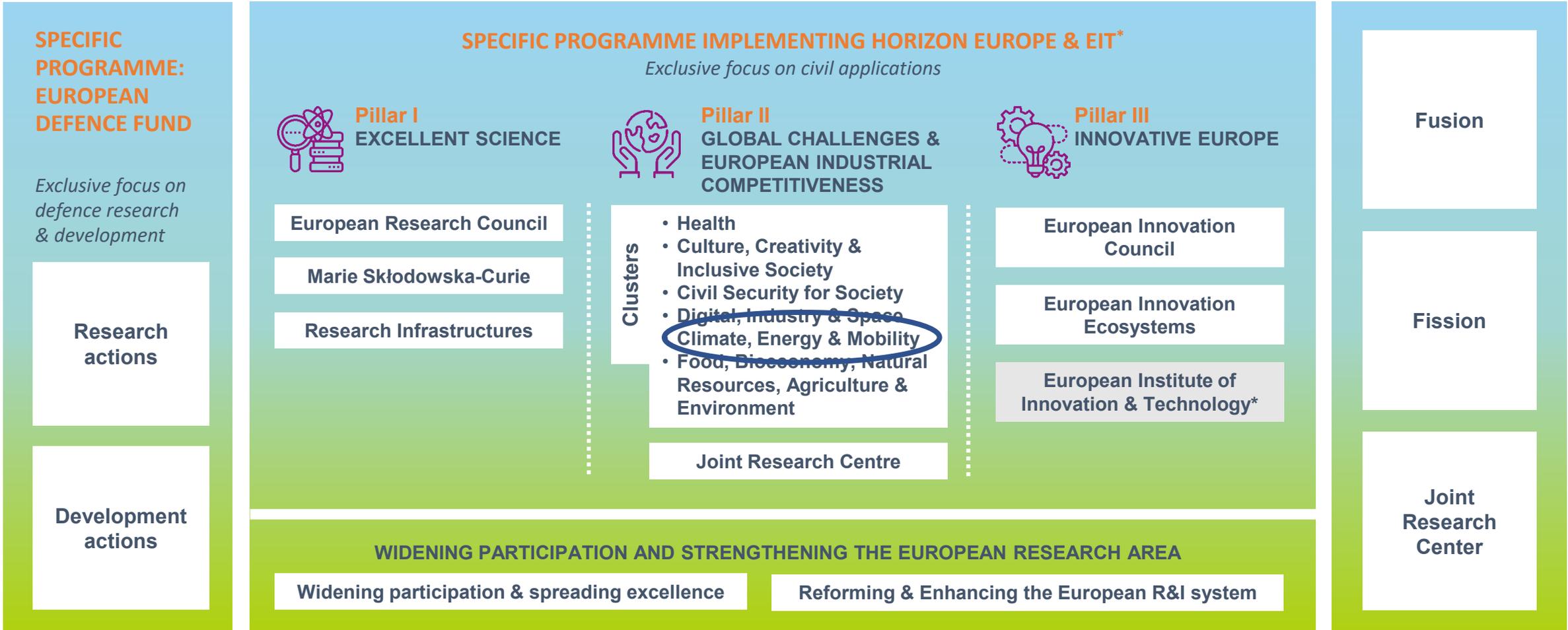




Structure

HORIZON EUROPE

EURATOM



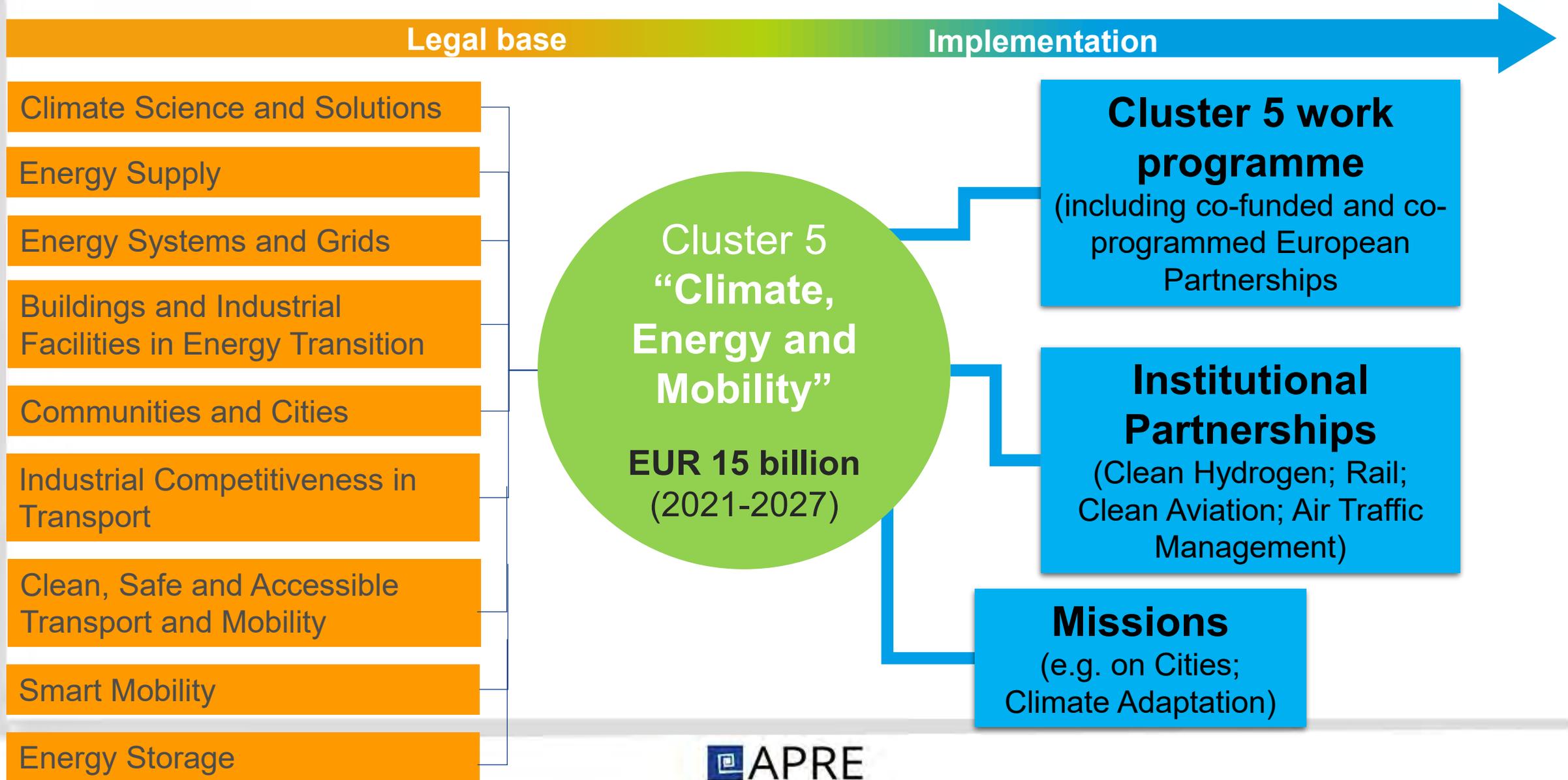
* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

Cluster 5

DISCLAIMER: Information included in this presentation on Cluster 5 work programme 2021 2022 is provisional since it has not been adopted nor endorsed by the European Commission.



Cluster 5 - overview

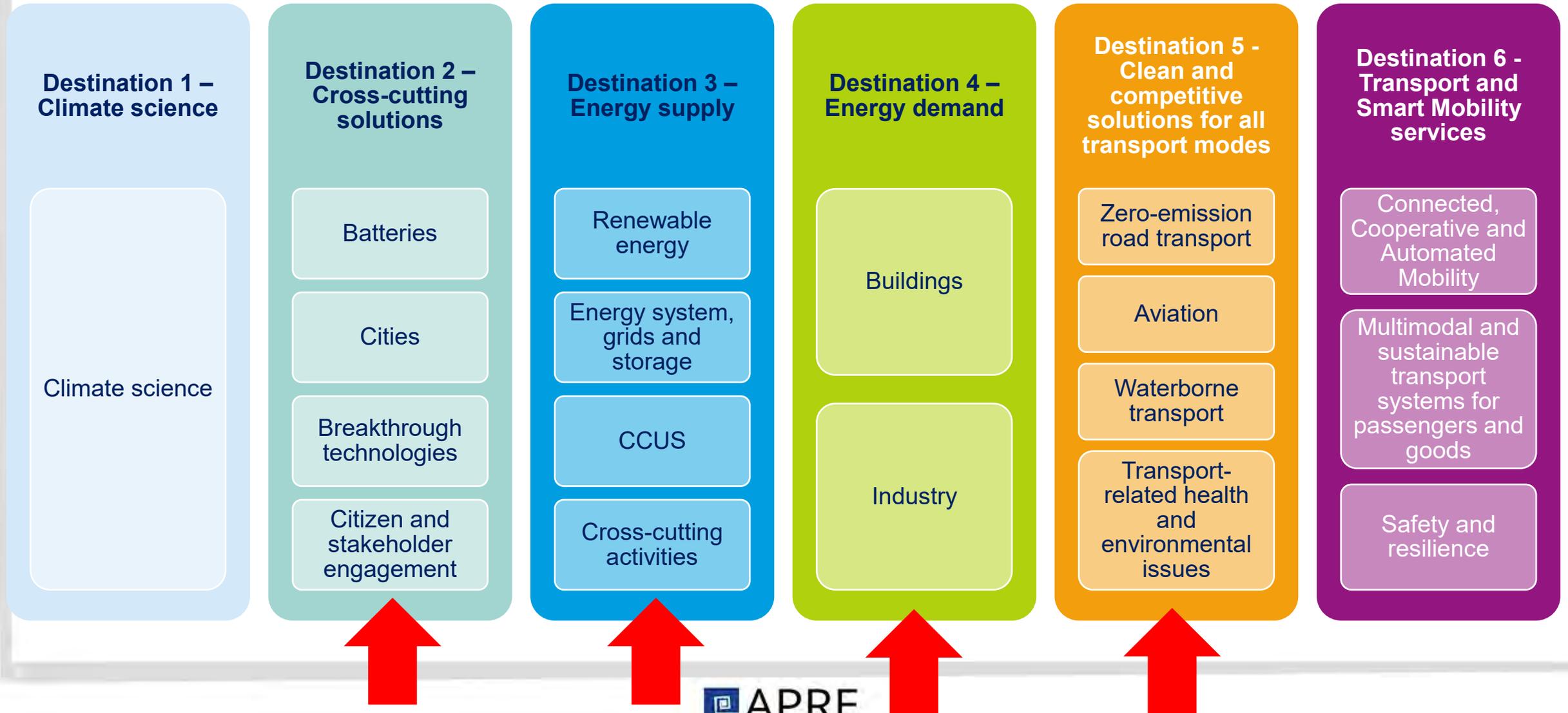


Cluster 5 Work Programme

- aims to fight climate change by better understanding its causes, evolution, risks, impacts and opportunities, and by making the energy and transport sectors climate neutral, environment-friendly, efficient, competitive, smarter, safer, resilient and useful for citizens and society.
- Cluster 5 supports the EU's strategic objectives through activities included in its work programme and through the support of Institutional European Partnerships which are implemented through dedicated structures.
- R&I activities under CL5 will contribute to the objectives of the European Green Deal related to the Climate Pact, the Clean energy strategy, the Strategic Energy Technology (SET) Plan, the Strategic Transport Research and Innovation Agenda (STRIA), European Circular Economy Action Plan



CL5 WP - Destination





CL5 Work Programme 2021-2022 - budget distribution per destination

Destination	Number of topics	Budget mln EUR]	% Share
D1 Climate sciences and responses for the transformation towards climate neutrality	17	274	9%
D2 Cross-sectoral solutions for the climate transition	27	387,5	13%
D3 Sustainable, secure and competitive energy supply	67	1.226,3	40%
D4 Efficient, sustainable and inclusive energy use	18	244	8%
D5 Clean and competitive solutions for all transport modes	31	511	17%
D6 Safe, Resilient Transport and Smart Mobility services for passengers and goods	28	380	12%
Other actions	35	44,97	2%
Total	223	3077,39	100%



Cluster 5 WP calls structure

DESTINATION	Call ID 2021 one stage	Call ID 2022 one stage	Call ID 2022 two stage
D1 Climate sciences and responses for the transformation towards climate neutrality	HORIZON-CL5-2021-D1-01	HORIZON-CL5-2022-D1-02	HORIZON-CL5-2022-D1-01-two-stage
D2 Cross-sectoral solutions for the climate transition	HORIZON-CL5-2021-D2-01		HORIZON-CL5-2022-D2-01
D3 Sustainable, secure and competitive energy supply	HORIZON-CL5-2021-D3-01 HORIZON-CL5-2021-D3-02	HORIZON-CL5-2022-D3-01 HORIZON-CL5-2022-D3-02 HORIZON-CL5-2022-D3-03	
D4 Efficient, sustainable and inclusive energy use	HORIZON-CL5-2021-D4-01 HORIZON-CL5-2021-D4-02	HORIZON-CL5-2022-D4-01 HORIZON-CL5-2022-D4-02	
D5 Clean and competitive solutions for all transport modes	HORIZON-CL5-2021-D5-01	HORIZON-CL5-2022-D5-01	
D6 Safe, Resilient Transport and Smart Mobility services for passengers and goods	HORIZON-CL5-2021-D6-01	HORIZON-CL5-2022-D6-01 HORIZON-CL5-2022-D6-02	



Destination 2 - Cross-sectoral solutions for the climate transition

Batteries

- Supporting creation of a **competitive, circular, and sustainable European battery manufacturing value chain**
- Improvement of **technological performance** to increase application user attractiveness
- **2022**: 10 topics, 133 M€
- **Issues**: Raw material processing, advanced materials, manufacturing processes, battery systems, recycling technologies, coordination activities
- Implementing **Batteries** co-programmed **Partnership**

Communities and cities

- Increased **efficiency** of Europe's cities' and communities' **energy, resource use and mobility patterns** and cities' and communities' overall **sustainability**, thereby improving their **climate-resilience** and **attractiveness** to businesses and citizens in a holistic fashion.
- **1 topic** in 2022 (5 M€)
- See also 'Missions' WP



TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT Mil €
HORIZON-CL5-2022-D2-01-01	Sustainable processing and refining of battery grade graphite	28/04/2022	06/09/2022	Around 5.00
HORIZON-CL5-2022-D2-01-02	Interface and electron monitoring for the engineering of new and emerging battery technologies	28/04/2022	06/09/2022	Around 5.00
HORIZON-CL5-2022-D2-01-03	Furthering the development of a materials acceleration platform for sustainable batteries (combining AI, big data, autonomous synthesis robotics, high throughput testing)	28/04/2022	06/09/2022	Around 20.00
HORIZON-CL5-2022-D2-01-04	Towards creating an integrated manufacturing value chain in Europe: from machinery development to plant and site integrated design	28/04/2022	06/09/2022	Around 5.00
HORIZON-CL5-2022-D2-01-05	Next generation technologies for High-performance and safe-by-design battery systems for transport and mobile applications	28/04/2022	06/09/2022	7.00 to 8.00
HORIZON-CL5-2022-D2-01-06	Embedding smart functionalities into battery cells (embedding sensing and self-healing functionalities to monitor and self-repair battery cells)	28/04/2022	06/09/2022	Around 5.00
HORIZON-CL5-2022-D2-01-07	Digitalisation of battery testing , from cell to system level, including lifetime assessment	28/04/2022	06/09/2022	Around 5.00
HORIZON-CL5-2022-D2-01-08	Coordination of large-scale initiative on future battery technologies	28/04/2022	06/09/2022	Around 3.00
HORIZON-CL5-2022-D2-01-09	Physics and data-based battery management for optimised battery utilisation	28/04/2022	06/09/2022	Around 5.00
HORIZON-CL5-2022-D2-01-10	Streamlined collection and reversed logistics, fully automated, safe and cost-efficient sorting, dismantling and second use before recycling	28/04/2022	06/09/2022	Around 5.00
HORIZON-CL5-2022-D2-01-11	CIVITAS 2030 – Coordination and support for EU funded urban mobility innovation	28/04/2022	06/09/2022	4.00 to 5.00

Destination 3: Sustainable, secure and competitive energy supply

Renewable energy

- Fostering **European global leadership** in affordable, secure and sustainable renewable energy technologies and services by improving their **competitiveness** in global **value chains** and their position in growth markets, notably through the **diversification** of the renewable services and technology portfolio
- **24 topics in 2022** (368 M€)
- **Issues:** disruptive technologies, cost reduction, improved efficiency, de-risking, integration, export potential, sustainability, market uptake

Energy system, grids and storage

- Ensuring cost-effective **uninterrupted** and **affordable** supply of energy to households and industries in a scenario of **high penetration of variable renewables** and other new low carbon energy supply.
- Managing smart and cyber-secure **energy grids** and optimisation the interaction between producers, consumers, networks, infrastructures and vectors
- **7 topics in 2022** (181 M€)
- **Issues:** energy sector integration, energy system planning and operation, active consumer, markets and energy communities, digitization

Carbon Capture, Utilization and Storage

- **Accelerating** the development of Carbon Capture, Use and Storage (CCUS) as a CO₂ emission mitigation option in **electricity generation** and **industry applications** (including also conversion of CO₂ to products)
- **1 topic in 2022** (58 M€)
- **Issues:** CCUS hubs, application in industry, CO₂ capture



TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT Mil €
HORIZON-CL5-2021-D3-02-01	Demonstration of wave energy devices to increase experience in real sea condition	24/06/2021	05/01/2022	Around 15.00
HORIZON-CL5-2021-D3-02-02	Sustainability and educational aspects for renewable energy and renewable fuel technologies	24/06/2021	05/01/2022	Around 2.50
HORIZON-CL5-2021-D3-02-03	Market Uptake Measures of renewable energy systems	24/06/2021	05/01/2022	Around 2
HORIZON-CL5-2021-D3-02-04	Novel tandem, high efficiency Photovoltaic technologies targeting low cost production with earth abundant materials	24/06/2021	05/01/2022	Around 5
HORIZON-CL5-2021-D3-02-05	Energy Sector Integration: Integrating and combining energy systems to a cost-optimised and flexible energy system of systems	24/06/2021	05/01/2022	9.00 to 10.00
HORIZON-CL5-2021-D3-02-06	Increasing energy system flexibility based on sector-integration services to consumers (that benefits system management by DSOs and TSOs)	24/06/2021	05/01/2022	Around 8
HORIZON-CL5-2021-D3-02-07	Reliability and resilience of the grid: Measures for vulnerabilities, failures, risks and privacy	24/06/2021	05/01/2022	7.00 to 8.00
HORIZON-CL5-2021-D3-02-08	Electricity system reliability and resilience by design: High-Voltage, Direct Current (HVDC)-based systems and solutions	24/06/2021	05/01/2022	7.00 to 8.00
HORIZON-CL5-2021-D3-02-09	Demonstration of superconducting systems and elpipes	24/06/2021	05/01/2022	Around 15
HORIZON-CL5-2021-D3-02-10	Demonstration of advanced Power Electronics for application in the energy sector	24/06/2021	05/01/2022	Around 5
HORIZON-CL5-2021-D3-02-11	Reinforcing digitalisation related know how of local energy ecosystems	24/06/2021	05/01/2022	Around 4
HORIZON-CL5-2021-D3-02-12	Integration of CCUS in hubs and clusters, including knowledge sharing activities	24/06/2021	05/01/2022	Around 2
HORIZON-CL5-2021-D3-02-13	Cost reduction of CO2 capture (new or improved technologies)	24/06/2021	05/01/2022	10.00 to 15.00



TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT Mil €
HORIZON-CL5-2021-D3-03-01	AU-EU Water Energy Food Nexus	02/09/2021	23/02/2022	Around 2.50
HORIZON-CL5-2021-D3-03-02	Next generation of renewable energy technologies	02/09/2021	23/02/2022	Around 3
HORIZON-CL5-2021-D3-03-03	Hybrid catalytic conversion of renewable energy to carbon-neutral fuels	02/09/2021	23/02/2022	Around 3
HORIZON-CL5-2021-D3-03-04	Physics and aerodynamics of atmospheric flow of wind for power production	02/09/2021	23/02/2022	Around 6
HORIZON-CL5-2021-D3-03-05	Wind energy in the natural and social environment	02/09/2021	23/02/2022	Around 3
HORIZON-CL5-2021-D3-03-06	Novel approaches to concentrated solar power (CSP)	02/09/2021	23/02/2022	Around 3
HORIZON-CL5-2021-D3-03-07	Stable high-performance Perovskite Photovoltaics	02/09/2021	23/02/2022	Around 5
HORIZON-CL5-2021-D3-03-08	Cost-effective micro-CHP and hybrid heating systems	02/09/2021	23/02/2022	3.00 to 5.00
HORIZON-CL5-2021-D3-03-09	Carbon-negative sustainable biofuel production	02/09/2021	23/02/2022	Around 5
HORIZON-CL5-2021-D3-03-10	Innovative foundations, floating substructures and connection systems for floating PV and ocean energy devices	02/09/2021	23/02/2022	Around 3.50
HORIZON-CL5-2021-D3-03-11	Development of hydropower equipment for hidden hydropower	02/09/2021	23/02/2022	3.00 to 5.00



TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT Mil €
HORIZON-CL5-2021-D3-03-12	Innovation on floating wind energy deployment optimized for deep waters and different sea basins (Mediterranean Sea, Black Sea, Baltic Sea, North-east Atlantic Ocean)	02/09/2021	23/02/2022	Around 16
HORIZON-CL5-2021-D3-03-13	Demonstration pilot lines for alternative and innovative PV technologies (Novel c-Si tandem, thin film tandem, bifacial, CPV, etc.)	02/09/2021	23/02/2022	Around 15
HORIZON-CL5-2021-D3-03-14	Demonstration of large-scale CHP technologies for a shift to the use of biogenic residues and wastes	02/09/2021	23/02/2022	Around 10
HORIZON-CL5-2021-D3-03-15	Solutions for more sustainable geothermal energy	02/09/2021	23/02/2022	Around 5
HORIZON-CL5-2021-D3-03-16	Innovative biomethane production as an energy carrier and a fuel	02/09/2021	23/02/2022	Around 10

TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT (Mil€)
HORIZON-CL5-2022-D3-01-01	Demonstration of cost-effective advanced biofuel technologies utilizing existing industrial plants	14/10/2021	26/04/2022	Around 10
HORIZON-CL5-2022-D3-01-02	Demonstration of innovative materials, supply cycles, recycling technologies to increase the overall circularity of wind energy technology and to reduce the primary use of critical raw materials	14/10/2021	26/04/2022	Around 13
HORIZON-CL5-2022-D3-01-03	Advanced manufacturing of Integrated PV	14/10/2021	26/04/2022	Around 16
HORIZON-CL5-2022-D3-01-04	Demonstrate the use of high temperature geothermal reservoirs to provide energy storage for the energy system	14/10/2021	26/04/2022	Around 20
HORIZON-CL5-2022-D3-01-05	Demonstration of innovative plug-and play solutions for system management and renewables storage in off-grid applications	14/10/2021	26/04/2022	Around 10
HORIZON-CL5-2022-D3-01-06	Novel Agro-Photovoltaic systems	14/10/2021	26/04/2022	Around 5
HORIZON-CL5-2022-D3-01-07	Demonstration of innovative rotor, blades and control systems for tidal energy devices	14/10/2021	26/04/2022	Around 10
HORIZON-CL5-2022-D3-01-08	Supporting the action of consumers in the energy market and guide them to act as prosumers, communities and other active forms of active participation in the energy activities	14/10/2021	26/04/2022	5.00 to 6.00
HORIZON-CL5-2022-D3-01-09	Real Time Demonstrator of Multi-Vendor Multi-Terminal VSC-HVDC with Grid Forming Capability (in support of the offshore strategy)	14/10/2021	26/04/2022	Around 55
HORIZON-CL5-2022-D3-01-10	Interoperable solutions for flexibility services using distributed energy storage	14/10/2021	26/04/2022	2.00 to 3.00
HORIZON-CL5-2022-D3-01-11	Demonstration of innovative forms of storage and their successful operation and integration into innovative energy systems and grid architectures	14/10/2021	26/04/2022	7.00 to 8.00
HORIZON-CL5-2022-D3-01-12	Replicable solutions for a cross sector compliant energy ecosystem	14/10/2021	26/04/2022	8.00 to 9.00
HORIZON-CL5-2022-D3-01-13	Energy system modelling, optimisation and planning tools	14/10/2021	26/04/2022	Around 6



TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT (Mil€)
HORIZON-CL5-2022-D3-01-14	Thermal energy storage solutions	14/10/2021	26/04/2022	7.00 to 8.00
HORIZON-CL5-2022-D3-01-15	Decarbonising industry with CCUS	14/10/2021	26/04/2022	Around 29
HORIZON-CL5-2022-D3-02-01	Digital solutions for defining synergies in international renewable energy value chains	26/05/2022	27/10/2022	Around 3
HORIZON-CL5-2022-D3-02-02	AU-EU Energy System Modelling	26/05/2022	27/10/2022	Around 2.50
HORIZON-CL5-2022-D3-02-03	Innovative renewable energy carrier production for heating from renewable energies	26/05/2022	27/10/2022	Around 10
HORIZON-CL5-2022-D3-02-04	Technological interfaces between solar fuel technologies and other renewables	26/05/2022	27/10/2022	3.00 to 5.00
HORIZON-CL5-2022-D3-02-05	Renewable energy carriers from variable renewable electricity surplus and carbon emissions from energy consuming sectors	26/05/2022	27/10/2022	Around 10
HORIZON-CL5-2022-D3-02-06	Direct renewable energy integration into process energy demands of the chemical industry	26/05/2022	27/10/2022	3.00 to 5.00
HORIZON-CL5-2022-D3-02-07	Renewable energy incorporation in agriculture and forestry	26/05/2022	27/10/2022	Around 7.50
HORIZON-CL5-2022-D3-02-08	Demonstration of complete value chains for advanced biofuel and non-biological renewable fuel production	26/05/2022	27/10/2022	Around 10



TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT (Mil€)
HORIZON-CL5-2022-D3-03-01	Innovative components and/or sub-systems for CSP plants and/or concentrating solar thermal installations	06/09/2022	10/01/2023	Around 5.5
HORIZON-CL5-2022-D3-03-02	Best international practice for scaling up sustainable biofuels	06/09/2022	10/01/2023	Around 3
HORIZON-CL5-2022-D3-03-03	Efficient and circular artificial photosynthesis	06/09/2022	10/01/2023	3.00 to 5.00
HORIZON-CL5-2022-D3-03-04	Integrated wind farm control	06/09/2022	10/01/2023	Around 6
HORIZON-CL5-2022-D3-03-05	Novel Thin Film (TF) technologies targeting high efficiencies	06/09/2022	10/01/2023	Around 5
HORIZON-CL5-2022-D3-03-06	Efficient and low-emission technologies for industrial use of combustion and gasification systems from low-value biogenic residues and wastes	06/09/2022	10/01/2023	3.00 to 5.00
HORIZON-CL5-2022-D3-03-07	Development of algal and renewable fuels of nonbiological origin	06/09/2022	10/01/2023	Around 5
HORIZON-CL5-2022-D3-03-08	Development of digital solutions for existing hydropower operation and maintenance	06/09/2022	10/01/2023	3.00 to 4.50
HORIZON-CL5-2022-D3-03-09	Recycling end of life PV (Photovoltaic) modules	06/09/2022	10/01/2023	6.00 to 7.00



Destination 4 - Efficient, sustainable and inclusive energy use

Buildings

- **Technological and socio-economic breakthroughs** for achieving climate neutrality and the transition to zero pollution of the building stock by 2050, based on **inclusive and people-centric R&I**
- **10 topics in 2022** (140 M€)
- **Issues:** Energy performance assessment and monitoring, industrialization of deep renovation, integrated technology solutions, prefabricated renovation packages, demand response, renewable intensive homes, smart buildings, design, materials, sustainability of life-cycle
- Implementing co-programmed Partnership “People-centric, Sustainable Built Environment” (Built4People)



Industry

- Increased energy efficiency in industry and **reducing industry’s Greenhouse Gas (GHG) and air pollutant emissions** through recovery, upgrade and/or conversion of industrial excess (waste) heat and through electrification of heat generation
- **2 topics in 2022** (18 M€)
- **Issues:** heat upgrade technologies, industrial excess (waste) Heat-to-Power conversion

TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT Mil €
HORIZON-CL5-2021-D4-02-01	Demonstrating integrated technology solutions for buildings with performance guarantees (Built4People)	02/09/2021	25/01/2022	5.00 to 7.50
HORIZON-CL5-2021-D4-02-02	Cost-effective, sustainable multi-functional and/or prefabricated holistic renovation packages, integrating RES and including re-used and recycled materials (Built4People)	02/09/2021	25/01/2022	9.00 to 11.00
HORIZON-CL5-2021-D4-02-03	Strengthening European coordination and exchange for innovation uptake towards sustainability, quality, circularity and social inclusion in the built environment as a contribution to the new European Bauhaus (Built4People)	02/09/2021	25/01/2022	Around 1

TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT Mil €
HORIZON-CL5-2022-D4-01-01	Demand response in energy-efficient residential buildings	28/04/2022	06/09/2022	4.00 to 6.00
HORIZON-CL5-2022-D4-01-02	Renewable-intensive, energy positive homes	28/04/2022	06/09/2022	4.00 to 6.00
HORIZON-CL5-2022-D4-01-03	Smarter buildings for better energy performance	28/04/2022	06/09/2022	4.00 to 6.00
HORIZON-CL5-2022-D4-01-04	Development and pilot demonstration of heat upgrade technologies with supply temperature in the range 150-250°C	28/04/2022	06/09/2022	3.00 to 5.00
HORIZON-CL5-2022-D4-01-05	Development of high temperature thermal storage for industrial applications	28/04/2022	06/09/2022	3.00 to 4.00



TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT Mil €
HORIZON-CL5-2022-D4-02-01	Designs, materials and solutions to improve resilience, preparedness & responsiveness of the built environment for climate adaptation (Built4People)	06/09/2022	24/01/2023	5.00 to 7.00
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)	06/09/2022	24/01/2023	5.00 to 7.00
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)	06/09/2022	24/01/2023	4.00 to 5.00
HORIZON-CL5-2022-D4-02-04	Smart-grid ready and smart-network ready buildings, acting as active utility nodes (Built4People)	06/09/2022	24/01/2023	6.00 to 9.00
HORIZON-CL5-2022-D4-02-05	More sustainable buildings with reduced embodied energy / carbon, high life-cycle performance and reduced life-cycle costs (Built4People)	06/09/2022	24/01/2023	6.00 to 9.00



Destination 5 - Clean and competitive solutions for all transport modes

Zero-emission road transport

- Transforming road transport to **zero-emission mobility** through a world-class European research and innovation and industrial system, ensuring that **Europe remains world leader** in innovation, production and services in relation to road transport
- **4 topics in 2022** (105 M€)
- **Issues:** regional medium freight haulage, power electronics, optimised smart EV charging, sustainable circularity, heavy duty vehicles, busses
- Implementing **co-programmed Partnership** “Towards zero emission road transport” (2ZERO)

Aviation

- Accelerating the **reduction of all aviation impacts and emissions** (CO₂ and non-CO₂, including manufacturing and end-of-life, noise), developing aircraft technologies for deep reduction of greenhouse gas emissions, and **maintaining European aero-industry’s global leadership** position
- **3 topics in 2022** (45 M€)
- **Issues:** long-term research, silent and ultra-low local air pollution aircraft, digital aviation technologies, policy-related research

Waterborne transport

- Accelerate the development and prepare the deployment of **climate neutral and clean solutions** in the shipping sector, **reduce its environmental impact** (on biodiversity, noise, pollution and waste management), improve its **system efficiency**, leverage digital and EU satellite-navigation solutions and contribute to the **competitiveness** of the European waterborne sector
- **6 topics in 2022** (96 M€)
- **Issues:** climate neutral fuels, electrification, energy efficiency and drastically lower fuel consumption of vessels, port infrastructure, inland waterway vessels, automated shipping
- Implementing **co-programmed Partnership** “Zero Emission Waterborne Transport” (ZEWT)

Transport - Health and environment

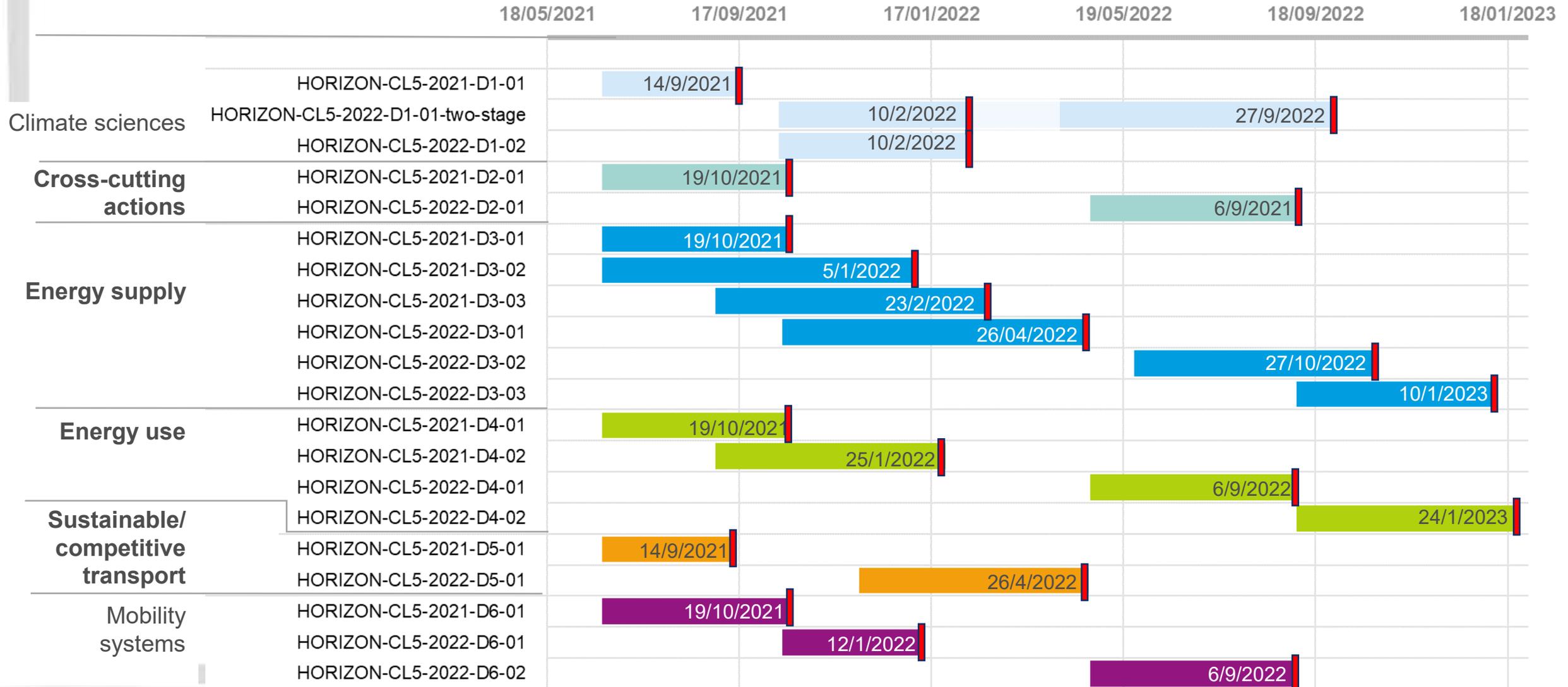
- Devising more effective ways for **reducing emissions and their impacts** through improved scientific knowledge
- **1 topic in 2022** (7 M€)
- **Issues:** retrofit solutions for tailpipe and brake polluting emissions, noise and particle emissions, smog prevention



TOPIC CODE	TOPIC TITLE	OPENING DATE	DEADLINE	BUDGET PER GRANT Mil €
HORIZON-CL5-2022-D5-01-01	Exploiting electrical energy storage systems and better optimising large battery electric power within fully battery electric and hybrid ships	02/12/2021	26/04/2022	Around 8
HORIZON-CL5-2022-D5-01-02	Innovative energy storage systems on-board vessels	02/12/2021	26/04/2022	Around 5
HORIZON-CL5-2022-D5-01-03	Exploiting renewable energy for shipping, in particular focusing on the potential of wind energy	02/12/2021	26/04/2022	Around 9
HORIZON-CL5-2022-D5-01-09	Nextgen EV components: High efficiency and low cost electric motors for circularity and low use of rare resources	02/12/2021	26/04/2022	3.00 to 6.00
HORIZON-CL5-2022-D5-01-10	New generation of full electric urban and peri-urban Bus Rapid Transit systems to strengthen climate-friendly mass transport	02/12/2021	26/04/2022	20.00 to 25.00



Cluster 5 call structure





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