

# Horizon Europe Cluster 5

Biztonságos, tiszta és hatékony energia;  
Éghajlatváltozás, erőforráshatékonyság és nyersanyagok

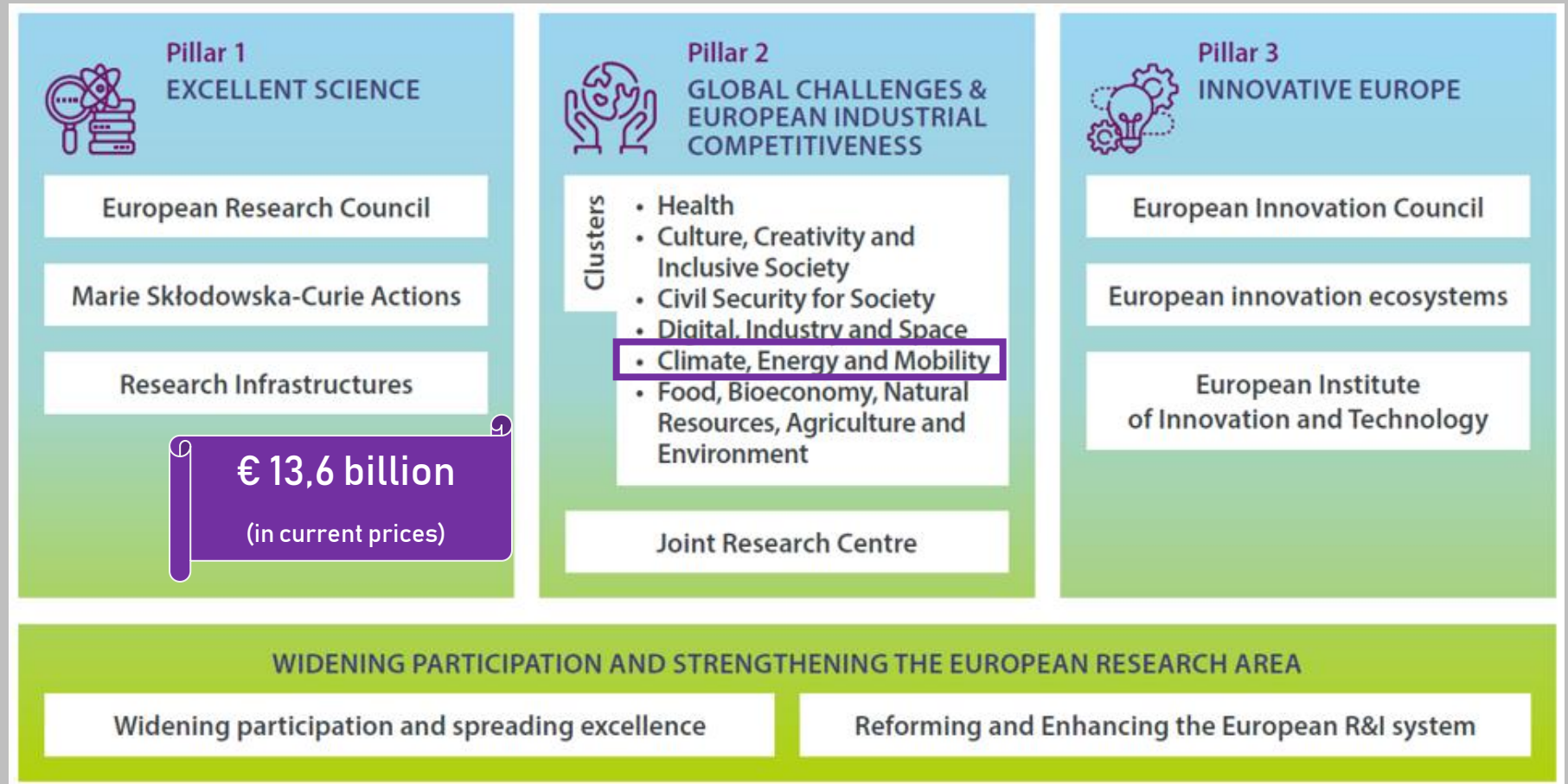
Küttel Orsolya  
Tóth Orsolya

Nemzeti Kutatási, Fejlesztési és  
Innovációs Hivatal

EU Duna Régió Stratégia Projektfinanszírozási Konferencia  
2021. szeptember 14.



# Structure of the Horizon Europe framework programme



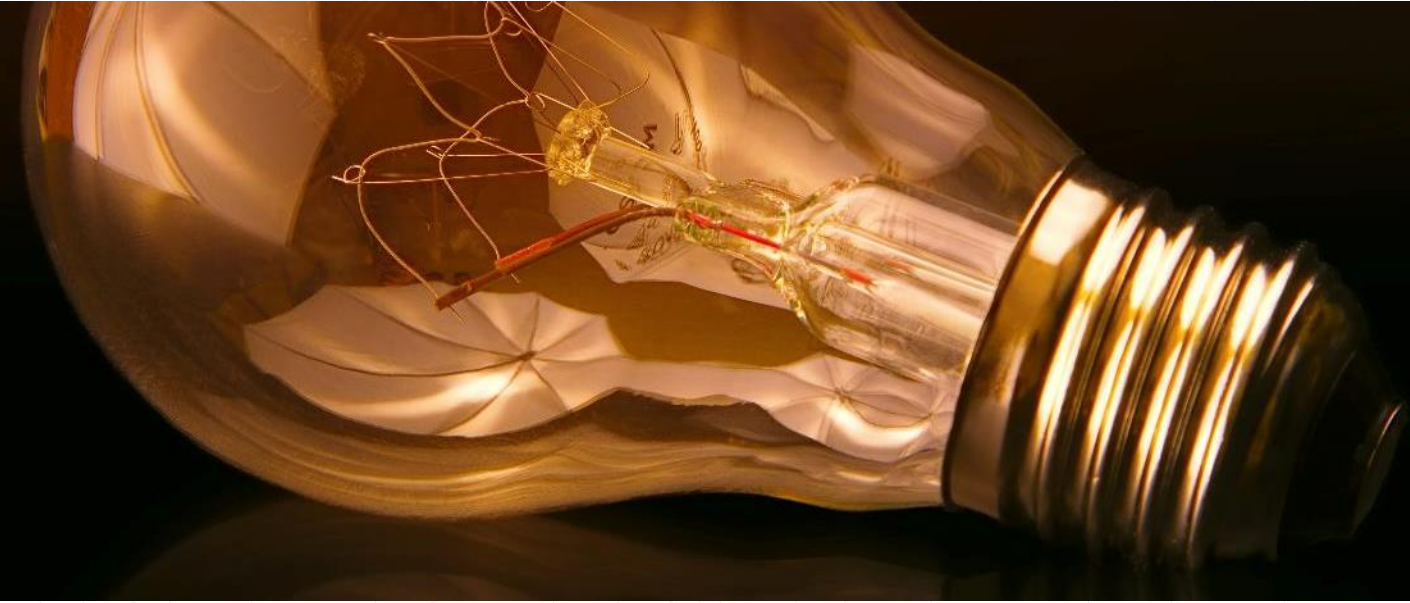
European Partnerships  
Max 50% of pillar II budget

Missions  
Max 10% of pillar II budget

# Topics and Budgets (in million EUR)

Destinations	Thematic Area	# of calls	2021	2022
1 Climate sciences and responses	Climate Science	17	135	137
2 Cross-sectoral solutions	Batteries	17	158	131
2 Cross-sectoral solutions	Breakthrough technologies	4	35	0
2 Cross-sectoral solutions	Citizen and stakeholder engagement	4	18	0
2 Cross-sectoral solutions	Communities and cities	2	19	24
3 Sustainable, secure and competitive energy supply	Renewable energy	44	317	365
3 Sustainable, secure and competitive energy supply	Energy system, grids and storage	17	147	176
3 Sustainable, secure and competitive energy supply	CCUS	3	32	58
3 Sustainable, secure and competitive energy supply	Cross-cutting issues - energy	3	65	35
4 Efficient, sustainable and inclusive energy use	Buildings	14	73	120
4 Efficient, sustainable and inclusive energy use	Industry	4	30	18
5 Clean and competitive solutions for all transport modes	2ZERO	8	94	102
5 Clean and competitive solutions for all transport modes	Aviation	5	50	45
5 Clean and competitive solutions for all transport modes	Waterborne transport	14	94	91
5 Clean and competitive solutions for all transport modes	Health and environment	3	15	7
5 Clean and competitive solutions for all transport modes	Cross-cutting issues - transport	1	0	2
6 Safe, Resilient Transport and Smart Mobility services	CCAM	11	74	86
6 Safe, Resilient Transport and Smart Mobility services	Multimodal transport, infrastructure, logistics	10	48	91
6 Safe, Resilient Transport and Smart Mobility services	Transport safety	7	40	32
Other	Other	33	15	31
<b>Total</b>			<b>1 457</b>	<b>1 550</b>



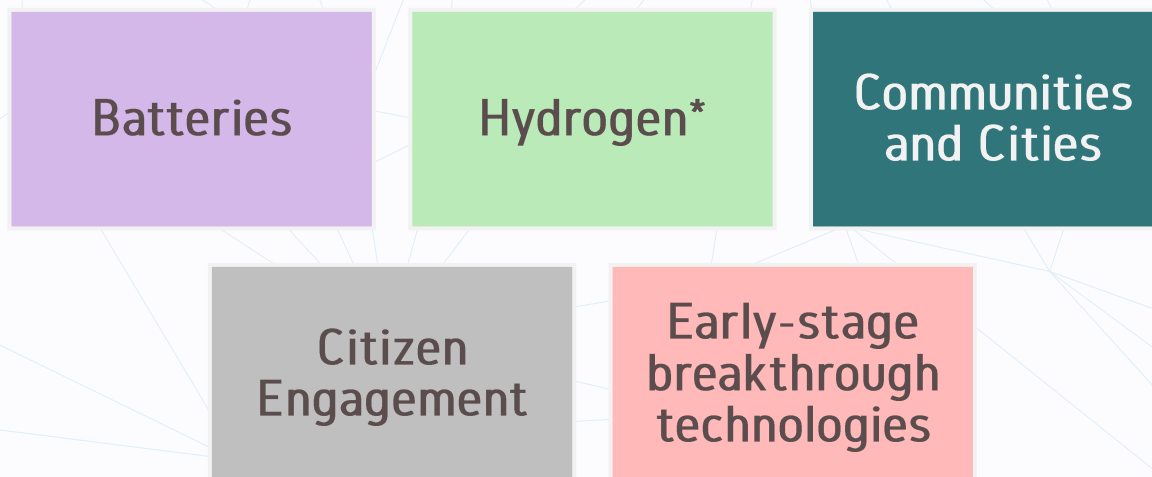


## Cross-sectoral solutions (Destination 2)

# Cross-sectoral solutions for the climate transition



- Cross-cutting by nature and can provide key solutions for climate, energy and mobility applications.
- To contribute to the “Clean and sustainable transition of the energy and transport sectors towards climate neutrality facilitated by innovative cross-cutting solutions”
- Impact areas:
  - Industrial leadership in key and emerging technologies that work for people
  - Affordable and clean energy
  - Smart and sustainable transport



*\*Hydrogen is primarily addressed through the Institutional European Partnership 'Clean Hydrogen'.*

# Calls for Proposals

- The bulk of activities related to **communities and cities** will be introduced during 2021 as an **update to the Horizon Europe 2021-22 work programme**.

Cities Mission

Driving Urban Transition

- **HORIZON-CL5-2022-D2-01-04:** Towards creating an integrated manufacturing value chain in Europe: from machinery development to plant and site integrated design (Batteries Partnership) - **eliminating air and water pollution**

	D2-01-04
Deadline	06/09/2022
Type of Action	Innovation Action
Budget	15 million EUR

## Climate-Neutral and Smart Cities Mission

Deliver at least 100 climate neutral and smart European cities by 2030

Ensure that these cities act as experimentation and innovation hubs to put all European cities in a position to become climate neutral by 2050.

„a joined-up approach to urban climate action”

## Driving Urban Transition Partnership

Positive Energy Districts and Neighbourhoods

Regenerative Green Neighbourhoods

15 Minute Cities

„enabling local authorities and municipalities, business and citizens to make global strategies into local action”



## Renewable Energy Supply (Destination 3)



# Sustainable, secure and competitive energy supply

„make the energy supply side cleaner, more secure, and competitive by boosting cost performance and reliability of a broad portfolio of renewable energy solutions, in line with societal needs and preferences”

1

Renewable Energy

2

Energy system, grids and storage

3

Carbon Capture, Utilization and Storage (CCUS)

4

Cross-cutting

# Calls for Proposals

„actions for all renewable energy technologies aim to also improve the environmental sustainability of the technologies, delivering products with reduced greenhouse gas emissions and improved environmental performance regarding water use”

- **HORIZON-CL5-2021-D3-03-01:** AU-EU Water Energy Food Nexus - create more stresses on water use for energy generation
- **HORIZON-CL5-2021-D3-02-14:** Support to the activities of the European Geological Services -The growing demand for energy, raw materials and water is a key challenge for Europe, requiring a more integrated, efficient and sustainable use of these resources. Groundwater resources are under increasing pressure as a result of climate change, as well as competing subsurface uses, including for mineral and energy resources.
- **HORIZON-CL5-2021-D3-03-11:** Development of hydropower equipment for hidden hydropower developing novel technologies which allow for increased techno-economic feasible and sustainable hydropower production
- **HORIZON-CL5-2022-D3-01-06:** Novel Agro-Photovoltaic systems providing sustainable solutions for energy production/use/efficiency, soil protection and water conservation.
- **HORIZON-CL5-2021-D3-03-15:** Solutions for more sustainable geothermal energy - innovative sustainable circular-by-design solutions

Total budget of more than **1,1 billion EUR** for **2022** calls in the field of Sustainable, secure and competitive **energy supply**

	Deadline	Type of Action	Budget
D3-02-14	05/01/2022	CSA	€ 20 million
D3-03-01	23/02/2022	RIA	€ 5 million
D3-03-11	23/02/2022	RIA	€ 10 million
D3-03-15	23/02/2022	RIA	€ 10 million
D3-01-06	26/04/2022	IA	€ 10 million

## Calls for Proposals





## Climate topics (Destination 1)

## Climate sciences and responses for the transformation towards climate neutrality



- Support EU policies as well as international efforts for a global uptake of climate action in line with the Paris Agreement and the Sustainable Development Goals (SDGs), including biodiversity objectives
- Advancing climate science and further broadening and deepening the knowledge base is essential to inform the societal transition towards a climate neutral and climate resilient society by 2050, as well as towards a more ambitious greenhouse gas reduction target by 2030
- Enable the transition to a climate-neutral and resilient society and economy through improving the knowledge of the Earth system and the ability to predict and project its changes under different natural and socio-economic drivers
- Contributes directly to the Strategic Plan's **Key Strategic Orientation D** *"Making Europe the first digitally led circular, climate-neutral and sustainable economy through the transformation of its mobility, energy, construction and production systems"* and the impact area "Climate change mitigation and adaptation"

## Climate sciences and responses for the transformation towards climate neutrality



- The overall **expected impact** of this Destination is to contribute to the *“Transition to a climate-neutral and resilient society and economy enabled through advanced climate science, pathways and responses to climate change (mitigation and adaptation) and behavioural transformations”*
- **Coordination and synergies** between activities supported under Destination 1, as well as in other Destinations and Clusters, and in particular complementarities with **Cluster 4** and **Cluster 6** should be taken into account
- Destination 1 concentrates on activities related to **climate science and modelling**, whereas Cluster 6 contributes to R&I on the implementation of climate change mitigation and adaptation solutions in the areas covered by Cluster

# Climate sciences and responses for the transformation towards climate neutrality



## Indicative budget:

2022: 138 million EUR

- 2022 calls:
  - Opening: 12 Oct 2021
  - Deadline: 2022. Feb 10
- 2022 two-stage:
  - Opening: 12 Oct 2021
  - Deadline(s):
    - 10 Feb 2022 (First Stage)
    - 27 Sep 2022 (Second Stage)

## Climate sciences and responses for the transformation towards climate neutrality



- Carbon Dioxide Removal (CDR) approaches
- Socio-economic risks of climate change in Europe
- Social science for land-use strategies in the context of climate change and biodiversity challenges
- Verification and reconciliation of estimates of climate forcers
- Development of high-resolution Earth system models for global and regional climate change projections
- Improvement of Integrated Assessment Models in support of climate policies
- Supporting the formulation of adaptation strategies through improved climate predictions in Europe and beyond
- Let nature help do the job: Rewilding landscapes for carbon sequestration, climate adaptation and biodiversity support



## Mission: Adaptation to climate change, including societal transformation



- Turn the urgent challenge of adapting to climate change into an opportunity to make Europe more climate resilient, prepared and just
- Much of the action to adapt to climate change will take place at the regional and local level
- Need to create a level playing field, and support regional and local authorities in preparing the ground to engage in climate resilience building
- Climate resilient Europe is understood to include three fundamental and interrelated dimensions and principles: resilience of environmental systems, resilience of social and economic systems, and resilience of political systems

## Useful links



- [https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-8-climate-energy-and-mobility\\_horizon-2021-2022\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-8-climate-energy-and-mobility_horizon-2021-2022_en.pdf)
- <https://www.horizon-europe-infodays2021.eu/event/cluster-5-climate-energy-mobility>
- <https://www.horizon-europe-infodays2021.eu/event/cluster-6-food-bioeconomy-natural-resources-agriculture-environment>

# Thank you for your attention!

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