



Environmental Protection Agency An Ghníomhaireacht um Chaomhnú Comhshaoil



EPA Research Programme 2021-2030

EPA Research Climate Fellowships Call 2024 – Technical Description Document

August 2024 – Version 1

The EPA Research Programme is a Government of Ireland initiative funded by the Department of the Environment, Climate and Communications.





Document Version History

Version No.	Changes Made
Version 1	Initial version of document for EPA Research Climate Fellowships Call 2024

The EPA Research Programme is a Government of Ireland initiative funded by the Department of the Environment, Climate and Communications.



EPA Research Climate Fellowships Call 2024

This document provides the Technical Description for the Environmental Protection Agency (EPA) Research Climate Fellowships Call 2024. Applicants should read this document carefully and also consult the other relevant call documentation: (i) EPA Research 2021 - 2030 Guidelines and Terms & Conditions; (ii) EPA Research Evaluation Process, noting any specific conditions laid out herein.

Contents

EPA Research Programme
EPA Climate Change Programme2
EPA Climate Fellowships Call 2024
Overview
Eligibility
Conditions of Fellowship3
Available Funding4
Timeframe5
Application Process5
Evaluation Process
Expected Outputs7
Scope of EPA Climate Fellowships Call 20248
Topic Outlines9
Carbon Budgets, non-CO $_2$ greenhouse gases and climate neutrality9
Semi-quantitative and quantitative climate risk assessment methods at national and sectoral levels
Analysis of transport related air emissions11
Greenhouse gas removal technologies and Carbon Dioxide Removal (CDR)12
Exploring the interactions between air pollutants and well-mixed climate forcers and the
implications for policy
Aligning top-down and bottom-up emissions estimates14
Climate Action Synergies and Trade-offs15
Further Information16



EPA Research Programme

As part of its wide range of functions, the EPA manages an environmental research programme that delivers essential scientific support for environmental policy development, implementation and broader decision making. The EPA Research Programme focuses on achieving environmental objectives, informing policy and bringing together researchers and research users.

<u>EPA Research 2030</u> is the ten-year high-level framework for the EPA's research programme (2021-2030), designed to be agile, responsive and flexible. EPA-funded research is essential to:

- Supporting the monitoring, assessment, reporting and regulatory activities of the EPA.
- Generating evidence crucial in assisting Ireland in meeting its commitments and requirements under the various international, EU and national policies and strategies.
- Generating the evidence base that supports decision making, behaviour change and policy development.
- Addressing knowledge gaps, providing the evidence-base and responding to priority challenges.
- Supporting multi-disciplinary, cross-sectoral and multi-stakeholder partnership projects.
- Developing environmental research capacity in Ireland, recognising the importance of not only sustaining the research-base but also of building and training the researchers in specific areas.

EPA Research 2030 has a thematic structure comprising the following four interconnected hubs, which bring an integrated and cross-sectoral approach, enabling holistic management and protection of our environment:

Addressing Climate Change Evidence Needs: Climate change is already having an impact in Ireland, and strong mitigation and adaptation measures are needed. Research is essential in providing the evidence necessary to improve our knowledge systems and inform policy decisions that will advance our ambitions to be carbon neutral and resilient to climate disruption.

Delivering a Healthy Environment: A clean, vibrant and safe environment is a prerequisite for good health and wellbeing. Environmental degradation, pollution, as well as known and emerging substances of concern threaten our health and that of our supporting ecosystems. Research under this hub will contribute to understanding the environmental risks and benefits to our health, and to identifying appropriate policy and behavioural responses.

Facilitating a Green and Circular Economy: Environmental and sustainability challenges are inextricably linked to economic activities and lifestyles. Research under this hub will contribute to the mainstreaming of sustainable management of natural resources and waste, unlocking the potential of the circular and bio-economies, and boosting competitiveness, through resource efficiency and deployment of innovative technologies and solutions.

Protecting and Restoring our Natural Environment: Our natural environment provides us with clean air and water, food and the raw materials to sustain us and our economy. Research is required to inform and support a cross-sectoral approach to managing our natural environment and for the development of policies relating to the regulation of emissions and activities, and the protection of our water, land, and ecosystems.



EPA Climate Change Programme

The EPA plays a central role in Ireland's climate change response, with the strategic objective to use our knowledge to drive climate action. We drive the transition to climate neutrality and resilience through our evidence and engagement work. The Agency has a wide climate remit which includes compiling emissions statistics, climate adaptation, climate science and international engagement, climate research, behavioural insights and administration of the European Trading System and Climate Border Adjustment Mechanism (CBAM) in Ireland.

The Climate Change Programme encompasses the following four teams, which collectively play an important role in delivering the EPA's Climate Change objectives.

The Emissions Statistics Team compiles and reports Ireland's greenhouse gas (and air pollutant) emission inventory and projections on an annual basis to meet Ireland's EU and UNFCCC obligations. The greenhouse gas emission data are also required inputs for carbon budget setting and review under the Climate Action and Low Carbon Development Act 2021, as amended, and inform the monitoring of Ireland's climate action performance as outlined in the Climate Action Plan, 2024.

The Climate Services and Behavioural Insights Team works across the areas of Climate Change Adaptation and Behavioural insights.

Adaptation governance and implementation: The EPA plays a key role by delivering climate services, climate risk assessment and providing and supporting adaptation evidence and knowledge. This includes delivering Climate Ireland, Ireland's National Adaptation Platform and associated guidance and tools for policy makers, local authorities (planners, climate officers, engineers) and sectoral adaptation leads. The EPA is leading the delivery of Ireland's First National Climate Change Risk Assessment to prioritise climate change impacts and actions across all sectors.

Behavioural insights: The EPA's role within the National Dialogue on Climate Action (NDCA) is to provide the evidence base for understanding public climate change knowledge, attitudes, policy preferences, and behaviour, and the underlying psychological and cultural factors that influence Irish people. The EPA's '<u>Climate Change in the Irish Mind'</u> project aims to develop a better understanding of the Irish population by conducting an ongoing study of climate change beliefs, risk perceptions, policy preferences and behaviours of the Irish public towards climate change.

The Climate Science and International Engagement Team focus on areas of fundamental Earth systems sciences, observations systems, scenario development and analysis and downscaling of global and regional information aiming to provide the most up-to-date, accurate and authoritative scientific information. The team engages with stakeholders and organisations at international, EU and national levels representing Ireland and the EPA.

The Climate Science and Policy Analysis Team supports understanding and development of robust, evidence-based insights, in-depth assessment and analysis of priority issues to support the EPA in delivering its role on climate science and greenhouse gas mitigation. The team also supports policy makers across the wider public sector by producing informative bulletins on special topics, informed by the latest available climate science and greenhouse gas emissions data at the EPA's disposal.



EPA Climate Fellowships Call 2024

Overview

The EPA Research Programme focuses on achieving environmental objectives, informing policy and bringing together researchers and research users. In addition to research delivered through project-based awards, direct collaboration between researchers and policy actors can bring specialised expertise to bear on policy-relevant research questions and facilitate enhanced transfer of knowledge.

The EPA Climate Fellowships Call is seeking to support up to four researchers to be seconded to the EPA's Climate Programme to work collaboratively to address identified research questions. The specific objectives of the Climate Fellowships are to:

- Deliver timely evidence to support climate policy and decision making;
- Support the EPA's climate assessment, knowledge and regulatory functions;
- Enhance national environmental and climate research capacity;
- Deepen engagement between the climate research and policy communities;
- Highlight opportunities for engagement, mobility and career development to climate researchers.

The project outlines included later in this document have been identified where research expertise is required to support the current and future priorities of the Climate Programme. It is envisaged that as well as knowledge outputs being adopted in the work of the Programme, research outputs, such as scientific publications, will also emanate from the Fellowships.

While there are seven project outlines included in the Climate Fellowships Call, it is envisaged that a maximum of four Fellows will be appointed through this call.

Eligibility

- Applications for Fellowships are restricted to Higher Education Institutions (HEIs) on the island of Ireland and Research Performing Organisations (RPOs) on the island of Ireland. Please see the EPA Research Guidelines, Terms and Conditions for more information.
- Fellows must have a contract with a HEI/RPO at the commencement of the Fellowship. Applications must be created and submitted by the proposed fellow (Lead Applicant) in conjunction with the host HEI/RPO.
- Fellows must have an assigned Academic Mentor in their host HEI/RPO who will be responsible for management of any aspects of the Fellows on-going employment with the HEI/RPO.
- Applicants must have a minimum of two years of postdoctoral research or equivalent experience.

Conditions of Fellowship

- A secondment agreement must be put in place between the HEI/RPO and the EPA before the Fellowship commences. The Fellow will remain subject to the employment policies and procedures in place in the HEI/RPO where they are employed.
- Fellowships will be full time and it is expected that Fellows will spend 100% of their time on the Fellowship research project.
- Fellows will be seconded to the EPA from their HEI/RPO and must select one of the EPA offices in Wexford, Dublin or Cork as their chosen secondment location. It is expected that



Fellows will attend their chosen EPA Office for approximately 50% of their time. Additional flexibility may be permitted, subject to approval by the EPA.

- During their secondment to the EPA, Fellows will be assigned an EPA Technical Lead who will act as their primary liaison to support the research project and their engagement with the Climate Programme.
- While the submitted proposal will outline the approach to address the research question, the Fellow and the EPA Technical Lead will together agree on a programme of work and associated deliverables at the commencement of the Fellowship.

Available Funding

Fellowships will have:

- A maximum duration of two years;
- Maximum funding available of €220,000.

The only eligible costs permitted in the Climate Fellowships Programme are Salary Costs, Travel Costs and associated Overheads. No research costs may be included in the budget request and will be covered by the EPA, where appropriate.

Salary Costs

Applicants may only apply at the current or subsequent point on their current salary scale, which should be commensurate with their experience. As detailed in the EPA Research Guidelines, Terms and Conditions, salary requests must align with those detailed in the IUA Salary Guidelines. Salary requests are permitted up to but not exceeding the Research Fellow Salary Scale.

Travel Costs

Limited contributions to travel costs may be considered to support the Fellow to attend the nominated EPA Office, where their normal HEI/RPO is in a different region to the EPA Office Location. Relocation costs are not permitted. As set out in the EPA Research Guidelines, Terms and Conditions, travel costs may not exceed 10% of the total grant amount. Travel costs will be subject to approval by the EPA.

Overheads

As set out in the EPA Research Guidelines, Terms and Conditions, as the Fellow will be seconded fully to the EPA, overheads will be payable at a rate of 10%.



Timeframe

The key dates for EPA Climate Fellowships Call 2024 are listed in Table 1. Applicants and Research Proposal Authorisers should note the deadlines carefully as these will be strictly enforced. Applicants should note carefully the date of the interviews should they be shortlisted.

Table 1: Key dates and deadlines for the EPA Research Call 2024

08 August 2024	Call opening
27 September 2024, 16:00 (Irish standard time)	Deadline for queries relating to the technical contents of this call
3 October 2024, 16:00 (Irish standard time)	Submission deadline
10 October 2024, 16:00 (Irish standard time)	Approval deadline
29-31 October	Invitation to attend interviews*
4-8 November	Stage 2 Evaluation – Interviews*
November 2024	Notification / Negotiation
November/December 2024	Grant award of successful projects
By 31 March 2025	Start of successful projects

*subject to change

Application Process

EPA's Online Grant Management and Application Portal

All applications must be made using the EPA's Online Grant Management and Application Portal (<u>https://epa.smartsimple.ie</u>) in advance of the deadline.

In addition to this document, applicants should review the following documentation in advance of preparing an application, which is available to download from the EPA's Online Grant Management and Application Portal or from <u>the EPA website</u>:

- EPA Research Programme 2021 2030 Guidelines and Terms & Conditions
- EPA Research Calls Evaluation Process document
- EPA Online Grant Management and Application Portal System User Guides

Frequently asked questions on the EPA Research Call are available <u>on our website</u> and will be updated throughout the application period. For other queries, please contact <u>research@epa.ie</u>.

Applications must be submitted under the correct *Research Hub* and *Call Topic Reference* as indicated in the detailed scope for each of the Project outlines. Proposals submitted under the incorrect Research Hub or Call Topic Reference will be considered ineligible and will not proceed to evaluation.

Applicants may only make a single submission to the Climate Fellowships Call.

Applicants must adhere to the deadlines specified above which will be strictly enforced.



EPA Climate Fellowships Application Templates

Applicants must use the Project Description Template and Budget Template for the Climate Fellowships Call available through the EPA's Online Grant Management and Application Portal. All sections of the application form and the online fields must be completed before submitting an application.

As noted above, a programme of work and associated deliverables will be agreed at the commencement of the Fellowship, so applications should focus on the proposed approach to addressing the research questions outlined in this document, demonstrating the policy relevance of the envisaged outputs, as well as outlining your skills, experience and motivation for applying to the Climate Fellowship Call.

Evaluation Process

The evaluation process for the Climate Fellowships Call is aligned to the <u>EPA Research Calls Evaluation</u> <u>Process</u>, but has been modified to reflect the specific requirements of the call, as outlined below.

The purpose of the evaluation process is to ensure that all proposals are assessed in a fair and transparent manner, and that the highest quality and most suitable proposals are selected for funding.

All eligible proposals¹ will be subject to a two-step evaluation process:

- Stage 1 Scientific Evaluation: Proposals will be evaluated for scientific quality using the following evaluation criteria:
 - o Excellence
 - Knowledge Transfer and Impact
 - o Implementation

Scientific Evaluations will be completed by members of staff in the EPA based on the corresponding sections of the project description template and online application form. Proposals that meet the threshold will be shortlisted to advance to the second stage of the evaluation.

- Stage 2 National Overview: Applicants that progress from Stage 1 will be subject to an interview by a National Overview Committee. The Committee will consist of representatives from the EPA and an external representative, e.g., from a relevant Government Department or Agency. Applicants will be assessed against the National Overview criterion, which considers:
 - o Added value
 - o Expected impacts
 - Potential for knowledge transfer of the proposal.

In the context of the National Overview Criterion, the skills, experience and motivation of the candidate to undertake a Climate Fellowship will be considered. The National Overview Criterion will be assessed on the basis of the proposal documentation and the interview.

Final selection of projects for funding will be made based on the recommendations of the National Overview Committee and subject to the availability of funding. The final funding decision will be made by a Director of the EPA Board.

¹ All proposals submitted to the Research Call will undergo an eligibility check by the EPA before proceeding to the evaluation stage. Please see the EPA Research Programme 2021 - 2030 Guidelines and Terms & Conditions for more information on eligibility.



Expected Outputs

It is expected that, in their proposal, applicants clearly demonstrate the policy relevance of the outputs of their proposed research; the applicability of their findings; and how these outputs address a knowledge gap and can be efficiently transferred/applied to the implementation of policies. Applicants should clearly demonstrate how their proposed research will provide the evidence to support environmental policy in Ireland, in terms of identifying pressures, informing policy and developing solutions.

It is envisaged that as well as knowledge outputs being adopted in the work of the Programme, research outputs, such as scientific publications, will also emanate from the Fellowships.

Where relevant, outputs from projects should build on recently completed and existing research and other relevant information. Information on current and completed research projects being supported by the Research Programme is available on the <u>EPA Research Project Database</u>. Research Reports for all completed projects are also available on <u>our website</u>.



Scope of EPA Climate Fellowships Call 2024

The project outlines included in the EPA Climate Fellowships Call 2024 are listed in Table 2. Applicants should carefully review the detailed scope of their selected project provided in this document before preparing an application.

Applicants may submit queries on the technical descriptions to the EPA in advance of the deadline for technical queries specified above. These should be directed to <u>research@epa.ie</u> and clearly indicate the project to which they refer. Responses to technical queries will be published on the EPA website for reference by all potential applicants.

Table 2: List of Topics in the EPA Climate Fellowships Call 2024. Detailed descriptions can be accessed via the links in the table. It is important that applicants review the full technical descriptions carefully.

		Max Budget (€) Per Project
	Addressing Climate Change Evidence Needs	
1	Carbon budgets, non-CO ₂ greenhouse gases and Climate neutrality	€ 220,000
2	Semi-quantitative and quantitative climate risk assessment methods and national and sectoral levels	€ 220,000
3	Analysis of transport-related air emissions	€ 220,000
4	Greenhouse gas removal technologies and Carbon Dioxide Removal	€ 220,000
5	Exploring the interactions between air pollutants and well-mixed climate forcers and the implications for policy	€ 220,000
6	Aligning top-down and bottom-up emissions estimates	€ 220,000
7	Climate Action Synergies and Trade-offs	€ 220,000



Topic Outlines

Carbon Budgets, non-CO₂ greenhouse gases and climate neutrality

Topic Reference	Addressing Climate Change Evidence Needs 2024 Call – Topic 5
Team	Climate Science and Policy Analysis

Ireland's goal of climate neutrality by 2050 could mean reaching net zero carbon dioxide emissions at latest between 2035 and 2040, based on global analysis.

The Fellow should assess pathways and identify barriers and enablers to ensuring that Ireland has no further net-negative impacts on the global climate system by 2050. This will support the EPA's work on climate change by providing the evidence to support decision making by policy makers and other stakeholders.

Ireland's Climate Change Assessment highlighted that addressing knowledge gaps, including an integrated assessment of agriculture, energy and land use is needed. Topics to be considered could include but are not limited to:

- Quantifying carbon dioxide removals required to provide a clear pathway for climate neutrality, taking account of the climate impacts of emissions as well as the risks associated with the adoption of removal solutions, particularly nature-based solutions.
- Assessing the feasibility of different levels of remaining emissions that could be balanced with land use removals in 2050 and beyond, and how this could practically be achieved.
- Considering legal, ethical and practical issues associated with equitably distributing the remaining global carbon budgets, taking into consideration the different greenhouse gases.



Semi-quantitative and quantitative climate risk assessment methods at national and sectoral levels

Topic Reference	Addressing Climate Change Evidence Needs 2024 Call – Topic 6
Team	Climate Services

The National Climate Change Risk Assessment (NCCRA) led by the EPA will provide a prioritisation of risk at a national level, enabling national adaptation planning and informing future plans and policies.

In providing evidence to support this work, the Fellow should address research questions related to mainstreaming the use of climate projections into regulatory frameworks and could consider questions such as, but not limited to:

- What existing sectoral regulations and/or guidance related to climate risks and in place, and how can they be applied across individual or multiple sectors and filter down into specific obligations and industry guidance?
- How can climate risk assessment and adaptation planning be integrated into existing or new regulatory frameworks?
- How can representative or technical bodies contribute to the incorporation of climate risk assessment and adaptation actions into existing guidance and how can shared common practices be updated in line with Ireland's climate adaptation goals and current state of knowledge?
- How can adaptation pathways and decision making under uncertainty be implemented at national and/or sectoral and individual stakeholder levels, including regulatory authorities in Ireland and the setting of quantitative adaptation goals and/or targets?



Analysis of transport related air emissions

Topic Reference	Addressing Climate Change Evidence Needs 2024 Call – Topic 7
Team	Emissions Statistics

The EPA is responsible for compiling the Inventory and Projections of greenhouse gas emissions for Ireland and for reporting the data to the relevant European and international institutions.

To support the continued development and improved accuracy of these outputs the Fellow should address research questions aimed at gaining a better understanding of the projected and actual impact of proposed and implemented transport policy measures. This work will also provide evidence for policy makers to improve the assessment of different policy options.

Topics for the Fellow to consider include but are not limited to:

- Evaluating and assessing the applicability of the different road transport models being used by various organisations for the Irish and European transport sectors, building on work produced for the EPA in Q4 2021/Q1 2022.
- Comparing bottom-up emissions estimates using transport sector activity data and top-down estimates based on fuel sold data.
- Assessing the sensitivity of transport emissions projections to variations in the assumptions behind key transport parameters, with a particular focus on freight transport.
- Critiquing the existing estimation of ex-ante and ex-post savings attributable to transport policies and measures included in the EPA's greenhouse gas Inventory and Projections and evaluating savings estimates for measures in future Climate Action Plans.



Greenhouse gas removal technologies and Carbon Dioxide Removal (CDR)

Topic Reference	Addressing Climate Change Evidence Needs 2024 Call – Topic 8
Team	Climate Science and International Engagement; Climate Science and Policy Analysis

The EPA has an important role in providing evidence to support decision making by policy makers and other stakeholders. This includes the provision of the Inventory and Projections of greenhouse gas emissions and other complementary analysis on specific topics such as greenhouse gas removals.

To improve the evidence base for assessing the future mainstreaming of greenhouse gas removal technologies in Ireland, the Fellow should address research questions including, but not be limited to:

- Assessing the available evidence on what level of carbon capture, storage and removal across the economy will likely be needed.
- Assessing latest and upcoming technologies. Analysis is required to inform future energy choices beyond 2030 relating to the scale and magnitude of technologies that will help get us to net zero emissions.
- Identifying barriers and enablers to timely delivery of the required level of CDR removals with a focus on the evidence from international experience



Exploring the interactions between air pollutants and well-mixed climate forcers and the implications for policy

Topic Reference	Addressing Climate Change Evidence Needs 2024 Call – Topic 9
Team	Climate Science and International Engagement

The EPA has an important role in providing evidence to support decision making by policy makers and other stakeholders. This includes the provision of analysis on specific topics such as the interactions between greenhouse gases and air pollutants, historically and in the future.

To improve the understanding of these interactions and the associated implications for policymaking, the topics the Fellow should consider include but are not limited to:

- Issues of Ireland's historic responsibility for climate change as well as the impacts of future emissions until the policy goal of climate neutrality is achieved.
- Critically explore global data and how it relates to Ireland using national data and information. Estimate historic, current and projected future influences of emissions from Ireland of GHGs and other air pollutants, e.g., sulphates on the global climate system.
- Utilise past and current observations to better understand Ireland's changing climate and its drivers. Reassess understanding of historical and ongoing observations, reanalyse them and produce new and improved products and knowledge.
- Explore air quality and climate interactions such as hemispheric transport of air pollutants and their interaction with well mixed climate forcers.



Aligning top-down and bottom-up emissions estimates

Topic Reference	Addressing Climate Change Evidence Needs 2024 Call – Topic 10
Team	Climate Science and International Engagement, Climate Science and Policy Analysis, Emissions Statistics

Part of the EPA's role in compiling the Inventory and Projections of greenhouse gas emissions for Ireland is to continually improve the accuracy of the estimation, including through inventory verification techniques. Verification activities include comparisons with emission or removal estimates prepared by other bodies and comparisons with estimates derived from fully independent assessments, e.g., atmospheric concentration measurements.

The Fellow should address research questions related to assessing and linking top-down and bottomup greenhouse gas emissions scenarios and should consider, but not be limited to:

- Assessing respective strengths and weaknesses of top-down and bottom-up methods focusing on Ireland's National Greenhouse gas Inventory as the primary bottom-up approach vs Ireland specific inverse modelling research of atmospheric measurement data.
- Exploring the potential of top-down data to verify, complement and reduce uncertainty in bottom-up estimation methods.



Climate Action Synergies and Trade-offs

Topic Reference	Addressing Climate Change Evidence Needs 2024 Call – Topic 11
Team	All Climate Programme teams

The EPA has an important role in providing evidence to support decision making by policy makers and other stakeholders. This includes the provision of analysis on specific topics such as the interactions between greenhouse gas and air pollutant mitigation actions.

The Fellow should explore research questions related to possible synergies and trade-offs arising from climate mitigation actions/pathways including but not limited to:

- The potential value in Ireland of reducing emissions of short-lived climate forcers, such as methane, aerosols and their precursors, to not only mitigate climate change but also to improve air quality and therefore bring near-term co-benefits in terms of human health, agricultural yields and ecosystem functioning.
- Exploring synergies and trade-offs between climate action and other atmospheric protection policy areas, in particular related to actions to limit air pollutant emissions.



Further Information

Information on current research projects being supported by the programme is available in the Research section of the EPA website: <u>http://www.epa.ie/our-services/research/</u> and on the <u>EPA</u> <u>Research Project Database.</u>

The following additional documents are available from the EPA website: http://www.epa.ie/publications/research/current-call-documents/

- EPA Research Programme 2021 2030 Guidelines and Terms & Conditions.
- EPA Research Programme 2021 2030 Communicating Research.

Other relevant EPA Research Programme Strategies and Policies are also available from the EPA website: <u>http://www.epa.ie/our-services/research/epa-research-2030/strategies-and-policies/</u>.

For updates from EPA Research:

- 1. Follow us on LinkedIn and on Twitter (@EPAResearchNews)
- 2. Visit the <u>EPA Funding web pages</u>
- 3. Check the Research Call Frequently Asked Questions web page

Any queries that are not covered in the call documentation or on the FAQs web page must be submitted to <u>research@epa.ie</u>.