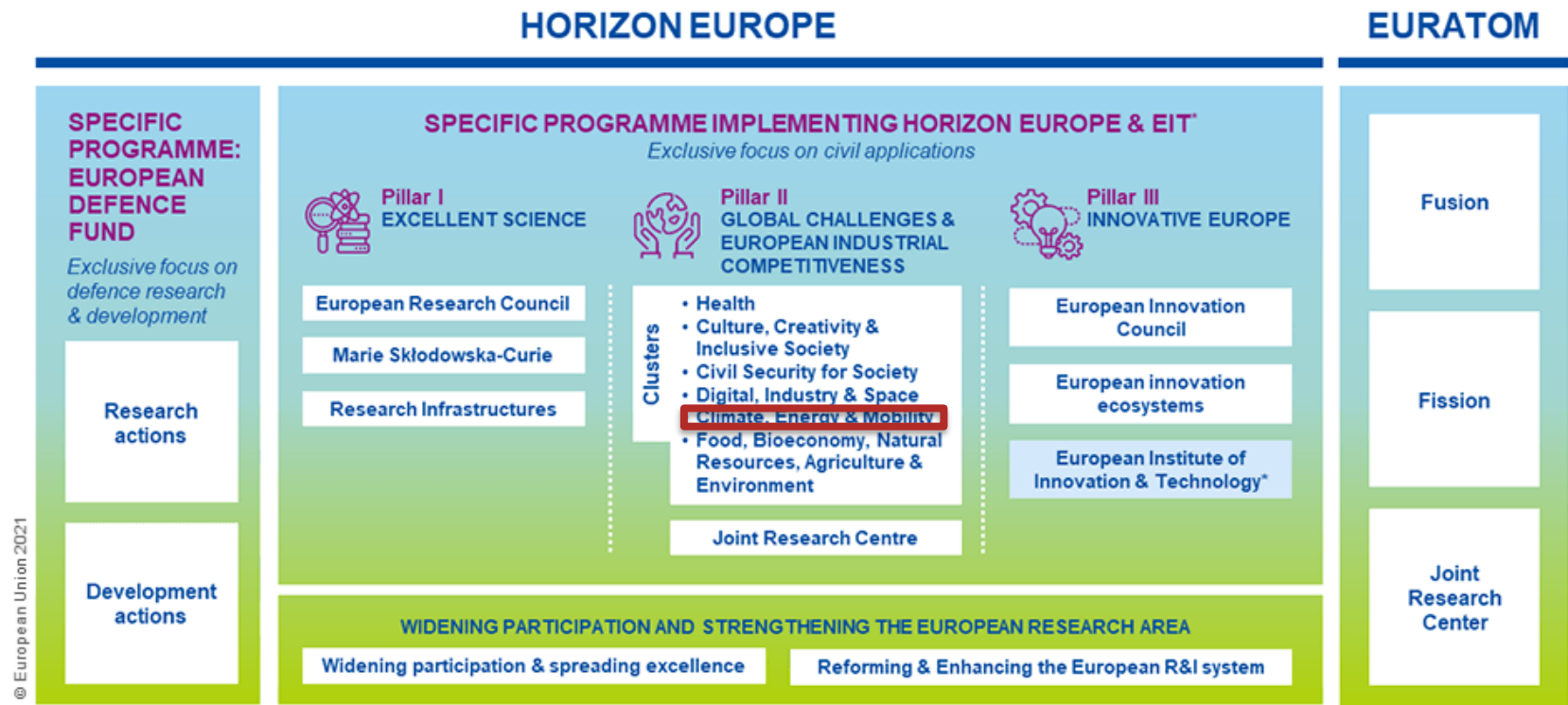


Cluster 5 “Climate, Energy & Mobility”

Ενημερωτική Διαδικτυακή Εκδήλωση
“Χρηματοδοτικές ευκαιρίες στον Ορίζοντα Ευρώπη”

Πανεπιστήμιο Δυτικής Μακεδονίας
Πέμπτη, 2 Δεκεμβρίου 2021

Horizon Europe: Cluster 5



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



Cluster 5: Total budget

Πυλώνας II

Προϋπολογισμός για τις ομάδες και για το JRC

σε τρέχουσες τιμές

Ομάδα 1:	Υγεία	8,246 δισ. ευρώ (συμπεριλ. 1,35 δισ. ευρώ από το NGEU)
Ομάδα 2:	Πολιτισμός, δημιουργικότητα και κοινωνίες χωρίς αποκλεισμούς	2,280 δισ. ευρώ
Ομάδα 3:	Πολιτική προστασία για την κοινωνία	1,596 δισ. ευρώ
Ομάδα 4:	Ψηφιακές τεχνολογίες, βιομηχανία και διάστημα	15,349 δισ. ευρώ (συμπεριλ. 1,35 δισ. ευρώ από το NGEU)
Ομάδα 5:	Κλίμα, ενέργεια και κινητικότητα	15,123 δισ. ευρώ (συμπεριλ. 1,35 δισ. ευρώ από το NGEU)
Ομάδα 6:	Τρόφιμα, βιοοικονομία, φυσικοί πόροι, γεωργία και περιβάλλον	8,952 δισ. ευρώ
	JRC (μη πυρηνικές άμεσες δράσεις)	1,970 δισ. ευρώ

Οι ομάδες περιλαμβάνουν προϋπολογισμό για συμπράξεις και αποστολές
Το NGEU είναι το ενωσιακό πρόγραμμα «Next Generation EU» – Ταμείο ανάκαμψης





Cluster 5: Climate, Energy and Mobility

Key strategic orientations & Impact

- › Accelerate the **twin green** and **digital transitions** and associated **transformation** of our **economy, industry** and **society**
- › Making Europe the first **digitally-enabled circular**, climate neutral and sustainable economy through its transformation of its mobility, energy, construction and production systems
- › Sustainable Development Goals by the United Nations

Cluster 5 Work Programme: 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



Cluster 5: Climate, Energy and Mobility - Destinations

› Destination 1

Climate science, efficient pathways and responses to climate change

› Destination 2

Different cross-cutting technologies and solutions for climate, energy and mobility applications

› Destination 3

Energy supply more sustainable and competitive

› Destination 4

Reducing energy demand of buildings and industry and enabling their more active role in a smart energy system

Destination 5

Increases the competitiveness and climate/environmental performance of different transport modes

› Destination 6

Advances mobility services and solutions at system level for passengers and goods.



Destination 1

Climate sciences and responses for the transformation towards climate neutrality



D. (1): Climate sciences and responses for the transformation towards climate neutrality

Key strategic orientation

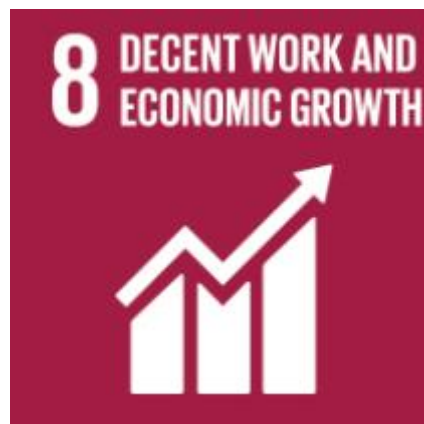
- › Transition to **a climate-neutral** and **resilient society** and economy enabled through advanced climate science, pathways and responses to climate change (mitigation and adaptation) and behavioural transformations
- › Advancing knowledge and providing solutions in the any of following areas:
 - Earth system science
 - pathways to climate neutrality
 - climate change adaptation including climate services
 - social science for climate action
 - and better understanding of climate ecosystems interactions

SYNERGIES with

- › social sciences,
- › European Green Deal, JRC



Destination 1 & Sustainable Development Goals (SDGs)





D. (1): Climate Science responses: Two-stage calls

Deadlines: 1st stage: 10 February 2022, 2nd stage: 27 September 2022

51 mio € total budget | **8** projects | **3** RIA topics | **Low TRL**

HORIZON-CL5-2022-D1-01-01-two-stage	Carbon Dioxide Removal (CDR) approaches	7 mio/proposal	3 projects
HORIZON-CL5-2022-D1-01-02-two-stage	Socio-economic risks of climate change in Europe	5 mio/proposal	2 projects
HORIZON-CL5-2022-D1-01-03-two-stage	Social science for land-use strategies in the context of climate change and biodiversity challenges	6-7 mio/proposal	3 projects



Indicative call



HORIZON-CL5-2022-D1-01-03-two-stage: Social science for land-use strategies in the context of climate change and biodiversity challenges

Objectives

- realistic understanding of the factors behind **land-use decisions** and how they can be best **oriented towards the efficient and socially responsible pursuit of multiple policy objectives on various scales**
- Develop **a toolbox of instruments** and approaches deployable at different levels consistent with long-term goals and strategies considering:
 - CO2 sequestration, biomass
 - Food, feed and raw materials
 - Reversing biodiversity loss
 - Socioeconomic dynamics related to land ownerships



HORIZON-CL5-2022-D1-01-03-two-stage (cont)

- › Deadline: 10 February 2021
- › Type of Action: Research & Innovation
- › Budget/proposal: 6-7 mio euro
- › 3 projects to be funded
- › Obligation for Open Science practices & FAIR practices
- › Transdisciplinary research:
 - Need for integration of policy makers and non technological actors
 - Integration of social sciences and humanities (SSH)



D. (1): Call – Climate Science responses: Single stage

Opening: 12 October 2021 | Deadline: 10 February 2022

87 mio € total budget | 12 projects

- › 5 topics - Research & Innovation Actions
- › Horizontal aspect: When required, use of EGNOS/Galileo

HORIZON-CL5-2022-D1-02-01	Verification and reconciliation of estimates of climate forcers	5 mio/proposal	3 projects
HORIZON-CL5-2022-D1-02-02	Development of high-resolution Earth system models for global and regional climate change projections	10 mio/proposal	2 projects
HORIZON-CL5-2022-D1-02-03	Improvement of Integrated Assessment Models in support of climate policies	5 mio/proposal	3 projects
HORIZON-CL5-2022-D1-02-04	Supporting the formulation of adaptation strategies through improved climate predictions in Europe and beyond	10 mio/proposal	2 projects
HORIZON-CL5-2022-D1-02-05	Let nature help do the job: Rewilding landscapes for carbon sequestration, climate adaptation and biodiversity support	8-9 mio/proposal	2 projects



Indicative call



HORIZON-CL5-2022-D1-02-03: Improvement of Integrated Assessment Models in support of climate policies

Objectives

- › Improvement of state of art Integrated Assessment Models (IAMs)
(scientific model for linking main features of the economy and society with biosphere)
- › **Sectorial detail** and (transformative/structural) changes across various sectors of the economy
- › **Spatial resolution** with outputs suitable **for national/regional level analysis**
- › **Accelerated transition towards climate neutrality** based on improved knowledge and better policies (integrated, greener, healthier, inclusive.
- › Enhanced coherence **between climate action** (mitigation, understanding of impacts, climate risks and adaptation) **and other environmental/sustainability objectives, notably biodiversity**
- › More active **involvement of citizens** in climate action



HORIZON-CL5-2022-D1-02-03: Cont

- › Deadline: 10 February 2021
- › Type of Action: Research & Innovation
- › Budget/proposal: 5 mio euro
- › 3 projects to be funded
- › Obligation for Open Science practices & FAIR practices: publications, availability of model code and input data
- › Integration of policy makers
- › Integration of social sciences and humanities (SSH)



Destination 3

**Sustainable, Secure and
Competitive Energy Supply**



D (3): Sustainable, secure and competitive energy supply



Key impact areas

- Fostering **EU global leadership in affordable, secure and sustainable renewable energy technologies**:
 - Wind energy, photovoltaics or bioenergy – **increase their affordability**, security and sustainability (materials), de risk renewable energy, international collaboration with **African Union**, market uptake of renewable fuels, accounting for social, economic and environmental aspects
- **Energy systems, grids and storage**:
 - Efficient network management, integrated energy systems, demand response, thermal storage, chemical, electrochemical, mechanical
- **Carbon capture, utilization and storage (CCUS)**
 - Low carbon hydrogen from natural gas with CCUS



D (3): EU global leadership in affordable, secure and sustainable renewable energy technologies

Opening: 14 October 2021 | Deadline: 26 April 2022

› Topics: 7 Innovation Actions

- Total budget: **142** mio € | 12 projects

HORIZON-CL5-2022-D3-01-01	Demonstration of cost-effective advanced biofuel technologies utilizing existing industrial plants	10 mio/proposal	2 projects
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	13 mio/proposal	3 projects
HORIZON-CL5-2022-D3-01-04	Demonstrate the use of high temperature geothermal reservoirs to provide energy storage for the energy system	20 mio/proposal	1 project
HORIZON-CL5-2022-D3-01-05	Demonstration of innovative plug-and play solutions for system management and renewables storage in off-grid applications	10 mio/proposal	1 project
HORIZON-CL5-2022-D3-01-06	Novel Agro-Photovoltaic systems	5 mio/proposal	2 projects
HORIZON-CL5-2022-D3-01-07	Demonstration of innovative rotor, blades and control systems for tidal energy devices	10 mio/proposal	1 project

This list is an indicative selection of topics



Indicative call



HORIZON-CL5-2022-D3-01-06: Novel Agro-Photovoltaic systems

Agricultural areas simultaneously to produce crops and to generate PV electricity for efficiency of land use

Objectives

- › Develop and demonstrate agro-photovoltaic systems or building integrated agrophotovoltaic systems for green houses employing PV cell technologies/systems **adapted to appropriate growth conditions (crops)**
- › **Demonstrate feasibility, reliability, replicability, robustness and ease of maintenance** of the system and its performance using relevant KPIs for e.g. **ground coverage ratio, energy and agricultural yield, spatial efficiency**
- › Demonstrate a **business case** for the concept and market introduction strategy
- › low environmental impact (avoiding or minimizing land impact from PV systems), resource efficiency and circularity potential



HORIZON-CL5-2022-D3-01-06: Novel Agro-Photovoltaic systems (cont.)

- › Deadline: 26 April 2022
- › Type of Action: Innovation Action
- › Funding rate: 70% for-profit making entities
- › Budget/proposal: 5 mio euro
- › 2 projects to be funded
- › High expected maturity of solutions (TRL7)
- › Obligation for Open Science practices & FAIR practices
- › Integration of policy makers, citizens, civil society
- › Integration of social sciences and humanities (SSH)



D (3): Energy grids and storage

Opening: 14 October 2021 | Deadline: 26 April 2026

› Topics: 7 Innovation Actions

- Total budget: 181 mio € | 20 projects

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	5-6 mio/proposal	3 projects
HORIZON-CL5-2022-D3-01-09	Real Time Demonstrator of Multi-Vendor MultiTerminal VSC-HVDC with Grid Forming Capability (in support of the offshore strategy)	55 mio/proposal	1 project
HORIZON-CL5-2022-D3-01-10	Interoperable solutions for flexibility services using distributed energy storage	2-3 mio/proposal	3 projects
HORIZON-CL5-2022-D3-01-14	Thermal energy storage solutions	7-8 mio/proposal	4 projects

This list is an indicative selection of topics



Indicative call



HORIZON-CL5-2022-D3-02-08: Demonstration of complete value chains for advanced biofuel and non-biological renewable fuel production

Scope

- › **Complete value chains** for advanced biofuels and renewable fuels of nonbiological origin (**not hydrogen as final product**) enable increase of **competitiveness** of their **technologies** and foster their **commercialization**

Objectives

- › Build a portfolio of complete value chains
- › Bio fuels and renewable fuels include:
 - sustainable biomass feedstock including residues and wastes, or biogenic CO2 or industrial CO2 and renewable hydrogen
- › as well as input energy to the conversion should be addressed
- › De-risk technology, boost the scale-up
- › Respond to short and medium term needs for renewable fuels in energy and transport



HORIZON-CL5-2022-D3-02-08 (cont.)

- › Deadline: 27 October 2022
- › Type of Action: Innovation Action
- › Funding rate: 70% for-profit making entities
- › Budget/proposal: 10 mio euro
- › 2 projects to be funded
- › Maturity of solutions (TRL6-7)
- › Obligation for Open Science practices & FAIR practices
- › Page limit: 70 pages



D (3): EU global leadership in affordable, secure and sustainable renewable energy technologies

Opening: 26 May 2022 | Deadline: 27 October 2022

› Topics: 4 Innovation Actions & 4 Research and Innovation Actions

- Total budget: 99 mio € | 16 projects

HORIZON-CL5-2022-D3-02-01	Digital solutions for defining synergies in international renewable energy value chains	3 mio/proposal	3 projects
HORIZON-CL5-2022-D3-02-02	AU-EU Energy System Modelling	2,5 mio/proposal	2 projects
HORIZON-CL5-2022-D3-02-06	Direct renewable energy integration into process energy demands of the chemical industry	3-5 mio/proposal	2 projects
HORIZON-CL5-2022-D3-02-07	Renewable energy incorporation in agriculture and forestry	7,5 mio/proposal	2 projects
HORIZON-CL5-2022-D3-02-08	Demonstration of complete value chains for advanced biofuel and non-biological renewable fuel production	10 mio/proposal	2 projects

This list is an indicative selection of topics



Indicative call



HORIZON-CL5-2022-D3-01-10: Interoperable solutions for flexibility services using distributed energy storage

Scope

- › New generation of energy management systems implemented to provide the capability of a **hybrid energy storage systems (HESS)** to work as a **conventional battery energy storage system with enhanced performance**
- › Connect different storage applications such as Energy- Home management system, heat pumps, Evs
- › Validation of user acceptance, and demonstration of reliable, secure concepts



H HORIZON-CL5-2022-D3-01-10 (cont.)

- › Deadline: 26 April 2022
- › Type of Action: Innovation Action
- › Funding rate: 70% for-profit making entities
- › Budget/proposal: 2-3 mio euro
- › 2 projects to be funded
- › Maturity of solutions (TRL35-6)
- › Obligation for Open Science practices & FAIR practices
- › Page limit: 70 pages



D (3): EU global leadership in affordable, secure and sustainable renewable energy technologies

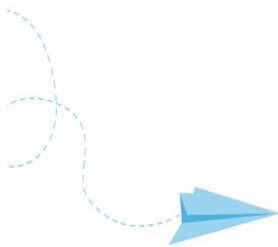
Opening: 06 September 2022 | Deadline: 10 January 2023

- › Topics: 7 Research and Innovation Action & 2 Innovation Actions
- › Total budget: 127,5 mio € | 26 projects

HORIZON-CL5-2022-D3-03-01	Innovative components and/or sub-systems for CSP plants and/or concentrating solar thermal installations	5,5 mio/proposal	2 projects
HORIZON-CL5-2022-D3-03-02	Best international practice for scaling up sustainable biofuels	3 mio/proposal	3 projects
HORIZON-CL5-2022-D3-03-03	Efficient and circular artificial photosynthesis	5 mio/proposal	2 projects
HORIZON-CL5-2022-D3-03-04	Integrated wind farm control	6 mio/proposal	3 projects
HORIZON-CL5-2022-D3-03-05	Novel Thin Film (TF) technologies targeting high efficiencies	5 mio/proposal	4 projects
HORIZON-CL5-2022-D3-03-07	Development of algal and renewable fuels of nonbiological origin	5 mio/proposal	3 projects
HORIZON-CL5-2022-D3-03-08	Development of digital solutions for existing hydropower operation and maintenance	3-4,5 mio/proposal	2 projects
HORIZON-CL5-2022-D3-03-09	Recycling end of life PV modules	6-7 mio/proposal	3 projects



More info: Horizon Europe infoday



Cluster 5 - Climate, Energy & Mobility

Cluster 5 - Climate, Energy and Mobility focusses on the twin green and digital transitions to achieve climate neutrality in Europe by 2050. This Horizon Europe Info Day will be open for participation without prior registration.



05/07/2021 - 06/07/2021

[Cluster 5 - Climate, Energy and Mobility](#) addresses issues relevant to the twin green and digital transitions and the post-COVID 19 recovery, focussing on the transformation of our economy, industry and society with a view to achieving climate neutrality in Europe by 2050.

Document library

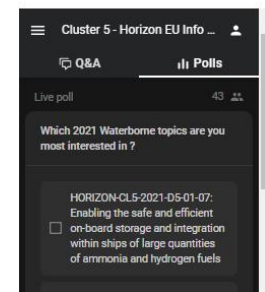


Programme of the info day

Day 1 | Day 2

- 9:30 ● Welcome and introduction
9:30 - 9:50 CEST
[Watch this session >](#)
- 9:50 ● Policy context
9:50 - 10:20 CEST
[Watch this session >](#)
- 10:20 ● Intervention logic, Strategic Plan, and overview of Cluster 5
10:20 - 10:50 CEST

Interact with the info day



<https://www.horizon-europe-infodays2021.eu/event/cluster-5-climate-energy-mobility>



Funding & Tenders Opportunities Portal

European Commission | Funding & tender opportunities | Single Electronic Data Interchange Area (SEDIA) | English | Register | Login

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Horizon Europe (HORIZON) | Clear filter

CL5

☒ Match whole words only

☒ GRANTS ☒ TENDERS

Submission status

☒ Forthcoming (59)
 ☒ Open for submission (55)
 ☒ Closed (54)

Programming period

2021 - 2027 (188)

Horizon Europe (HORIZON)

Programme part

Select a Programme part...

Mission

Select a Mission...

Destination

Select a Destination...

Quick search on specific priorities

Select a Priority...

Funding and tenders (188)

Need help?

Sort by: Submission status

Grant	Open for submission	Programme	ID	Types of action	Deadline model	Opening date	Deadline date
Sustainability and educational aspects for renewable energy and renewable fuel technologies	Open for submission	Horizon Europe (HORIZON)	HORIZON-CLS-2021-03-02-02	HORIZON Coordination and Support Actions	single-stage	24 June 2021	05 January 2022 17:00:00 Brussels time
Market Uptake Measures of renewable energy systems	Open for submission	Horizon Europe (HORIZON)	HORIZON-CLS-2021-03-02-03	HORIZON Coordination and Support Actions	single-stage	24 June 2021	05 January 2022 17:00:00 Brussels time
Novel tandem, high efficiency Photovoltaic technologies targeting low cost production with earth abundant materials	Open for submission	Horizon Europe (HORIZON)	HORIZON-CLS-2021-03-02-04	HORIZON Research and Innovation Actions	single-stage	24 June 2021	05 January 2022 17:00:00 Brussels time
Energy Sector Integration: Integrating and combining energy systems to a cost-optimised and flexible energy system of systems	Open for submission	Horizon Europe (HORIZON)	HORIZON-CLS-2021-03-02-05	HORIZON Innovation Actions	single-stage	24 June 2021	05 January 2022 17:00:00 Brussels time

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>

Thank you
for your attention

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www.horizoneurope.gr



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