



MINISTÈRE
DE L'ENSEIGNEMENT
SUPÉRIEUR,
DE LA RECHERCHE
ET DE L'INNOVATION

Liberté
Égalité
Fraternité



Le programme européen pour la recherche et l'innovation





Architecture d'Horizon Europe & contexte politique



Qu'est-ce qu'Horizon Europe?

Horizon Europe est le 9^e programme-cadre de l'Union européenne pour la recherche et l'innovation

Horizon Europe prendra la suite du programme Horizon 2020

Il prendra effet le 1er janvier 2021, pour la période 2021-2027

Quel budget pour Horizon Europe ?

95.5 milliards d'euros





Objectifs

« Le programme de financement de la recherche et de l'innovation le plus ambitieux jamais entrepris »

Communication de la Commission européenne, Présentation d'Horizon Europe (7 juin 2018)

Renforcer les bases scientifiques et technologiques de l'Union

1

Stimuler sa compétitivité, y compris celle de son industrie

2

Concrétiser les priorités politiques stratégiques de l'Union

3

Contribuer à répondre aux problématiques mondiales

4



Les priorités politiques dans lesquelles s'inscrit Horizon Europe

Les 6 priorités de la Commission pour 2019-2024

Un Green Deal européen

Ambitionner d'être le premier continent climatiquement neutre



Une Europe adaptée à l'ère du numérique

Favoriser une nouvelle génération de technologies donnant aux citoyens les moyens d'agir



Une économie au service des personnes

Agir en faveur de l'équité sociale et de la prospérité



Une Europe plus forte sur la scène internationale

Renforcer notre leadership mondial responsable



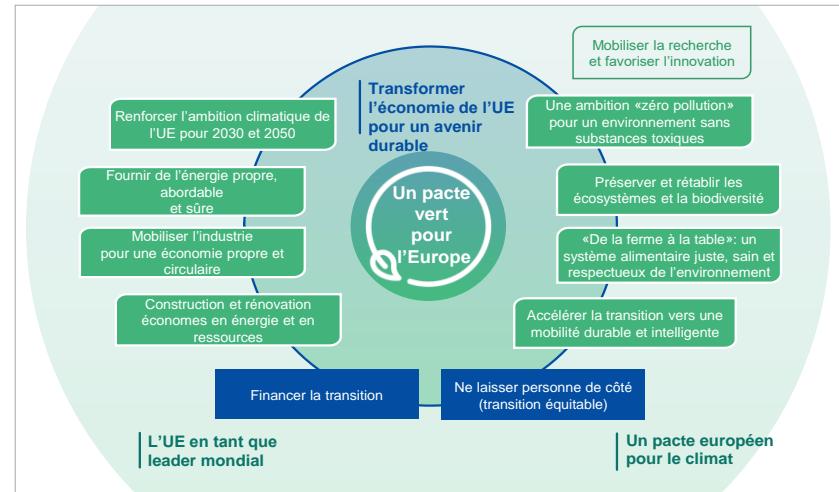
Promouvoir notre mode de vie européen

Protéger nos citoyens et nos valeurs



Un nouvel élan pour la démocratie européenne

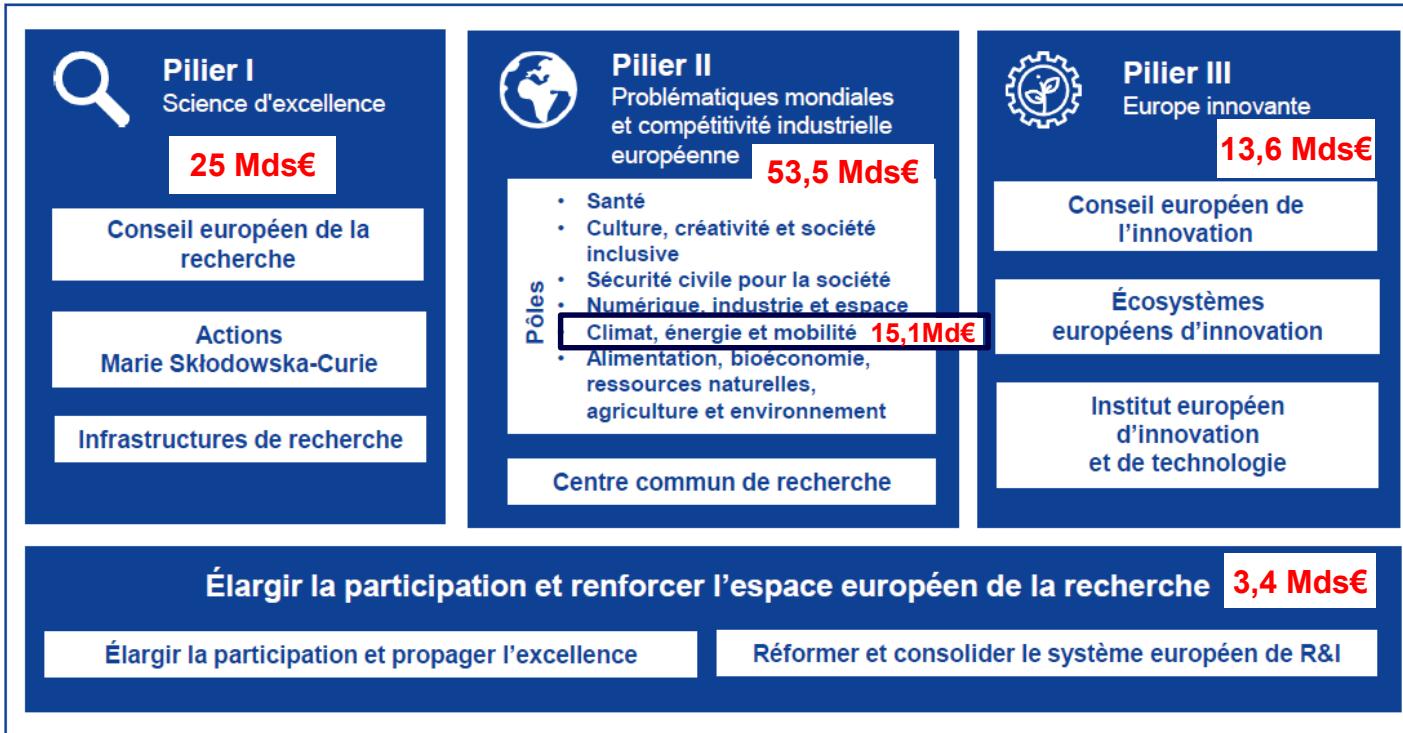
Promouvoir, protéger et renforcer notre démocratie



- ✓ Maintenir l'augmentation de température en deçà de 2°C, et efforts pour < 1,5°C
- ✓ 0 émission de GES en 2050 (rôle clé du système énergétique, transport)
- ✓ ... en accord avec une transition socialement juste, renforçant la compétitivité de l'économie



Structuration d'Horizon Europe





Le cluster 5 du Pilier 2

Cluster 5 : Principaux objectifs

- Favoriser l'action en faveur du climat
- Améliorer la compétitivité de l'industrie de l'énergie et des transports



Via des actions qui devront :

- créer des emplois plus nombreux et de meilleure qualité ;
- accélérer la transformation industrielle et la numérisation ;
- générer une croissance fondée sur l'innovation et l'inclusion.



Cluster 5 : Destinations et « sous-destinations »

Architecture du programme de travail 2021-2022

Destination 1 – Sciences du climat et réponses pour la transformation vers la neutralité climatique

Mots-clés : modèle, prévision climatique, services climatiques, compréhension des flux de GES, risques socio-écono. du changement climatique ..

Destination 2 – Des solutions intersectorielles pour la transition climatique

- Une chaîne de valeur européenne des batteries compétitive et durable
- Technologies de pointe émergentes et solutions climatiques
- Engagement des citoyens et des parties prenantes
- Communautés et villes

Destination 3 – Un approvisionnement énergétique durable, sûr et compétitif

- Leadership mondial en matière d'énergies renouvelables
- Systèmes, réseaux et stockage d'énergie
- Captage, utilisation et stockage du carbone
- Questions transversales

Destination 4 – Utilisation efficace, durable et inclusive de l'énergie

- Bâtiments
- Industrie

Destination 5 – Des solutions propres et compétitives pour tous les modes de transport

- Transport routier zéro émission
- Aviation
- Impact des transports sur l'environnement et la santé humaine
- Actions transversales

Destination 6 – Des transports sûrs et résilients et des services de mobilité intelligente pour les passagers et les marchandises

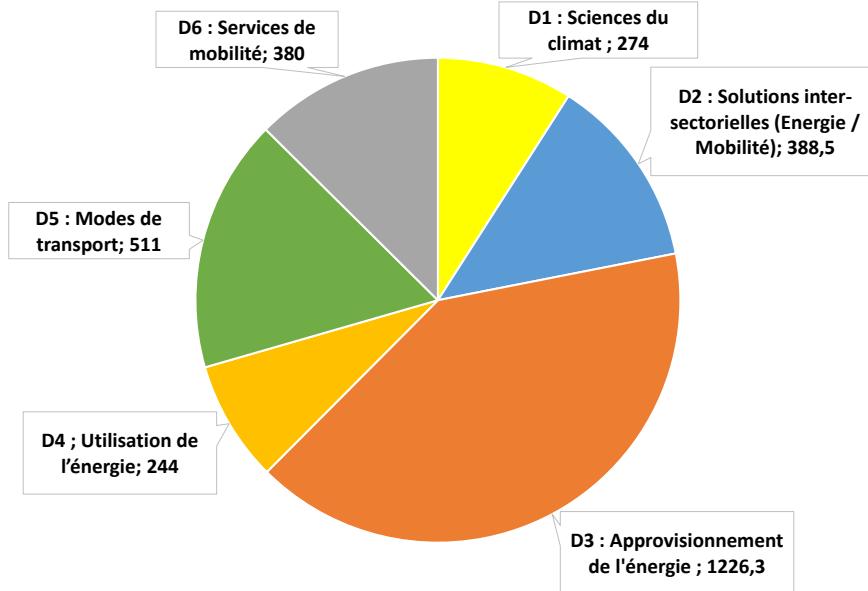
- Mobilité connectée, coopérative et automatisée (CCAM)
- Systèmes de transport multimodaux et durables pour les passagers et les marchandises
- Sécurité et résilience - par mode et dans tous les modes de transport

Ouverture des 1^{ers} calls :
24/06/2021

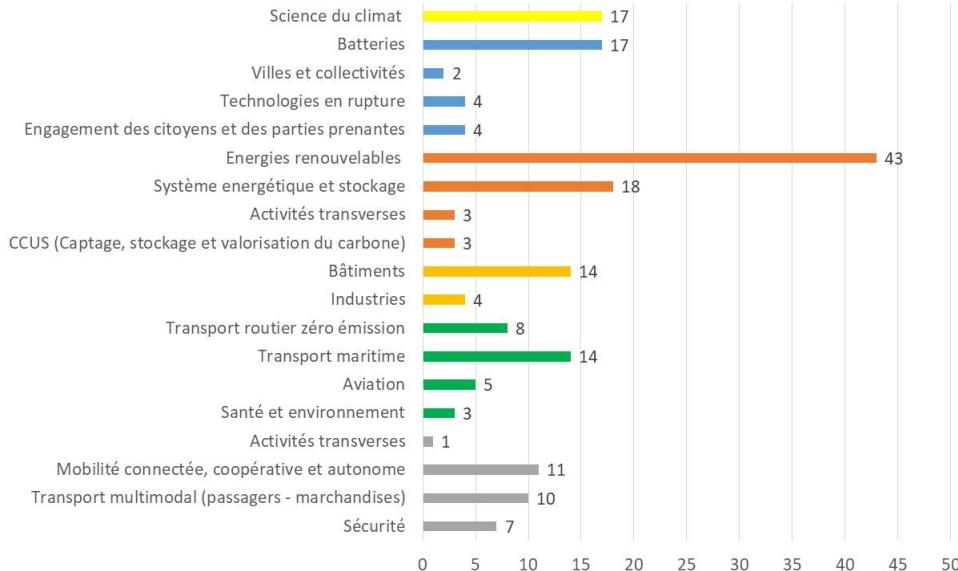
Première clôture : **14/09/2021**

Budgets par destination et sous-destination

Budgets 2021 - 2022 selon les Destinations (en M€)



Nombre de topics 2021 + 2022 selon les sous-destinations





Cluster 5 : missions

Mission Adaptation au changement climatique et aux transformations sociétales

Objectifs à l'horizon 2030 : préparer l'Europe à faire face aux perturbations climatiques, accélérer la transition vers un avenir sain et prospère dans des limites planétaires sûres et mettre en place des solutions de résilience qui déclencheront des transformations dans la société.

Mission 100 villes climatiquement neutres d'ici 2030 - par et pour les citoyens

Objectifs d'ici 2030 : soutenir, promouvoir et mettre en valeur 100 villes européennes dans leur transformation systémique vers la neutralité climatique d'ici 2030 et faire de ces villes des pôles d'innovation pour toutes les villes, au bénéfice de la qualité de vie et de la durabilité en Europe.





Rappels des règles d'éligibilité et de participation au pilier 2 d'HE

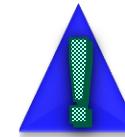
Les instruments de financements

➤ Taux de financement de 100% (sauf*)

Action de Recherche (RIA)

Action d'Innovation (IA)*

Action de coordination et de support (CSA)



* taux de financement de 70%
pour les entreprises

Projets Marie Skłodowska-Curie

Conseil européen de la Recherche: projets ERC

Conseil européen de l'Innovation (EIC): Eclareur, Accélérateur

Critères d'éligibilité - projets collaboratifs

Au minimum **3 entités légales indépendantes, dans 3 Etats membres ou associés de l'U.E.* et (nouveauté) dont au moins une établie dans un des 27 Etats membres.**

A savoir: dans chaque appel à projets, certaines conditions spécifiques peuvent apparaître (plus de partenaires, autre pays obligatoire et/financés...).

**La liste des Etats associés sera disponible à l'issue des négociations à l'article 12.*





L'évaluation des projets Horizon Europe

- **3 critères principaux d'évaluation:** excellence, impact, qualité et efficacité de la mise en œuvre
 - **Attention** aux critères supplémentaires & pondération différente du programme de travail
- processus d'évaluation en **1 ou 2 étapes**
- **évaluation par les pairs:** comités d'experts indépendants, les « experts-évaluateurs »
- temps dévolu à l'évaluation: **5 mois maximum** (+ 3 mois de contractualisation)

Nouveautés:

- Réduction de la taille des propositions: 45 pages max. (30 pour les CSA) avec moins d'infos demandées.
Exception parfois précisée au niveau de l'appel à proposition
 - « Droit de réagir »: permettant des remarques des proposants en cours d'évaluation
 - « Evaluation à l'aveugle »: propositions anonymes en 1^{ère} étape
 - L'approche en portfolio, qui s'appliquera aux appels de le Conseil européen de l'innovation (EIC) et aux missions
- } **pilotes sur 2/3 appels**



Les coûts éligibles*

➤ remboursés à 100% (sauf les entreprises dans les IA financées à 70%)

Il y a les coûts directs (en lien direct avec le projet):

- Coûts de personnel A
- Subcontracting (sous-traitance) B
- Coûts autres C - déplacements
 - équipements (amortissement)
 - autres bien, travaux et services: consommables, ...
- Autres catégories de coûts D

+ les coûts indirects: taux forfaitaire de 25% des coûts directs (sauf subcontracting, les volontaires, le support financier à des tiers, les coûts unitaires spécifiques)

* Ces coûts s'appliquent dans le cadre du MGA général, pas aux projets en coûts unitaires



- ***Un programme ambitieux : 95,5 Md€ pour 7 ans dont 15,1Md€ pour le cluster 5***
 - Dont le taux de financement peut atteindre 100% des coûts éligibles
 - Sous forme de subventions notamment pour pilier 2 (non cumulables avec aides d'état)
 - Les coûts de personnels sont inclus dans les coûts éligibles
- ***Participer à HE, c'est :***
 - Gagner en visibilité, en notoriété notamment au niveau international
 - Développer son réseau
 - Attirer de nouveaux talents au sein de son entreprise, organisme
 - Faire que les partenaires du projet deviennent des clients, fournisseurs potentiels
 - Accéder à de nouveaux marchés, à de nouvelles techno
 - Gagner en savoir-faire...



Cluster 5 Climat, Energie, Mobilité

Focus sur les appels de la destination 1



Le contexte politique dans le domaine du climat

En quelques dates clés

28 novembre 2018 : Clean Planet for all

- Élabore des stratégies climatiques pour les moyen et long termes

11 décembre 2019 : Green Deal européen

- Vise à rendre l'économie européenne plus durable, moderne, compétitive et efficace dans l'utilisation des ressources

4 mars 2020 : Loi européenne sur le climat

- Inscrit concrètement l'objectif de neutralité climatique à l'horizon 2050, et rehausse les objectifs pour 2030 à 55% de réduction des émissions de gaz à effet de serre (GES) (par rapport à 1990)

17 septembre 2020 : Plan cible en matière de climat à l'horizon 2030

- Analyse et détaille les objectifs pour 2030

9 décembre 2020 : Pacte européen pour le climat

- Vise à faire participer la société aux actions en faveur du climat

24 février 2021 : Stratégie sur l'adaptation au changement climatique

- Vise à rendre l'adaptation plus intelligente, rapide et systémique, et intensifier l'action internationale en matière d'adaptation au changement climatique. *Texte qui encadre la mission « Adaptation... ».*

Objectifs pour 2030

- Réduction des **émissions de GES** d'au moins 55%
- Part des **énergies renouvelables** à au moins 32%
- Améliorer l'**efficacité énergétique** d'au moins 32,5%

Objectif à l'horizon 2050

- Atteindre la **neutralité carbone**



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

Objectif (« main impact ») visé : « contribuer à la transition vers une société et une économie climatiquement neutres et résilientes, rendue possible par une science climatique avancée, des voies et des réponses au changement climatique (atténuation et adaptation) et des transformations comportementales », notamment en :

1. **Faisant progresser les connaissances et fournir des solutions** dans différents domaines : science du système terrestre ; voies vers la neutralité climatique ; adaptation au changement climatique, y compris les services climatiques ; sciences sociales pour l'action climatique ; une meilleure compréhension des interactions entre le climat et les écosystèmes.
2. **Contribuant aux principales évaluations internationales** (ex : GIEC; Agence européenne pour env.);
3. **Renforçant l'Espace européen de la recherche** sur le changement climatique;
4. **Accroissant la transparence, la robustesse, la fiabilité et l'utilité pratique de la base de connaissances** sur le **changement climatique** à l'usage des décideurs politiques, des praticiens, des autres parties prenantes et des citoyens.



Destination 1 : Les appels de 2021

Version préliminaire de mai 2021

Topic	Topic title	Type of action	Budget 2021 (en M€)	Expected UE contribution per project (M€)	Expected number of grants	Call opening date	Deadline
HORIZON-CL5-2021-D1-01-01	Improved understanding of greenhouse gas fluxes and radiative forcers, including carbon dioxide removal technologies	RIA	24	Around 8.00	3	24/06/2021	14/09/2021
HORIZON-CL5-2021-D1-01-02	Modelling the role of the circular economy for climate change mitigation	RIA	15	Around 5.00	3	24/06/2021	14/09/2021
HORIZON-CL5-2021-D1-01-03	Maximising the impact and synergy of European climate change research and innovation	CSA	9	4.00 to 5.00	2	24/06/2021	14/09/2021
HORIZON-CL5-2021-D1-01-04	Enhanced integrated assessment in pursuit of global climate goals	RIA	15	Around 5.00	3	24/06/2021	14/09/2021
HORIZON-CL5-2021-D1-01-05	Better understanding of the interactions between climate change impacts and risks, mitigation and adaptation options	RIA	20	6.00 to 7.00	3	24/06/2021	14/09/2021
HORIZON-CL5-2021-D1-01-06	Supporting and standardising climate services	CSA	9	Around 9.00	1	24/06/2021	14/09/2021
HORIZON-CL5-2021-D1-01-07	Improved economic methods for decision-making on climate and environmental policies	RIA	6	Around 3.00	2	24/06/2021	14/09/2021
HORIZON-CL5-2021-D1-01-08	Restoration of natural wetlands, peatlands and floodplains as a strategy for fast mitigation benefits; pathways, trade-offs and co-benefits	RIA	20	6.00 to 7.00	3	24/06/2021	14/09/2021
HORIZON-CL5-2021-D1-01-09	The contribution of forest management to climate action: pathways, trade-offs and co-benefits	RIA	18	Around 6.00	3	24/06/2021	14/09/2021



HORIZON-CL5-2021-D1-01-01 : Improved understanding of greenhouse gas fluxes and radiative forcers, including carbon dioxide removal technologies

RIA

Budget AAP : 24M€

Budget/projet : 8M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

Expected Outcome (all)

- **Improved knowledge** in the addressed areas, also through increasing the use of high quality data, leading to a better understanding of the processes driving climate change.
- **Improved projections** of climate change (including in relation to climate change-related extreme events).
- **Improve our understanding** of how innovative mitigation actions can help stabilise global temperature.
- **Improved understanding** from these actions should be fed into improvements in Earth system models, climate services and other forms of downstream use.

Scope (1 of the following)

- a) **Greenhouse gas fluxes and Earth system feedbacks:** key processes related to the life cycles of GHGs, other climate forcers and associated feedbacks affecting the Earth's climate.
- b) **Global warming contribution of different, non-CO₂, radiative forcers:** improved knowledge concerning the contribution of short- and long-lived radiative forcers to climate change; focus on a subset of forcers; assessment of the climate and non-climate impacts, over multiple time scales, of policies and measures targeting forcers other than CO₂; application of this knowledge in relevant sectors.
- c) **Climate and Earth system responses to climate neutrality and net negative emissions:** improved understanding of the environmental consequences of reducing net GHG emissions, focus on the response of global temperatures and other key properties of the Earth system to sustained reductions in greenhouse gas emissions to net zero and below, particular attention to climate-related challenges at different temporal scales.



HORIZON-CL5-2021-D1-01-02 : Modelling the role of the circular economy for climate change mitigation

RIA

Budget AAP : 15M€

Budget/projet : 5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

Expected Outcome (all)

- Improve existing European and/or global climate mitigation models by better representation of basic industrial value chains (including reliable data) and potential mitigation technologies including the impact of circular economy.
- Improve the quantification of the impacts and potentials of the circular economy for climate change mitigation.
- Support the integration of the circular economy into climate action, policies and their evidence base, including externalities.
- Support the integration of the GHG emission reduction / mitigation in the circular economy criteria.

Scope

- Advance the understanding and modelling of the current and future potential contribution of the circular economy in Europe to GHG emissions reductions (beyond the state-of-the-art & include citizen's behaviours and engagement).
- Look beyond the specific measures needed to deliver a circular economy and propose a framework for revealing, demonstrating and quantifying the circular economy's potential contribution to climate goals, as well as improving the coverage of basic industry value and supply chains in models used to analyse mitigation pathways.
- Ensure collaboration between the scientific community and policy- and decision-makers, and with industry stakeholders and civil society.
- Promote the highest standards of transparency and openness in compliance with the FAIR principles.



HORIZON-CL5-2021-D1-01-03 : Maximising the impact and synergy of European climate change research and innovation

Expected Outcome (some of the following)

- **Raising awareness** of relevant audiences towards climate change
- **Better coordination** of both on-going and future EU-funded climate change research initiatives & a more efficient use of resources.
- **Enhanced impact** of research investments and accelerated transfer of knowledge to inform policy and climate actions in Europe.
- **Increased** robustness, coherence and visibility of the results of EU-funded climate change R&I
- **Curation of R&I project results** related to climate change
- **Innovative and tailor-made** tools and strategies to communicate the results of EU-climate change research leading to improved science–civil society interface, while considering drivers for active citizen engagement
- **Better coordination of** climate change research, innovation and technology initiatives within the European Research Area, facilitating complementarity and coherence between EU-level, national and regional efforts and a more efficient use of resources.
- **Identification of** complementary R&I activities among the past, present and future work supported by nat & reg R&I programmes
- **Showcasing** national and regional R&I activities and findings that could be of interest for cooperation between countries.
- **Improving prioritisation** of European climate change research by identifying priority topics in order to enhance the ability of existing & future European R&I to respond to societal needs.
- **Accelerating the transfer** of knowledge on climate change research to policy-makers, practitioners and the society.
- **Implementation of collaborative activities** to enhance the market, regulatory or societal uptake of R&I solutions
- **Identify good practices** at EU/nat/reg level on communication, dissemination & exploitation of research findings and projects results

CSA

Budget AAP : 9M€

Budget/projet : 4 à 5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

! : Dérogation nombre pages



HORIZON-CL5-2021-D1-01-03 : Maximising the impact and synergy of European climate change research and innovation

Scope (1 of the following)

a) Maximising the impact of EU-funded climate change research :

- Delivering effective mechanisms to **strengthen the science-policy & science-civil society interface** on the state-of-the-art climate change research.
- **Knowledge synthesis and valorisation of results** are expected to constitute an important element of work.
- **Build on the accumulated knowledge and tools**, provide for adequate resources to take over and manage selected knowledge curation platforms, and facilitate exploitation and maintenance of selected decision support tools developed by other research projects.
- **Mobilise and promote direct interaction between the scientific community and civil society/practitioners**, support efforts to counter misconceptions, fake news and conspiracy theories, contribute to the objectives and activities of the European Climate Pact.
- An effective contribution of **SSH disciplines** is required

b) Maximising the synergy of climate change research and innovation in Europe:

- **Strengthen the ERA** by ensuring coordination, cooperation & synergies between research, innovation & technology policies & programmes in the area of climate change research.
- **Prioritise investments in climate change R&I** and add value to current and future R&I by exploiting potential synergies in R&I planning and activities, and opportunities for partnerships or complementary activities.
- **Establish a science-policy & science-society dialogue** to improve access to & communication & dissemination of excellent climate change R&I.
- **Identify, analyse and support the scaling up of good practices on communication**, dissemination and exploitation of climate change R&I projects results and solutions, as well as on climate change policies and strategies.

CSA

Budget AAP : 9M€

Budget/projet : 4 à 5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

! : Dérogation nombre pages



Destination 1 : Les appels de 2021

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HORIZON-CL5-2021-D1-01-04 : Enhanced integrated assessment in pursuit of global climate goals

Expected Outcome (all)

- **Provision of information** for the preparation of climate policies and national planning for the post-2030 period, in light of the Paris Agreement goals and the need to reduce global net greenhouse emissions to zero by 2050.
- **Enhanced international cooperation** among the modelling community and other relevant stakeholders to expand the provision of robust in-country advice to decision-makers around the world.
- **Enhanced mutual learning** among the modelling, social science and policy communities to ensure coherence between different tools used to inform climate action, and consistency with the best available and open science.

Scope

- **Ensure that Integrated Assessment Models** enable the assessment of Paris Agreement-compatible mitigation policies.
- **Deliver advice and insights** that can inform climate action and sustainable development policy design.
- **Support comparability of model results** and between Integrated Assessment Models and other models.
- **Identify milestones, drivers and barriers** towards achieving climate neutrality in an economically and environmentally responsible and socially inclusive way.
- **Consider the role of major sectors** including energy, water, transport, industry and land use, as well as the sequence of individual, social, economic, structural, and technological changes that could lead to climate neutrality.
- **Support the use of model-based and data/driven analysis** for climate-policy in the context of sustainable development and recovery from the economic and social impacts of the COVID-19 pandemic.
- **Share best practices and build capacities** to support the production of national scenarios and to inform domestic stakeholders.

RIA

Budget AAP : 15M€

Budget/projet : 5M€

Ouverture : 24/06/2021

Deadline : 14/09/2021



Destination 1 : Les appels de 2021

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HORIZON-CL5-2021-D1-01-05 : Better understanding of the interactions between climate change impacts and risks, mitigation and adaptation options

RIA

Budget AAP : 20M€

Budget/projet : 6/7M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

Expected Outcome (some of the following)

- Enhanced understanding of the interaction, complementarity and trade-offs between adaptation and mitigation measures and policies helping to overcome the silo approach within and between them and leading to more effective climate action policies.
- Better knowledge about the risk and impacts of climate change and their interaction with mitigation pathways
- Enhanced legitimacy and robustness of integrated assessment frameworks based on more realistic representation of climate processes and their impacts.
- Contribution to enhanced collaboration among Working Groups I, II, and III of the Intergovernmental Panel on Climate Change
- Support and interaction with the activities of Horizon Europe Mission “Adaptation to climate change including societal transformation”.

Scope

- Deliver progress in integrating the analysis of the impacts and risks of climate change, mitigation pathways and adaptation strategies into a single framework
- Integrate state of the art climate science stemming from Earth System Models, Reduced Complexity Models and similar into a common integrated assessment framework.
- Improve the general understanding of the synergies, conflicts and trade-offs between mitigation and adaptation strategies.
- Formulate a set of recommendations targeting both public and private stakeholders to reduce the tensions between mitigation and adaptation strategies, and evaluate the impact on the costs of mitigation and adaptation strategies.
- Explore effective ways for bridging the gap between modelling theory and practical applications.



Destination 1 : Les appels de 2021

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HORIZON-CL5-2021-D1-01-06 : Supporting and standardising climate services

Expected Outcome (all)

- **Support to the implementation** of the EU Adaptation Strategy & the **Mission on adaptation to climate change**
- **Improved relevance** of data, information and knowledge on climate change impacts and adaptation, as well as mitigation for users
- **Enhanced value** of climate services through standards and quality assurance procedures and communication.
- **The generation of trust** across supply and demand of knowledge and services, supporting the development of a market for climate services and the European climate service sector.
- **Enhanced quality**, impact, equity and performance of European climate services.
- **Enhanced data** and analytical tools for climate impacts, risks and transition risks, as well as actionable knowledge for the formulation of recommendations, identification and appraisal of adaptation options addressing the needs of all stakeholders.
- **Enhanced coordination and visibility** of climate services activities.

Scope

- **Uncertainty analysis and quality control** with supportive case studies at various levels and delivery domains.
- **Preparation of guidelines** to document climate service data sources and processing methodologies
- **Dvpt of good practices**, guidance, and standardization of climate information and verification methods for long-term forecast products.
- **Definition of verification and certification methods** to enhance quality and usability of climate services
- **Coordination and promotion** of European climate service activities, encouraging open exchange of knowledge, expertise and data and providing a science-user communication platform and improving synergies between regional, national, European and international activities.
- **Development of appropriate business models** and knowledge brokerage activities to support scale-up and replication of climate services.

CSA

Budget AAP : 9M€

Budget/projet : 9M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

! : Dérogation nombre de pages



Destination 1 : Les appels de 2021

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HORIZON-CL5-2021-D1-01-07 : Improved economic methods for decision-making on climate and environmental policies

Expected Outcome (all)

- **Enhanced operational capacities** of the methods of economic analysis for climate and environmental policies, leading to their increased usage in the preparation of decision-making on climate and environmental policies
- **Practical recommendations** & conceptual guidelines for improved, methodologically transparent eco. approaches & practices
- **Proposals on** ways to produce a better reflection of environmental challenges in public policy and promoting precautionary responses.
- **Enhanced efficiency**, effectiveness and legitimacy of European regulatory and policy decisions
- **Improved capacity** for decision making under the conditions of (extreme) uncertainty.
- **New evidence on** the effectiveness of various regulatory strategies, instruments & approaches for climate & environmental policies.
- **Factual evidence and insights** for the design and evaluation of the implementation of major European policies

Scope

- **Improvement of methodologies, practices and techniques** for conducting economic appraisal of environmental policies, notably those addressing climate change and biodiversity loss.
- **Investigating limitations of mainstream economic theory** and models used for environmental policy assessment, and considering alternative approaches that could be applied to assess environmental policies.
- **Encompassing evaluation** of the actual performance of selected climate and environmental policies in order to identify their strengths and weaknesses and propose possible improvements in the underpinning methodologies for ex-ante assessments.
- **Examining the performance** of different types of regulatory strategies such as a comparison of market-based vs traditional regulation...
- **Taking into account public acceptance dimension.**

RIA

Budget AAP : 6M€

Budget/projet : 3M€

Ouverture : 24/06/2021

Deadline : 14/09/2021



Destination 1 : Les appels de 2021

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HORIZON-CL5-2021-D1-01-08 : Restoration of natural wetlands, peatlands and floodplains as a strategy for fast mitigation benefits; pathways, trade-offs and co-benefits

RIA

Budget AAP : 20M€

Budget/projet : 6/7M€

Ouverture : 24/06/2021

Deadline : 14/09/2021

Expected Outcome (some of the following)

- **Support** the EU Nature Restoration Plan of the EU Biodiversity Strategy for 2030.
- **Improved assessment** of the added value of wetland, peatland and floodplain restoration approaches under different scenarios and monitor their benefits and trade-offs in terms of greenhouse gas (GHG) emissions and removals, climate change adaptation...
- **Improve the knowledge** base on the status of European wetlands beyond the current state of the art
- **Introduction** of the quantified greenhouse gas abatement potential of wetland restoration in models & scenarios, for climate & biodiversity.
- **Analyse** the degree to which these approaches related to wetlands are affected by different scenarios of climate change
- **Support the implementation** of the LULUCF Regulation with respect to the inclusion of wetland restoration activities
- **Contribute to** the evidence on ecosystem services provided by restored wetlands and their long-term management
- **Contribute to** scientific assessments such as the IPCC, IPBES and International Resource Panel reports.

Scope

- **Assess the current extent and state of European wetlands**, their current and potential GHG profile and their medium to long-term mitigation capacity through restoration or other measures.
- **Develop workable tools and approaches** for the sound estimation of GHG performance as well as impacts on biodiversity and a wide range of ecosystem services.
- **Go beyond the state-of-the-art** of the different techniques and knowledge and provide guides and recommendations
- **Envisage clustering activities** with other relevant selected for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of results as well as participating in joint meetings and communication events.



Destination 1 : Les appels de 2021

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HORIZON-CL5-2021-D1-01-09 : The contribution of forest management to climate action: pathways, trade-offs and co-benefits

Expected Outcome (some of the following)

- A **comprehensive assessment** of the climate mitigation potential of European forests and forest-based sector through modelling of different policy pathways, taking into account climate change related risks, physiological and biogeochemical responses to environmental change... The effects analysed have to include changes in carbon sequestration, forest health, productivity, substitution and biophysical factors. The assessment of the potential and limits of forest-based products and biomass for energy in delivering climate benefits will inform public authorities on the most suitable approach to forest policy and forest bioeconomy.
- **Development & improvement** of robust and transparent methodologies for high-resolution monitoring and reporting of forest carbon pools and their interactions through a combination of in-situ data collection and remote sensing methods to be used to advance LULUCF

Scope

- Develop a comprehensive assessment of different pathways of the European forest GHG balance in view of the reviewed 2030 and 2050 climate targets and other relevant EU environmental legislation and objectives incorporating:
 - **Biodiversity goals** consistent with the EU Green Deal objectives and Biodiversity Strategy 2030 goals.
 - **Uncertainties** related to climate change and natural disturbances risks.
 - **Adaptation needs** of existing and future forests
 - **Mitigation potential** of afforestation and other forest activities including their opportunity costs.
 - **GHG impact** of forest bioeconomy.
 - **Renewable energy targets** and the needs of forest-based bioeconomy for sustainable domestically-sourced feedstock.
 - **Biophysical effects**.
 - **Assessment of trade-offs and synergies** between climate-oriented forest management, and other objectives.

RIA

Budget AAP : 18M€

Budget/projet : 6M€

Ouverture : 24/06/2021

Deadline : 14/09/2021



Destination 1 : Les appels de 2022

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Topic	Topic title	Type of action	Budget 2022 (en M€)	Expected UE contribution per project (M€)	Expected number of grants	Call opening date	Deadline
HORIZON-CL5-2022-D1-01-01-two-stage	Carbon Dioxide Removal approaches	RIA - 2 stage	21	Around 7.00	3	12/10/2021	1 st stage: 10/02/2022 2 nd stage: 27/09/2022
HORIZON-CL5-2022-D1-01-02-two-stage	Socio-economic risks of climate change in Europe	RIA - 2 stage	10	Around 5.00	2	12/10/2021	
HORIZON-CL5-2022-D1-01-03	Social science for land-use strategies in the context of climate change and biodiversity challenges	RIA - 2 stage	20	6.00 to 7.00	3	12/10/2021	
HORIZON-CL5-2022-D1-02-01	Verification and reconciliation of estimates of climate forcers	RIA	15	Around 5.00	3	12/10/2021	10/02/2022
HORIZON-CL5-2022-D1-02-02	Development of high-resolution Earth system models for global and regional climate change projections	RIA	20	Around 10.00	2	12/10/2021	10/02/2022
HORIZON-CL5-2022-D1-02-03	Improvement of Integrated Assessment Models in support of climate policies	RIA	15	Around 5.00	3	12/10/2021	10/02/2022
HORIZON-CL5-2022-D1-02-04	Supporting the formulation of adaptation strategies through improved climate predictions in Europe and beyond	RIA	20	Around 10.00	2	12/10/2021	10/02/2022
HORIZON-CL5-2022-D1-02-05	Let Nature help to do job : rewilding landscapes for carbon sequestration, climate adaptation and biodiversity support	RIA	17	8.00 to 9.00	2	12/10/2021	10/02/2022



HORIZON-CL5-2022-D1-01-01-two-stage: Carbon Dioxide Removal (CDR) approaches

RIA – 2 stages
Budget AAP : 21M€
Budget/projet : 7M€
Ouverture : 12/10/2021
Deadline : 27/09/2022

Expected Outcome (some of the following)

- **Support climate policies** through an enhanced understanding of **carbon dioxide removal** (CDR) options.
- **Support climate models** and integrated assessment models allowing their better integration into pathways and strategies.
- A **comprehensive methodology** for the characterisation of such technologies and the barriers to their deployment.
- **Gain better insight** into the extended, system-level impacts of these technologies by considering ripple effects.
- **Develop abatement cost estimates** in function of time profile as well as factors like scale of deployment, key input factors.
- **Exploration and demonstration** of business/ policy/ MRV (Monitoring, reporting and verification) frameworks for CDR uptake at scale.

Scope

- **Identify an extended range of nature-based and technical CDR methods**, analyse and characterise them in a consistent and transparent assessment framework.
- **Deliver realistic estimates** of each approach's potential scale, cost, and effectiveness
- Allow the **better parametrisation** of integrated assessment models with respect to removals as well a better design of forward-looking policies.
- **Explore efficient incentive and governance frameworks** to facilitate CDR uptake at scale, as well as identifying major issues and options for establishing MRV and accounting systems associated with CDR in general and specific technologies where applicable.



HORIZON-CL5-2022-D1-01-02-two-stage: Socio-economic risks of climate change in Europe

RIA – 2 stages
Budget AAP : 10M€
Budget/projet : 5M€
Ouverture : 12/10/2021
Deadline : 27/09/2022

Expected Outcome (some of the following)

- A comprehensive socio-economic evaluation of future climate change impacts.
- Improved climate change related decision support based on better understanding of the socio-economic risks.
- Better evidence for ambitious climate policy response.
- Actionable insights based on data at the appropriate level of geographical scale and spatial resolution.
- Better integration of climate change risks in public and private sectors' investment decisions.
- Enhanced coordination with European Commission's Joint Research Center.
- Provision of authoritative knowledge to inform the activities of the Horizon Europe Mission on Adaptation to climate change including societal transformation.

Scope

- Improve the understanding of the nature and extent of physical risks from a changing climate and their integrated socio-economic implications, evaluate the costs of inaction, and capture the range of possible socio-economic climate-related risks.
- Include a comparison with scenarios with lower degrees of warming, as well as an analysis of the costs and benefits of ambitious adaptation measures, and improve the understanding of climate-related risks that are unlikely to be avoided.
- Assess and monetise the impacts of climate risks across various economic sectors, address the cross-sectorial impacts taking into account the interactions between various sectors, and equally encompass impact categories that cannot be directly monetised.
- Identify and formulate recommendations for measures that should be implemented by various stakeholders groups to minimise the climate risks.



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

RIA – 2 stages
Budget AAP : 20M€
Budget/projet : 6/7M€
Ouverture : 12/10/2021
Deadline : 27/09/2022

Expected Outcome (all)

- A **characterisation of future expected land use patterns** consistent with long-term objectives and its comparison with the current situation and trends.
- A **comprehensive understanding of the key motivations** and drivers behind land-use related decisions in Europe.
- A **better understanding of the awareness of key actors** about climate change and biodiversity challenges and their willingness to contribute addressing them.

Scope (some of the following)

- Gain a **realistic understanding** of the factors behind land-use decisions and how they can be best oriented, and develop a toolbox of instruments and approaches consistent with long-term goals and strategies considering for instance : the need for land to provide net sequestration and biomass flows; the need for land to provide food, feed and raw materials under increasing climate change and other pressures and needs; the potential for demand-side measures that can contribute to long-term objectives...
- Focus on one or more of the following issues:
 - a) Development of scenarios and models for optimising the contribution of land to climate change mitigation and adaptation
 - b) Economic and behavioural insights into land use related decisions, barriers to change, efficient design of incentives.
 - c) Explore a range of mechanisms that could incentivise the upscaling of the changes under real-life situations in multiple settings.
 - d) Develop workable models for effective and efficient monitoring and incentivising public goods benefits.
 - e) Contribute to the better quantification of land-related greenhouse gas flux trajectories.
- Ensure synergies with the implementation of the **Mission on Adaptation to climate change including societal transformation**



HORIZON-CL5-2022-D1-02-01: Verification and reconciliation of estimates of climate forcers

Expected Outcome (all)

- Enhance the ability to ascertain whether and to what extent emission reduction efforts are producing the **desired atmospheric signals for key greenhouse gases** on relevant spatial and temporal scales.
- Better understanding of apparent discrepancies between reported greenhouse gas (GHG) emissions and removals, measured atmospheric signals and modelled levels.
- Reduced uncertainty of national GHG inventories through improved comparability with models and observations and piloting top-down approaches.
- Contribution to improving the attribution of GHG fluxes as well as non-GHG atmospheric climate forcers.
- Support the Paris Agreement, and the implementation and monitoring of EU climate policy instruments.
- Provide input and contributions to international programmes and assessments.

Scope

- Reconcile national greenhouse gas inventories with relevant assessment and monitoring systems in Europe.
- Establish how the use of top-down techniques can support the verification of national greenhouse gas inventories and other regulated estimates of emissions and removals.
- Develop scientifically robust methodologies, building on achievements from previous research activities, and address the need for versatility of applications.

RIA

Budget AAP : 15M€

Budget/projet : 5M€

Ouverture : 12/10/2021

Deadline : 10/02/2022

! : Dérogation nombre de pages



Destination 1 : Les appels de 2022

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HORIZON-CL5-2022-D1-02-02: Development of high-resolution Earth system models for global and regional climate change projections

Expected Outcome (all)

- Improve European high-resolution, fully coupled **atmosphere-ocean-land Earth System Models**, able to robustly simulate key climate processes, their variability and future trends for this and well into the next century
- Enhance the quality, robustness and versatility of **climate projections** on a range of temporal and spatial scales to (1) support policies implementing the **Paris Agreement** and (2) address the **societal need** to assess and respond to the adverse impacts of climate change
- Improve **climate projections** with sound uncertainty estimates under different scenarios on different temporal and spatial scales.
- Improve understanding and modelling of tipping points in the climatic systems.
- Advances in attribution of climate change and its phenomena to anthropogenic forcers.
- Support to the evaluation of mitigation, adaptation and disaster risk reduction policies.
- Pave the way for the **next cycle of the IPCC Assessment reports**.
- Sustain and enhance **European cooperation and leadership in climate sciences**.

Scope

- Foster a fully coupled atmosphere-ocean-land-ice Earth-system model approach that contributes to a better understanding and representation of the processes.
- Make efficient use of available and high quality observational data for the development of robust model validation, verification, and improve uncertainty estimation methodologies.
- Reduce uncertainty of key parameters of climate and hydrological systems, and advance methods for assessing and attributing model outputs and climate change impact on regional scales.
- Support the attribution of observed and projected climatic hazards to climate change or climate variability.

RIA

Budget AAP : 20M€

Budget/projet : 10M€

Ouverture : 12/10/2021

Deadline : 10/02/2022

! : Dérogation nombre de pages



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

Expected Outcome (all)

- Improved adequacy of Integrated Assessment Models (IAMs) to effectively contribute to climate policy processes.
- Contributions to major international scientific assessments.
- Increased robustness, legitimacy, relevance, usability and transparency of IAMs.
- Enhanced coherence between climate action and other environmental/sustainability objectives .
- More active involvement of citizens in climate action.
- Accelerated transition towards climate neutrality based on improved knowledge and better designed policies.

Scope

- Improve the state-of-the-art of IAMs by tackling their weaknesses and lack of/limited capabilities of the current generation of models.
- Address developments and improvements, such as sectorial detail and changes across various sectors of the economy; temporal resolution and technological detail ; spatial resolution with outputs suitable for national/regional level analysis; behavioural and lifestyle changes; distributional and equity effects of climate policies...
- Explore options for making models more capable of responding to external shocks such as the COVID-19 pandemic or similar.
- Explore alternative approaches to the mainstream economic assumptions typically underlying the models and aim at striking the right balance between model complexity and usability.

RIA

Budget AAP : 15M€

Budget/projet : 5M€

Ouverture : 12/10/2021

Deadline : 10/02/2022

! : Dérogation nombre de pages



HORIZON-CL5-2022-D1-02-04: Supporting the formulation of adaptation strategies through improved climate predictions in Europe and beyond

Expected Outcome (all)

- Support to the implementation of the new EU Adaptation Strategy and the **Mission on adaptation to climate change**.
- **Reduced vulnerability** to climate change impacts based on decadal predictions.
- **Improved assessment of risks** for people and systems exposed to extreme weather and climate events.
- **Enhanced scientific collaboration** and exploitation of synergies across the EU and Associated Countries.
- **Enhanced European cooperation** and leadership in climate sciences.

Scope

- **Improve seasonal to decadal prediction** to boost their quality at regional to local scale in particular for Europe and for variables of high societal relevance.
- **Enable progress in closing the gap** between current skill and potential predictability estimates, and **develop methodologies** to merge simulations from long-term weather forecast to climate predictions and projections.
- **Improve assessments of risk** through extreme climate-related events on a range of temporal and spatial scales, as well as early detection of tipping points.
- **Tackle uncertainties** regarding regional patterns and magnitude of changes and improve understanding of how existing model biases affect the representation of extremes regarding the intensity and frequency of hazards and ultimately reducing the biases.
- **Explore novel ways of coupling existing impact models** with climate models to provide quality forecast at the local scale.

RIA

Budget AAP : 20M€

Budget/projet : 10M€

Ouverture : 12/10/2021

Deadline : 10/02/2022

! : Dérogation nombre de pages



HORIZON-CL5-2022-D1-02-05: Let nature help do the job: Rewilding landscapes for carbon sequestration, climate adaptation and biodiversity support

Expected Outcome (some of the following)

- Contribution to IPBES and IPCC, to the achievement of objectives of net zero carbon emissions and to the EU Biodiversity Strategy.
- Support the **implementation of the Mission on Adaptation to climate change**.
- Identify low cost/benefit ratio options to restore natural and semi-natural ecosystems.
- Assess the value of restoring ecosystem and identify potential rebound effects and trade-offs.
- Demonstrate the degree to which these approaches are affected by climate change itself.
- Demonstrate the potential contribution of abandoned land and protected areas systems.
- Develop strategies to minimize the increasing risk of wildfires due to the changing climate.
- Provide operational methods for low cost, low human intervention options for ecosystems restoration.
- ...

Scope

- Foster interdisciplinary research with a focus on the climate-biodiversity nexus.
- Provide a robust assessment of the potential contribution that restoring ecosystems.
- Address specific ecosystems and/or landscapes on land, freshwater, coastal and marine ecosystems.
- Build on an updated and detailed picture of the status and trends of ecosystems change in Europe.
- Investigate how “rewilding” can be complemented with other approaches.
- Provide scientific insights, tools, methodologies and innovative solutions to assist national governments, regions and communities in embedding the “rewilding” approach in their own plans to reach carbon neutrality.
- Advance knowledge on the role and relevance of restoring fully functional trophic chains in the “rewilding” process.

RIA

Budget AAP : 17M€

Budget/projet : 8/9M€

Ouverture : 12/10/2021

Deadline : 10/02/2022

! : Dérogation nombre de pages



Les autres clusters

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Attention La destination 1 du cluster 5 n'est pas la seule pertinente pour les thématiques climatiques

- **Cluster 5 – Destination 1** : Activités liées à la science et à la modélisation du climat
- **Cluster 5 – Destination 2** : Notamment dans « Emerging Breakthrough technologies » et « Citizens and stakeholder engagement »

- **HORIZON-CL5-2021-D2-01-10:** Technologies for non-CO₂ greenhouse gases removal (RIA)
- **HORIZON-CL5-2021-D2-01-11:** Direct atmospheric carbon capture and conversion (RIA)
- **HORIZON-CL5-2021-D2-01-12:** Fostering a just transition in Europe (RIA)
- **HORIZON-CL5-2021-D2-01-13:** Strengthening SSH research communities in climate, energy & mobility disciplines (CSA)
- **HORIZON-CL5-2021-D2-01-14:** Accelerating the climate transition in difficult contexts: transition super-labs (pilot) (CSA)

Mais aussi :

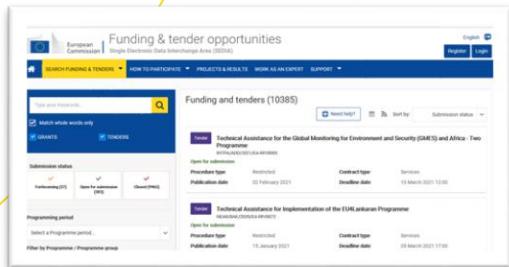
- **Cluster 4 – Numérique, industrie et espace :** lorsque le numérique, l'IA, des technologies émergentes, des matériaux avancés, l'espace... sont mis au service de la neutralité climatique
- **Cluster 6 – Alimentation, bioéconomie, ressources naturelles, agriculture et environnement :** R&I dans les domaines couverts par le cluster, notamment sur la mise en œuvre de solutions d'atténuation et d'adaptation au changement climatique.



Où trouver les informations utiles ?

Le site de la Commission européenne

- Les appels (funding & tenders)
- Les statistiques (dashboard)
- Les projets financés (cordis)
- Les événements (funding & tenders)



Deux webinaires à (re)voir

- How to prepare a successful proposal in HE ?
- A successful proposal for Horizon Europe: Scientific-technical excellence is key, but don't forget the other aspects

Le site français Horizon Europe du MESRI

- Les appels
- Les événements :
- Les fiches pratiques juridiques & financières



Pour questions relatives au cluster 5 (climat/énergie) :
pcn-climat-energie@recherche.gouv.fr

Pour être informé en temps réel sur twitter et LinkedIn:
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Webinaires thématiques :

- **18 juin – Destination 2** « Solutions intersectorielles pour la transition climatique »
- **16 juin et 17 juin – Destination 3** « Un approvisionnement énergétique durable, sûr et compétitif »
- **22 juin – Destination 4** « Utilisation efficace, durable et inclusive de l'énergie »

[Plus d'informations et inscriptions ici](#)

Les info-days de la Commission, notamment sur le Cluster 5 :

[Plus d'informations ici](#)

La prochaine Conférence ECCA (European Climate Change Adaptation Conference) :

[Plus d'informations ici](#)