Cluster 5: Climate, Energy and Mobility

Bob Flynn | 25th March 2021
Cluster 5
Climate, Energy and Mobility
€15 Billion Funding - 177 Topics 2021-2022

1. Destination 1 – Climate sciences and responses
2. Destination 2 – Cross-sectoral solutions for the climate transition - Including batteries
3. Destination 3 – Sustainable, secure and competitive energy supply
4. Destination 4 – Efficient, sustainable and inclusive energy use
5. Destination 5 – Clean and competitive solutions for all transport modes
6. Destination 6 - Safe, resilient transport and smart mobility services for passengers and goods

+ Institutional Partnerships
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Destination 1 – Climate sciences and responses for the transformation towards climate neutrality

• Improved understanding of greenhouse gas fluxes
• The circular economy and climate change mitigation
• Maximising the impact and synergy of European climate change research and innovation
• Enhanced integrated assessment in pursuit of global climate goals
• Climate change impacts and risks, mitigation and adaptation options
• Climate services
• Improved economic methods for decision-making on climate and environmental policies
• Restoration of natural wetlands, peatlands and floodplains
• The contribution of forest management to climate action
• 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
• Verification and reconciliation of estimates of climate forcers
• Development of high-resolution Earth system models
• Improvement of Integrated Assessment Models
• Improved climate predictions in Europe and beyond
• Rewilding landscapes

Destination 2 - Cross-sectoral solutions for the climate transition

A competitive and sustainable European battery value chain
• Sustainable processing, refining and recycling of raw materials including graphite
• Battery physics and interfaces
• Advanced high-performance Generation 3 & 4 Lithium batteries
• Next generation batteries for mobile and transport applications
• Battery design, component manufacture and processing technologies
• Battery management
• Reuse and recycling

Emerging breakthrough technologies for a climate neutral Europe
• Non-CO2 greenhouse gas removal & Atmospheric carbon capture
• Methane cracking

Citizens and stakeholder engagement
• Strengthening Social Sciences and Humanities (SSH) research communities in climate, energy and mobility disciplines

Communities and cities
• Future urban mobility innovation
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Destination 3 - Sustainable, secure and competitive energy supply

The transition of the energy system will rely on reducing the overall energy demand and making the energy supply side climate neutral.

Global leadership in renewable energy
- Renewable Technologies – wind, ocean energy, photovoltaics, csp etc.
- Grid Integration
- Digitalisation
- Carbon capture, utilisation and storage (CCUS)
- Industry
- Agriculture and Forestry
- Renewable fuels

Destination 4 – Efficient, sustainable and inclusive energy use

Technological and socio-economic breakthroughs for achieving climate neutrality and the transition to zero pollution of the building stock by 2050

Highly energy-efficient and climate neutral European building stock
- Performance Assessment
- Deep renovation
- Smarter Buildings & Energy Positive Homes
- Heating & Cooling
- Built4people
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Destination 5 – Clean and competitive solutions for all transport modes

Zero-emission road transport (2ZERO)
  • Nextgen vehicles and EV components
  • Optimised Smart EV Charging and V2X flexibility in mass-deployment conditions

Aviation
  • Next generation digital aircraft transformation in design, manufacturing, integration and maintenance
  • Digital technologies for new aviation business models, services, emerging global threats and industrial competitiveness

Enabling low-carbon, clean, smart, and competitive waterborne transport (ZWERT)
  • Innovative on-board energy saving solutions and storage systems
  • Computational tools for shipbuilding
  • Vessel battery charging systems
  • Integration of fuel cells in ship design
  • Exploiting renewable energy for shipping

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

Connected, Cooperative and Automated Mobility (CCAM)
  • On-board perception and decision-making technologies
  • Physical and Digital Infrastructure (PDI), connectivity and cooperation
  • Safety validation of CCAM systems
  • Occupant protection technologies and HMI solutions
  • Cyber secure and resilient CCAM
  • Large-scale demonstration pilots
  • Artificial Intelligence (AI): Explainable and trustworthy concepts, techniques and models for CCAM

Multimodal and sustainable transport systems for passengers and goods
  • New delivery methods and business/operating models to green the last mile

Safety and resilience - across all transport modes
  • Safe automation and human factors in aviation
  • Testing safe lightweight vehicles
  • Safe human-technology interaction in the future traffic system
  • Controlling infection on large passenger ships
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Institutional Partnerships

Clean Aviation
Clean Hydrogen
Transforming the European Rail System
Transforming European Air Traffic Management (SESAR)

Expected Launch Q3/Q4 2021
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Upcoming Events: Cluster 5

Cluster 5:  European Commission Information Webinar (TBC)
Call opening : TBC
Institutional Partnership Launch Q3

Documentation

Draft WP now available:  https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeetingDoc&docid=49068
Cluster 5 Final Documentation – European Funding & Tenders Portal  Funding & tenders (europa.eu)
Mission - Climate neutral and smart cities  Climate Neutral and Smart Cities-and-smart-cities
European Partnerships - European Partnerships in Horizon Europe | European Commission (europa.eu)
THANK YOU