

Horizon Europe – Cluster 5: Climate, Energy and Mobility

What is Horizon Europe?

Horizon Europe is the EU's key funding programme for research and innovation with a budget of €95.5 billion for the period 2021-2027. It tackles climate change, helps to achieve the UN's Sustainable Development Goals and boosts Europe's competitiveness and growth.

The programme facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies while tackling global challenges. It supports the creation and better sharing of knowledge and technologies.

It also creates jobs, fully engages Europe's talent pool, boosts economic growth, promotes industrial competitiveness and optimises investment impact within a strengthened European Research Area.

For information on UK participation in the programme see UKRO's [dedicated factsheet](#).

What are clusters in Horizon Europe?

The 'Global Challenges and European Industrial Competitiveness' pillar of Horizon Europe will take forward the current societal challenges and industrial technologies in a more 'top-down' approach, addressing EU and global policy challenges. These challenges and opportunities will be integrated into six clusters - each with a number of specific intervention areas - designed to incentivise cross-disciplinary, cross-sectoral, cross-policy and international collaboration. In terms of addressing global political priorities, each cluster will contribute towards several Sustainable Development Goals (SDG) and many SDGs will be supported by more than one cluster.

The clusters and their intervention areas are expected to achieve greater impact when compared to the societal challenges of Horizon 2020 since they will cut across classical boundaries between disciplines and address different types of challenges. The integrated clusters of activities will derive from the [First Strategic Plan for Horizon Europe 2021-24](#) and [Second Strategic Plan for Horizon Europe 2025-27](#) and will form the basis for support to collaborative research and innovation projects under the 'Global Challenges and European Industrial Competitiveness' pillar.

What is funded under Cluster 5?

Cluster 5 has an overall budget of €15.123 billion. With this funding, this cluster aims to accelerate the twin green and digital transitions and help to achieve climate neutrality in Europe by 2050 by focusing specifically on fostering climate action, while at the same time improving the sustainability, security and competitiveness of the energy and transport industry. Actions funded under this cluster provide the basis for systemic change as well as shaping the necessary technological, industrial economic and societal transformations to achieve climate neutrality in an inclusive and socially fair way.

The specific areas of intervention in Cluster 5 include:

- Advance climate science and solutions for a climate-neutral and resilient society;
- Cross-sectoral solutions for decarbonisation;
- Develop cost-efficient, net zero-greenhouse gas emissions energy system centred on renewables;
- Develop demand-side solutions to decarbonise the energy system;
- Develop low-carbon and competitive transport solutions across all modes;
- Develop seamless, smart, safe, accessible and inclusive mobility systems.

More specifically, Cluster 5 contributes to six specific destinations of the 2023-2024 Work Programme as described below:

Destination 1: Climate sciences and responses for the transformation towards climate neutrality

- Enabling the transition to a climate-neutral and resilient society and economy through advancing Earth system science, climate neutrality pathways analysis, the development of climate adaptation solutions and climate services, supporting social science for climate and better understanding climate-ecosystems interactions.

Destination 2: Cross-sectoral solutions for the climate transition

- Covers thematic areas which are cross-cutting by nature and can provide key solutions for climate, energy and mobility applications such as ‘batteries’, hydrogen, communities and cities, early-stage breakthrough technologies as well as citizen engagement.

Destination 3: Sustainable, secure and competitive energy supply

- Aims to make EU’s energy supply cleaner, more secure, and competitive by boosting cost performance and reliability. Activities will underpin the modernisation of the energy networks to support energy system integration, including electrification of specific sectors and integration of other climate neutral, renewable energy carriers, such as clean hydrogen.

Destination 4: Efficient, sustainable and inclusive energy use

- Addresses activities targeting the energy demand side, notably a more efficient use of energy as regards buildings and industry. The key R&I breakthroughs are cost-effective renovation for energy-efficient, renewable-intensive and smart grid-friendly buildings; digitalisation of building energy; optimisation of energy usages in buildings.

Destination 5: Clean and competitive solutions for all transport modes

- This Destination addresses activities that improve the climate and environmental footprint, as well as competitiveness, of different transport modes. Intensified research and innovation activities are needed across all transport modes (in line with societal needs and preferences), in order for the EU to reach its policy goals towards a net-zero greenhouse gas emissions by 2050 and to reduce significantly air pollutants.

Destination 6: Safe, resilient transport and smart mobility services for passengers and goods

- Activities addressing safe and smart mobility services for passengers and goods Europe’s ageing (and not always sustainable) transport infrastructure needs to be prepared for enabling cleaner and smarter operations. Europe needs also to maintain a high-level of transport safety for its citizens. Resilience should be built in the transport systems to prevent, mitigate and recover from disruptions. Research and innovation will underpin the three safety pillars: technologies, regulations and human factors.

Call timings

The 2023 and 2024 calls are now closed.

Some calls for 2024-25 topics close on 21 January 2025.

Please note that some topics have specific eligibility criteria, listed under eligibility and admissibility conditions, such as the obligation to include legal entities established in the target country/region. Applicants are advised to check the work programme for details relating to their topics of interest.

Relevant EU policy areas and developments

This Work Programme supports the overall objectives of the [European Green Deal](#) to achieve climate neutrality in Europe by 2050. Activities encompass the transition to greenhouse gas neutrality of the energy and mobility sectors by 2050, as required by the European Climate Law. This work programme part supports the implementation of the [Paris Agreement](#) and the [United Nations Sustainable Development Goals](#) contributing directly to the Commission's priorities of creating a Europe fit for the digital age, and an economy that works for its citizens. In line with [Recovery and Resilience Facility](#) (RRF)'s requirement and the European Green Deal objectives, research and innovation activities will also comply with the 'do no significant harm' principle.

Following the invasion of Ukraine, the European Commission published the [REPowerEU Communication](#) to rapidly and efficiently ramp up the clean energy transition and this Work Programme contributes to the diversification of Europe's gas supply, the electrification of the energy system and the transformation of (energy-intensive) industries.

More information

- [Horizon Europe website](#) and [Cluster 5 website](#)
- [2023-2025 Work Programme for Cluster 5](#)

Horizon Europe's legal basis:

- [Regulation establishing Horizon Europe](#)
- [Decision establishing the Specific Programme of Horizon Europe](#)
- [First Strategic Plan for Horizon Europe \(2021-2024\)](#)
- [Second Strategic Plan for Horizon Europe \(2025-2027\)](#)

UKRO Portal

- [UKRO Portal](#) (subscriber access required)

Other websites and resources

- [European Green Deal](#)
- [UN Sustainable Development Goals](#)
- [Paris Agreement](#)
- [European Recovery Instrument](#)
- [Recovery and Resilience Facility](#)