



Rialtas na hÉireann
Government of Ireland

Climate Research Coordination Group Second Report on Activities

January 2019–December 2019



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on behalf of the Climate Research Coordination Group: May 2020

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Climate Research Coordination Group Second Report on Activities

January 2019–December 2019

Acknowledgements

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Disclaimer

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Abbreviations

AGMET	Joint Working Group on Applied Agricultural Meteorology
CAP	Climate Action Plan
CARO	Climate Action Regional Office
CCMA	County and City Management Association
CCAC	Climate Change Advisory Council
CoFoRD	Programme of Competitive Forestry Research for Development
CRCG	Climate Research Coordination Group
CSO	Central Statistics Office
DAERA	Department of Agriculture, Environment and Rural Affairs
DAFM	Department of Agriculture, Food and the Marine
DBEI	Department of Business, Enterprise and Innovation
DCCAE	Department of Communications, Climate Action and Environment
DCHG	Department of Culture, Heritage and the Gaeltacht
DES	Department of Education and Skills
DFAT	Department of Foreign Affairs and Trade
DHPLG	Department of Housing, Planning and Local Government
DPER	Department of Public Expenditure and Reform
DTIF	Disruptive Technologies Innovation Fund
DTTAS	Department of Transport, Tourism and Sport
EC-Earth	European Community earth system model)
EI	Enterprise Ireland
EMEP	European Monitoring and Evaluation Programme
EPA	Environmental Protection Agency
ERA4CS	European Research Area for Climate Services
ESRI	Economic and Social Research Institute
EU	European Union

FIRM	Food Institutional Research Measure
GHG	Greenhouse gas
GSI	Geological Survey Ireland
HSE	Health Service Executive
iCrag	Irish Centre for Research in Applied Geosciences
IEN	Irish Environmental Network
IGEES	Irish Government Economic and Evaluation Service
IPCC	Intergovernmental Panel on Climate Change
IW	Irish Water
JPI	Joint Programming Initiative
MaREI	Marine and Renewable Energy Ireland
MÉ	Met Éireann
MÉRA	Met Éireann ReAnalysis
MI	Marine Institute
NACC	Network for Monitoring Atmospheric Composition and Climate Change
NAF	National Adaptation Framework
NESC	National Economic and Social Council
NMP	National Mitigation Plan
NPWS	National Parks & Wildlife Service
NIEA	Northern Ireland Environment Agency
NTA	National Transport Authority
NTMA	National Treasury Management Agency
NUIG	National University of Ireland, Galway
OPR	Office of the Planning Regulator
OPW	Office of Public Works
P2P	Public-to-public partnership
RD&D	Research, Development & Demonstration
RPO	Research Performing Organisation
SDG	Sustainable Development Goal
SEAI	Sustainable Energy Authority of Ireland
SFI	Science Foundation Ireland
UNFCCC	United Nations Framework Convention on Climate Change

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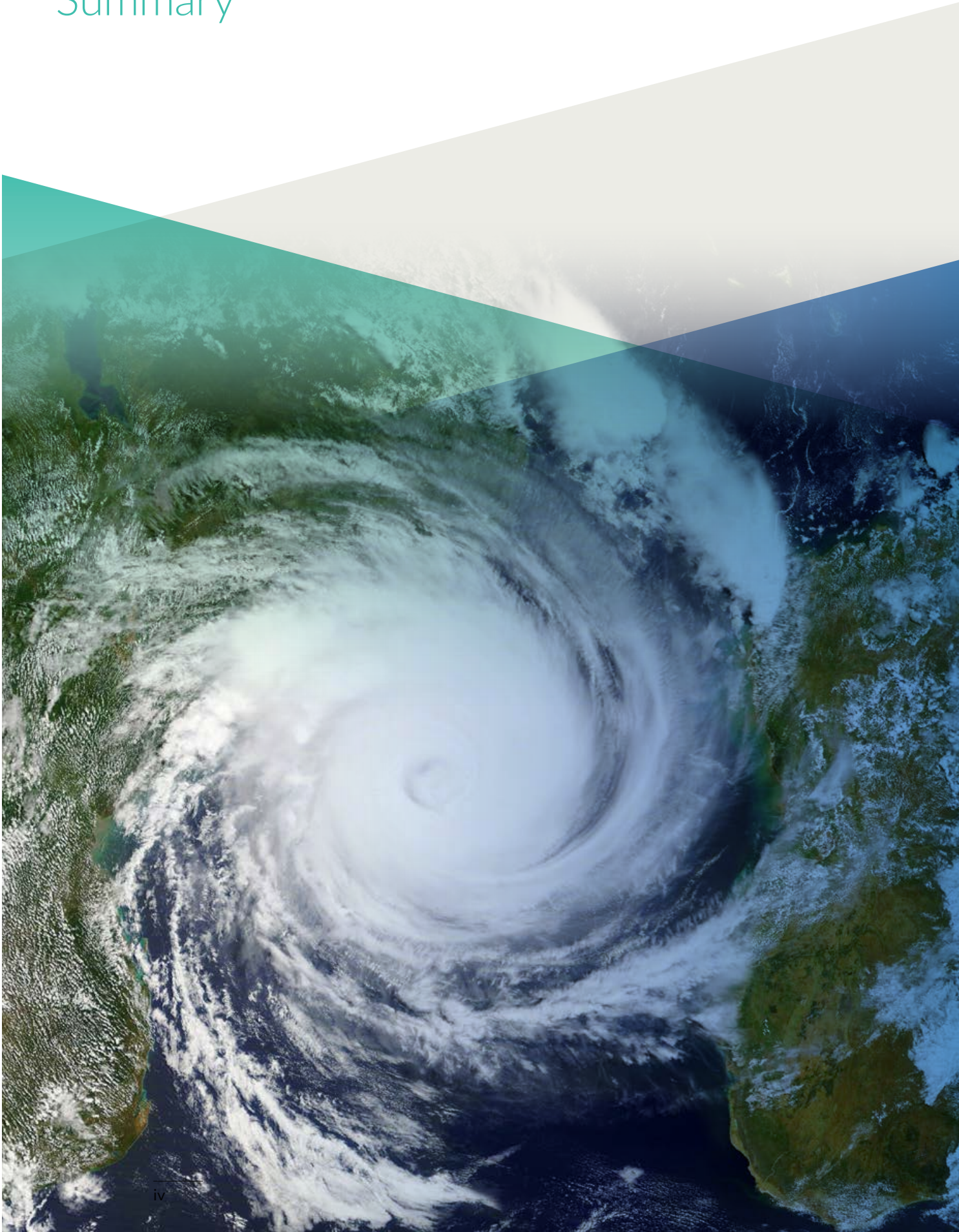
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Executive Summary



Executive Summary

The Climate Research Coordination Group (CRCG) was established under the Environmental Protection Agency’s (EPA) 2014–2020 Research Strategy. The CRCG acts to coordinate climate change-related research in Ireland.

It does so by supporting and promoting coordination between relevant research funding organisations and by providing a forum for the exchange of information on activities and plans. A key objective is to advance shared strategic objectives for climate change research and ensure coherence in climate change research investments in Ireland and effective linking of these to European Union (EU) funding streams. The CRCG is facilitated by the EPA. Its membership is made up of departmental officials, local authority representatives, state agency representatives and relevant stakeholders, who either fund or use outputs from climate change research.

This document responds to Action 11 of the 2017 National Mitigation Plan (NMP) and contributes to achieving Action 14 of the 2019 Climate Action Plan (CAP). These require that the CRCG provides an annual report on its activities. The NMP also requires an assessment and synthesis of key findings from the research programmes and wider research activities every 5 years.

The 2019 report presents a summary of investments, progress on strategic goals and related developments during 2019, as well as activities over that period. It builds on and updates the material from the first CRCG report (June 2017–December 2018)¹.

Activities detailed in this 2019 report cover competitive research funding committed by members of the CRCG, leveraged funding from EU schemes and core research activities carried out by CRCG members over the period from 1st January 2019 to 31st December 2019. This report is based on the information provided by the members of the group. This report does not provide an assessment or synthesis of the funded research, which is the aim of the 5-year Assessment Report.

In summary, in 2019:

- ▶ **Based on the information provided, 72** new climate-related research competitive awards were made during the reporting period, with a total budget commitment of **€23.1 million**. In addition, Science Foundation Ireland (SFI) awarded €19.3 million towards Phase 2 of the MaREI (Marine and Renewable Energy Ireland) SFI Centre, which covers, but is not limited to, climate-related research. Among these 72 projects, collaboration between CRCG members was evident through the co-funding of **21** research projects, with a committed budget of **€6.8 million**.
- ▶ **In excess of €3.4 million** was also reported for core activities in 2019, i.e. research activities that are funded by the organisation and performed in-house.
- ▶ The Irish research community leveraged **€29.8 million** of funding under Horizon 2020 (**50** projects), **€15.1 million** of funding from Interreg (**11** projects²) and **€14.4 million** of funding under the LIFE Programme for climate-related research projects. In addition, **three** climate-related **COST Actions** involving Irish partners were approved in June 2019.
- ▶ **Five** new members joined the CRCG, namely the National Economic and Social Council, Enterprise Ireland, Irish Water, the Built Heritage and Architectural Policy Unit of the Department of Culture, Heritage and the Gaeltacht, and the Office of the Planning Regulator.
- ▶ The CRCG held **three** meetings. In addition, **three** workshops involving CRCG members took place in 2019.
- ▶ In addition, one workshop took place in September 2019 in relation to the **scoping of the 5-year assessment and synthesis of research report** (required under Action 11 of the 2017 NMP and contributing to Action 14 of the 2019 CAP).

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1 www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html
2 Includes projects approved, contracted and started in 2019.

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Section 1

Introduction



1. Introduction

This is the second report by the Climate Research Coordination Group (CRCG) on its activities, covering the period from January to December 2019. It builds on and updates the first report on the CRCG’s activities for the period from June 2017 to December 2018³, referred to as the First Report (May 2019). Action 11 of the National Mitigation Plan⁴ (NMP) mandated the CRCG to report annually on its activities.

The CRCG is also mandated to provide an assessment and synthesis of key findings from the research programme and wider related research activities every 5 years. In addition, this annual report contributes to achieving Action 14 of the 2019 Climate Action Plan⁵ (CAP): “Strengthen our delivery of public funding for basic and applied research to underpin government policy, meet our decarbonisation objectives and open up new economic opportunities”.

The membership of the CRCG encompasses the main national bodies who fund climate change research, as well as key relevant stakeholders. A key objective of the group is to coordinate climate change research investments in Ireland. This is achieved through a coherent and well-structured programme that enhances synergies, avoids duplication and enables stakeholder participation.

This report primarily provides an overview of the climate change research that has been funded by CRCG members **over the period from January 2019 to December 2019**. It also outlines the wider funding landscape, which includes European sources. A summary of relevant international climate change research in which members of Ireland’s research community are active is also included. The scientific and policy context for climate change research was outlined in the First Report (May 2019)⁶.

Activities detailed in this report cover competitive research funding committed by members of the CRCG for research and development performed elsewhere, as well as leveraged funding from European Union (EU) schemes, and core research activities carried out by CRCG members. This report is based on the information provided by the members of the group. This report does not provide an assessment or synthesis of the funded research, which is the aim of the 5-year Assessment Report.

International and EU policy and actions on climate change are uniquely informed by research, principally through the work of bodies such as the Intergovernmental Panel on Climate Change (IPCC). It is important for Ireland to have an active research community that is focused on Ireland-specific issues related to climate change and that is engaged with European and global research activities. A coherent well-structured research programme, which is designed to address Ireland-specific issues, and which is linked to EU funding streams, is key to enabling this. It is also essential to ensure that publicly funded research is accessible, broadly disseminated and policy relevant. It should take account of the national climate policy and the objectives and actions contained in the CAP, the NMP and National Adaptation Framework⁷ (NAF).

1.1 The Climate Research Coordination Group

Under the Environmental Protection Agency Act 1992, the Environmental Protection Agency (EPA) is responsible for coordinating environmental research in Ireland. The CAP, NMP and NAF enhance the role of the EPA in coordinating climate research across state-funded bodies. As part of this function, under the EPA 2014–2020 Research Strategy⁸, three national Research Coordination Groups were established, focusing on sustainability, water and climate research. The CRCG is facilitated by the EPA and includes members across several government departments, local authorities and state agencies, and other stakeholders whose functional areas are relevant to furthering Irish research into climate change-related topics (see **Table 1**).

3 www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html
4 www.dccae.gov.ie/documents/National%20Mitigation%20Plan%202017.pdf
5 www.dccae.gov.ie/en-ie/climate-action/publications/Documents/16/Climate_Action_Plan_2019.pdf
6 www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html
7 www.dccae.gov.ie/documents/National%20Adaptation%20Framework.pdf
8 www.epa.ie/pubs/reports/research/eparesearchstrategy2014-2020/EPA%20Research%20Strategy%202014-2020.pdf

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The CRCG aims to:

- ▶ facilitate, support and promote coordination, synergies and liaison between relevant cross-sectoral funding organisations, public and private, to reduce the fragmentation and/or duplication of climate research in Ireland;
- ▶ facilitate an exchange forum between research funders and key stakeholders, providing an interface for funding organisations of climate research to facilitate the dissemination of relevant scientific outputs to policymakers and decision-makers, and their sharing and uptake, and the uptake of research outputs for commercialisation;
- ▶ identify key research needs and emerging policy needs with the aim of informing the research strategy of Irish funders of climate research;
- ▶ provide a platform for cross-sectoral research funding organisations to liaise and/or collaborate with European and international activities related to climate research.

The terms of reference for the group are provided in **Appendix 1**.

Five new members joined the CRCG in 2019:

- ▶ **National Economic and Social Council;**
- ▶ **Enterprise Ireland;**
- ▶ **Irish Water;**
- ▶ **Built Heritage and Architectural Policy Unit of the Department of Culture, Heritage and the Gaeltacht; and**
- ▶ **Office of the Planning Regulator.**

A list of current (January 2020) CRCG members is provided in **Table 1**. **Appendix 2** provides short descriptions of the **five** organisations that joined during 2019. The descriptions of the other members were included in the First Report (May 2019)⁹.

9 www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html

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Table 1: Climate Research Coordination Group membership (as of January 2020)

Organisation/business unit ¹⁰	Abbreviation	Website
Central Statistics Office	CSO	www.cso.ie
Climate Action Regional Offices established at four geographical regions: ▶ Atlantic Seaboard North ▶ Atlantic Seaboard South ▶ Dublin Metropolitan ▶ Eastern and Midlands	CAROs	http://caro.ie/
Climate Change Advisory Council	CCAC	www.climatecouncil.ie
County and City Management Association	CCMA	www.lgma.ie
Department of Agriculture, Food and the Marine	DAFM	www.agriculture.gov.ie
Department of Communications, Climate Action and Environment	DCCAE	www.dccae.gov.ie
Department of Culture, Heritage and the Gaeltacht	DCHG	www.chg.gov.ie
Department of Transport, Tourism and Sport	DTTAS	www.dttas.ie
Enterprise Ireland	EI	www.enterprise-ireland.com
Environmental Protection Agency	EPA	www.epa.ie
(DCCAE) Geological Survey Ireland	GSI	www.gsi.ie
Health Service Executive	HSE	www.hse.ie
Irish Environmental Network	IEN	https://ien.ie
Irish Research Council	–	http://research.ie
Irish Water	IW	www.water.ie
Marine Institute	MI	www.marine.ie
(DHPLG) Met Éireann	MÉ	www.met.ie
National Economic and Social Council	NESC	www.nesc.ie
National Parks & Wildlife Service	NPWS	www.npws.ie
National Transport Authority	NTA	www.nationaltransport.ie
National Treasury Management Agency	NTMA	www.ntma.ie
Northern Ireland Environment Agency	NIEA	www.daera-ni.gov.uk/northern-ireland-environment-agency
Office of Public Works	OPW	www.opw.ie
Office of the Planning Regulator	OPR	www.opr.ie
Science Foundation Ireland	SFI	www.sfi.ie
Sustainable Energy Authority of Ireland	SEAI	www.seai.ie
Sustainable Northern Ireland	SNI	www.sustainableni.org
Teagasc	–	www.teagasc.ie

DHPLG, Department of Housing, Planning and Local Government.

10 Where relevant, the parent department of the organisation is indicated in parentheses before the organisation's name.

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Section 2

Policy Context



2. Policy Context

A key aim of climate change research is to respond to the evolving policy context. This section outlines the science policy framework and key developments that took place in 2019. A more detailed overview of the policy context (as summarised in **Figure 1**) was included in the First Report (May 2019)¹¹.

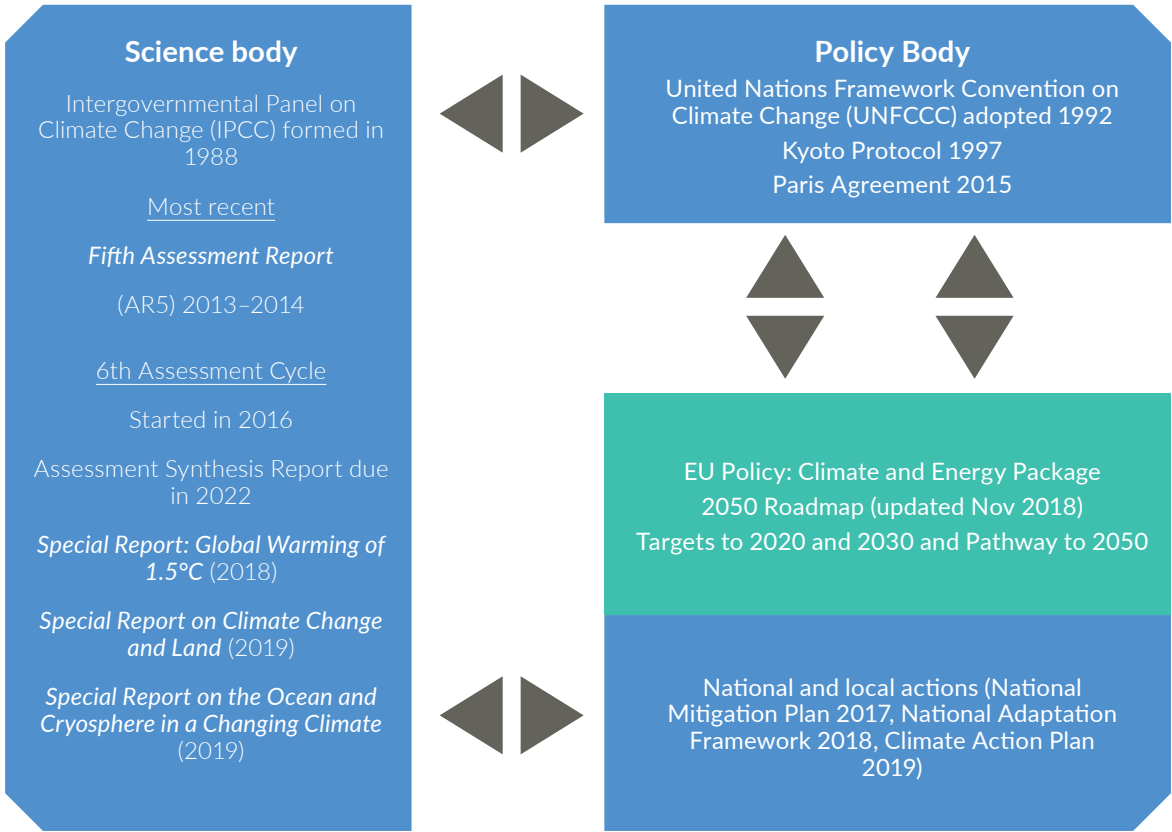


Figure 1: Schematic showing the science-policy interface, from national level to global level¹².

In August 2019, the Irish government published a whole-of-government CAP¹³, which provides a course of action over the coming years to address climate change. It sets out governance arrangements, including carbon-proofing policies, the establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas. The plan recognises the importance of research across a range of sectors in this policy area and the need for effective research coordination. Under the NAF, government departments published sectoral adaptation plans and local authorities published climate change adaptation strategies during 2019.

During 2019, the four Climate Action Regional Offices (CAROs)¹⁴ assisted all local authorities with preparing their climate change adaptation/action strategies. They also liaised with respective government departments to align these with sectoral adaptation plans. The CAROs also engaged in education and awareness initiatives during this time and contributed to the National Dialogue on Climate Action and linked with third-level institutions on ongoing research and knowledge exchange relevant to the local authority sector.

¹¹ www.epa.ie/pubs/reports/research/climate/climate-research-coordination-group-report.html
¹² The IPCC Special Report on Climate Change and Land (2019) was supported through an EPA Fellowship, which resulted in Ireland having one lead author on the report
¹³ www.dccae.gov.ie/en-ie/climate-action/topics/climate-action-plan/Pages/climate-action.aspx
¹⁴ <http://caro.ie/>

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Following a consultation process with the CCMA, the CAROs and Local Authorities, a Local Authority Climate Action Charter was approved by Government on the 22nd October 2019. The Minister for Communications, Climate Action and Environment signed the Charter with key Local Authorities on the 29th October 2019, and all Local Authorities are now signatories.

A growing public awareness of climate issues, especially among young people, has also been influencing the policy environment. For example, on the 14th November 2019, the Houses of the Oireachtas and RTÉ convened a Youth Assembly on Climate, with 157 students from across Ireland debating the issue in the Dáil Chamber and providing the government with a list of recommendations¹⁵.

At EU policy level, the European Council adopted a climate neutrality goal in December 2019 that builds on the material provided in the Roadmap 2050 project. The EU Green Deal¹⁶ was also published in December 2019, providing a broad enabling framework for the envisaged transition to 2050. These are expected to be increasingly important in informing the ongoing development of research and innovation strategies in the EU and by its Member States.

In 2019, the IPCC published three reports:

- ▶ *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*¹⁷, which was provided by the IPCC Task Force on National Greenhouse Gas Inventories in May 2019;
- ▶ *Special Report on Climate Change and Land*¹⁸, published in August 2019;
- ▶ *Special Report on the Ocean and Cryosphere in a Changing Climate*¹⁹, published in September 2019.

These reports used material published by Irish scientists. Ireland and the EPA hosted the scoping meeting and a lead author meeting for the *Special Report on Climate Change and Land*. A scientist from Ireland is a lead author on this report. These reports provide the current authoritative scientific understanding of these issues, which is central to informing policy responses and actions to address climate change, from United Nations to local levels. They also identify areas for further research. The 6th Assessment Working Groups Reports will be published in 2021. As a party to the United Nations Framework Convention on Climate Change (UNFCCC), Ireland is committed to the development and provision of support for climate change research and systematic observations of the climate system through the Global Climate Observing System (GCOS). Progress in these areas is reported by parties every 4 years in National Communications to the UNFCCC.

15 www.rte.ie/news/youth-assembly/2019/1113/1090623-show-support-for-the-youth-assembly-recommendations/
16 https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
17 www.ipcc.ch/report/2019-refinement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories/
18 www.ipcc.ch/srccl/
19 www.ipcc.ch/srocc/



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Section 3

Funding Landscape for Climate Change Research



3. Funding Landscape for Climate Change Research

Innovation 2020 is Ireland’s 5-year strategy for research and development, science and technology²⁰. In 2018, the Department of Business, Enterprise and Innovation (DBEI) published research priority areas for 2018–2023²¹, which revised the themes and priority areas established in 2012.

The most significant changes have been to the “Energy” theme. Based on developments since 2012, including the urgency to address climate change and sustainability challenges, this theme has evolved and been renamed “Energy, Climate Action and Sustainability”, with the two priority areas updated to “Decarbonising the Energy System” and “Sustainable Living”.

Work is currently being undertaken by the DBEI to develop a successor to Innovation 2020, offering an opportunity to reinforce climate as a key tenet in the next national research and innovation strategy.

As the climate change challenge is a cross-sectoral issue, government funding support for climate-related research, development and innovation is provided by various departments and agencies and specific programmes. Collaboration between national, EU and international research programmes and funders also offers the potential to engage in research on transitioning to a low-carbon economy. The main climate-related competitive research funding available in Ireland is listed in **Table 2**. Not all funders provide specific climate-related research funding.

Table 2: National funding landscape

National organisations	Funding programmes	Funding received from
DAFM	National programmes: Stimulus, FIRM (Food Institutional Research Measure) and CoFoRD (Programme of Competitive Forestry Research for Development)	Government Exchequer – DAFM
DBEI	Disruptive Technologies Innovation Fund (DTIF)	Government Exchequer – DBEI
DTTAS	Funds and co-funds projects that look at directly applicable solutions to climate mitigation and adaptation, as well as air quality issues	Government Exchequer – DTTAS
EPA	<ul style="list-style-type: none">▶ EPA Research Programme 2014–2020▶ Climate Call 2019▶ Water Call 2019	DCCAIE
(DCCAIE) GSI	Funding for small- to medium-scale research studies, including postdoctoral fellowships. Provides funding and co-funding with the EPA, iCRAG, the MI, SEAI, SFI, the Irish Research Council and the Fulbright Commission of Ireland	Government Exchequer – DCCAIE
Irish Research Council	Funds numerous bottom-up research projects (doctoral, postdoctoral and principal investigator led) that may include climate change topics <ul style="list-style-type: none">▶ CAROLINE COFUND – Call 3 (open to research projects in line with the United Nations SDGs, including environmental SDGs)▶ Irish Research Council Postgraduate Scholarship Scheme 2019 – EPA co-funded scholarship scheme	DES
MI	Funding awarded under the Marine Research Programme in 2019 for Post-Doctoral Fellowships; Ship-Time Programme (access to national research vessels <i>Celtic Explorer</i> and <i>Celtic Voyager</i>); National Infrastructure Access Programme (access to the SmartBay marine and renewable energy test site). National co-fund with the EPA. Two transnational co-funds on climate and microplastics	DAFM

20 <https://dbei.gov.ie/en/Publications/Publication-files/Innovation-2020.pdf>
21 <https://dbei.gov.ie/en/Publications/Publication-files/Research-Priority-Areas-2018-to-2023.pdf>

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National organisations	Funding programmes	Funding received from
(DHPLG) MÉ	Climate services research; postdoctoral fellowships. Co-funding with the EPA and SEAI	DHPLG
OPW	Carries out research on flood risk and rivers	DPER
SEAI	The SEAI National Energy Research, Development & Demonstration (RD&D) Funding Programme supports innovative energy RD&D projects that contribute to Ireland’s transition to a clean and secure energy future	DCCAE
SFI	SFI research centres, e.g. MaREI (SFI Research Centre for Energy, Climate and Marine, iCRAG, the BiOrbic Bioeconomy SFI Research Centre and the VistaMilk SFI Research Centre (precision dairy); Research Infrastructure Programme; Frontiers for the Future Programme; Starting Investigator Research Grant Programme; Research Professorship Programme; Future Research Leaders Programme; Strategic Partnerships Programme, etc.	DBEI
Teagasc	Carries out and administers research and knowledge transfer programmes on animals, crops and grassland management, food and rural development	DAFM

DES, Department of Education and Skills; DHPLG, Department of Housing, Planning and Local Government; DPER, Department of Public Expenditure and Reform; iCRAG, Irish Centre for Research in Applied Geosciences; SDG, Sustainable Development Goal.

A thematic approach has been used to develop climate change research in Ireland since 2007, when this approach was adopted at a cross-agency level. This report uses the standard thematic structure, which was described in the First Report (May 2019)²², but recognises that this may evolve to encompass other areas. Since 2007, policy-related climate change research in Ireland has been developed across four linked thematic areas, with observation systems and data management being key underpinning elements. The thematic areas are primarily designed to inform and assist national policy development and responses to the challenges of climate change and to enable national engagement with EU and United Nations policy bodies addressing climate change and wider atmospheric protection issues. The thematic areas were informed by the structure used by the IPCC but are not directly aligned with its operational structure. The CRCG is also aware of and recognises the importance of research on broader climate change issues, including fundamental science and processes.

The climate change research thematic areas (**Figure 2**) are as follows:

- Theme 1: Carbon Stocks, GHG Emissions, Sinks and Management Options;
- Theme 2: Ireland’s Future Climate, its Impacts, and Adaptation Options;
- Theme 3: Socio-economic and Technological Solutions: Transition Management and Opportunities; and
- Theme 4: Air Science (Air Pollution and Short-lived Climate Forcers).

National research investment is the main funding source for climate change research in Ireland. However, researchers from Ireland have been successful in attracting international funding at a European level. As well as being an important funding source, this enables researchers from Ireland to work with and lead on projects that involve prominent international research groups.

22 www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html

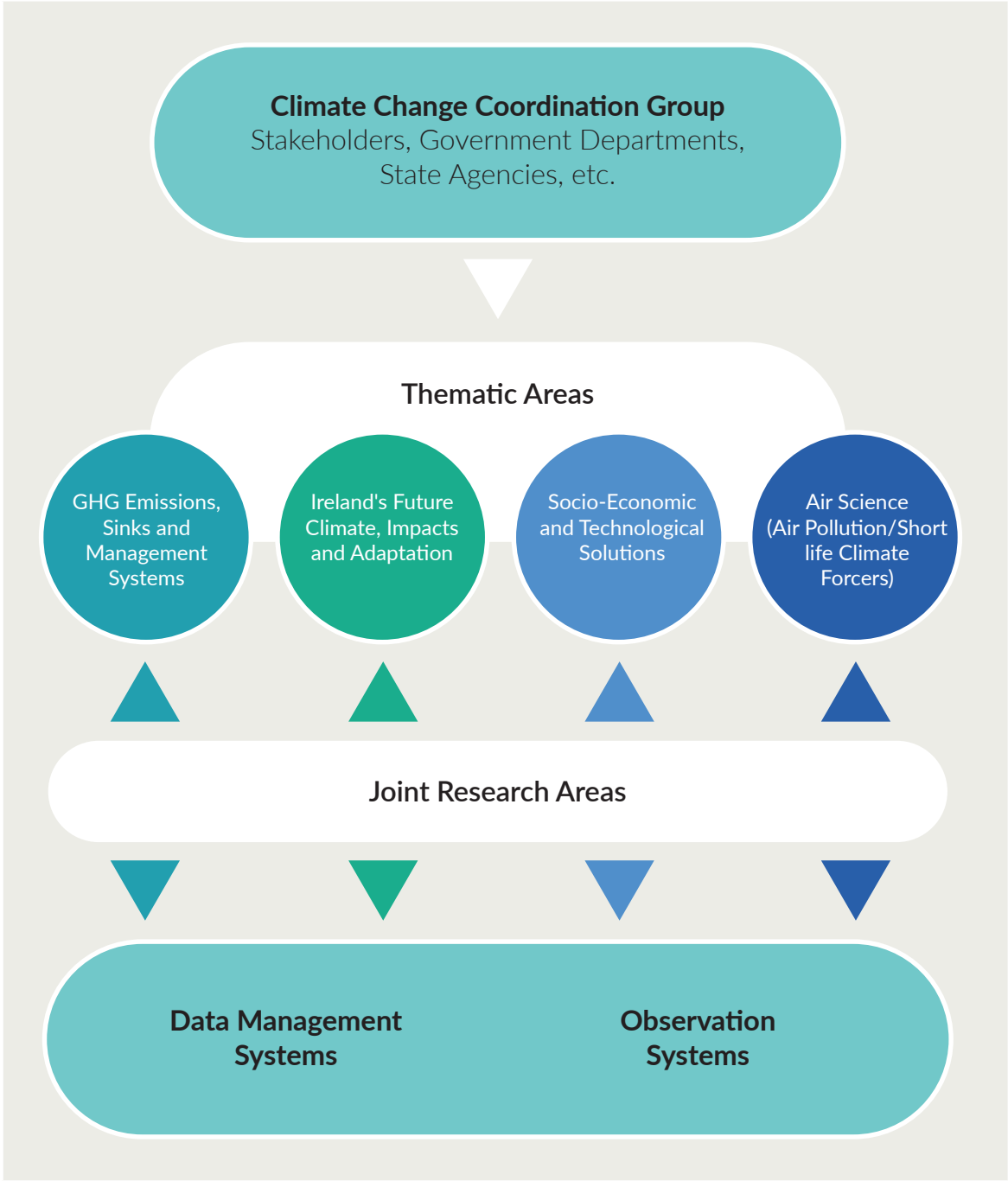


Figure 2: Climate change research thematic areas.

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Figure 3: Summarises the EU and international climate change funding landscape and activities related to climate change in which researchers from Ireland are active, which were detailed in the First Report (May 2019)²³.



Figure 3: EU and international climate change funding landscape.

Table 3 lists all Public-to-Public Partnership (P2P) climate-related Joint Transnational Calls that opened in 2019 for which the Irish research community can/could apply, and **Table 4** lists the results of all P2P climate-related Joint Transnational Calls that were included in the First Report (May 2019)²⁴.

²³ www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html
²⁴ www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html

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Table 3: Public-to-Public Partnership (P2P) climate-related Joint Transnational Calls 2019²⁵

Joint Call title	Network	Launch date	Deadline for full proposal	Irish funder
2019 Joint Call of the ERA-NET BioDIVClim on Biodiversity and Climate Change ²⁶	BiodivERsA	02/09/2019	10/04/2020	EPA, NPWS
2019 Joint Call of the ERA-NET Cofund ICT-AGRI-FOOD ²⁷	ICT-AGRI-FOOD	18/12/2019	06/07/2020	DAFM
2019 Joint Call of the ERA-NET Cofund on Food Systems and Climate ²⁸	Food Systems and Climate	20/12/2019	21/07/2020	DAFM
2019 Joint Call of the ERA-NET Geothermica ²⁹	Geothermica	13/09/2019	31/01/2020	GSI
2019 JPI Joint Call on Next Generation Climate Science in Europe for Oceans ³⁰	JPI Climate and JPI Oceans	18/02/2019	14/06/2019	MI
2019 SOLSTICE Joint Call ³¹	JPI Climate	28/10/2019	03/02/2020	EPA

JPI, Joint Programming Initiative.

Table 4: Update on Joint Transnational Calls included in the First Report (May 2019)³² that resulted in 2019 awards

Joint Call title	Network	Launch date	Deadline for full proposal	Awards made in 2019	Name of research funder
2017 Geothermica Joint Call ³³	Geothermica	10/04/2017	10/07/2017	2	GSI
2017 Joint Call on Innovation in the Forest-based Bioeconomy ³⁴	ForestValue	17/10/2017	14/08/2018	1	DAFM
2018 AXIS Joint Call	Climate JPI	09/04/2018	08/10/2018	1	EPA
2018 BlueBio Joint Call ³⁵	BlueBio	17/12/2018	16/09/2019	5	MI, SFI
2018 Joint Call on Novel Technologies, Solutions and Systems to Reduce Greenhouse Gas Emissions in Animal Production Systems ³⁶	ERA-GAS SUSAN ICT-AGRI	08/10/2018	31/01/2019	4	DAFM and Teagasc
2018 Joint Call on Sustainable Crop Production ³⁷	SusCrop	15/01/2018	31/08/2018	4	DAFM & Teagasc
2018 RegSys Joint Call on Integrated Regional Energy Systems ³⁸	ERA-NET Smart Energy Systems Joint Programming Platform	23/05/2018	02/11/2018	4	SEAI
2018 Water JPI Joint Call on Closing the Water Cycle Gap	Water JPI	19/02/2018	18/09/2018	4	EPA
2019 MarTERA Joint Call ³⁹	MarTERA	30/11/2018	06/09/2019	1	MI

JPI, Joint Programming Initiative.

25 www.era-learn.eu/network-information/overview-jointcalls
26 www.biodiversa.org/1587
27 <https://ictagrifood.eu/node/40178>
28 www.foscera.net/en/www.foscera.net/2019-Call.htm
29 www.geothermica.eu/call-to-action/
30 www.jpi-climate.eu/joint-activities/joint-calls/CPIILoud
31 www.solstice-call.org/
32 www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html
33 www.geothermica.eu/projects/
34 <https://forestvalue.org/joint-calls/>
35 <https://bluebioeconomy.eu/bluebio-funds-nineteen-projects-for-25-mill-euro-in-its-first-joint-call/>
36 <http://ict-agri.eu/node/39163>
37 www.suscrop.eu/call-information/1st-call
38 www.eranet-smartenergysystems.eu/Calls/Regsys_Calls/RegSYS_Joint_Call_2018
39 www.martera.eu/joint-calls

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Section 4

2019 Activities of the Climate Research Coordination Group



4. 2019 Activities of the Climate Research Coordination Group

The CRCG is focused on the development of research that informs policy and that enables actions to address the various challenges that arise from climate change.

The activities of the group in the period from January to December 2019 are outlined in this section, including meetings, events research collaborations, and research projects initiated in this period and the associated funding commitments (for research and development performed elsewhere). Research reports published during this period are also listed.

The information provided here is based on the inputs provided by the CRCG members. Table 5 summarises the sources of the data reported in this section.

Table 5: Sources of the data reported in the 2019 CRCG report on activities

Data	Source
Competitive national awards	CRCG members (funders)
Core research activities	MI MÉ Teagasc GSI IW
Horizon 2020 Awards	EI SEAI GSI Teagasc EPA DAFM MI Horizon2020 eCORDA database
P2P calls	CRCG members (funders)
LIFE Awards	DCCAE NPWS
Interreg Awards	Interreg North-West Europe Southern Regional Assembly Teagasc GSI
COST Actions	EI GSI
Events and publications	CRCG members

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4.1. New 2019 Competitive Awards for Climate Change Research Projects⁴⁰

This section covers competitive research funding for research and development performed elsewhere (i.e. outside the organisation providing the funding).

Table 6 provides a list of the national competitive calls that resulted in climate-research related awards being made in 2019.

Table 6: 2019 climate-related national calls

Organisation	Name of research call	Date call opened	Date call closed	Number of climate-related topics (where relevant)	Indicative budget (where relevant) ⁴¹
DAFM	National programmes: Stimulus, FIRM and CoFoRD	10/03/2019	18/04/2019	19	€20 million
DBEI	Disruptive Technologies Innovation Fund (DTIF)	05/07/2019	18/09/2019	2 out of 16 projects selected	€65 million for 16 projects over 3 years
EPA	Climate Call 2019	30/04/2019	28/06/2019	20	€4.35 million
EPA	Water Call 2019	30/04/2019	28/06/2019	2	€1.85 million
GSI	GSI Postdoctoral Fellowship	01/12/2018	07/02/2019	6	€0.3 million
Irish Research Council	Postgraduate Scholarship Scheme 2019 – EPA co-funded scholarship scheme	18/01/2019	29/03/2019	Open	€0.5 million
MI	National Infrastructure Access Programme 2018	21/12/2018	07/02/2019	Open	€0.15 million
MI	Ship-Time Programme 2020/21	31/05/2019	12/09/2019	Open	€3 million
MI	Post-Doctoral Fellowship 2019	01/08/2019	18/09/2019	One defined	€2 million

40 Funded by CRCG members and performed elsewhere.
41 The indicative budget provided is inclusive of co-funding provided by other CRCG members.

Organisation	Name of research call	Date call opened	Date call closed	Number of climate-related topics (where relevant)	Indicative budget (where relevant) ⁴¹
SEAI	SEAI National Energy Research, Development & Demonstration (RD&D) Funding Programme	21/01/2019	07/03/2019	23 energy-related topics included in total, along with an Open Call	€11 million ⁴²
SFI	Future Innovator Prize 2019 (Zero-Emissions Challenge)	28/06/2019	23/09/2019	Open to teams seeking to address significant challenges in achieving net zero economy-wide greenhouse gas emissions by 2050	Finalists will ultimately compete for one overall prize award of €2 million to further develop and deploy their solution. In addition, a Bonus Prize Award of €1 million may also be made for solutions with transformative potential in the area of Negative Emissions Technologies.
Teagasc	2020 Internal Call	27/06/2019	12/09/2019	–	–

Based on the information provided, 72 new climate-related research competitive awards were made during the reporting period, with a total budget commitment of **€23.1 million**. In addition, Science Foundation Ireland (SFI) awarded €19.3 million towards Phase 2 of the MaREI (Marine and Renewable Energy Ireland) SFI Centre, which covers but is not limited to climate-related research.

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42 This budget relates to the all the 2019 SEAI RD&D projects awarded. Not all awarded projects fit into the CRCG thematic areas.

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Figure 4 provides a breakdown of these new competitive research awards in terms of the budget committed under the four thematic areas, and **Figure 5** provides a breakdown in terms of the number of awards. **Figure 6** provides a breakdown of the budget committed for new competitive awards during the reporting period by CRCG member.

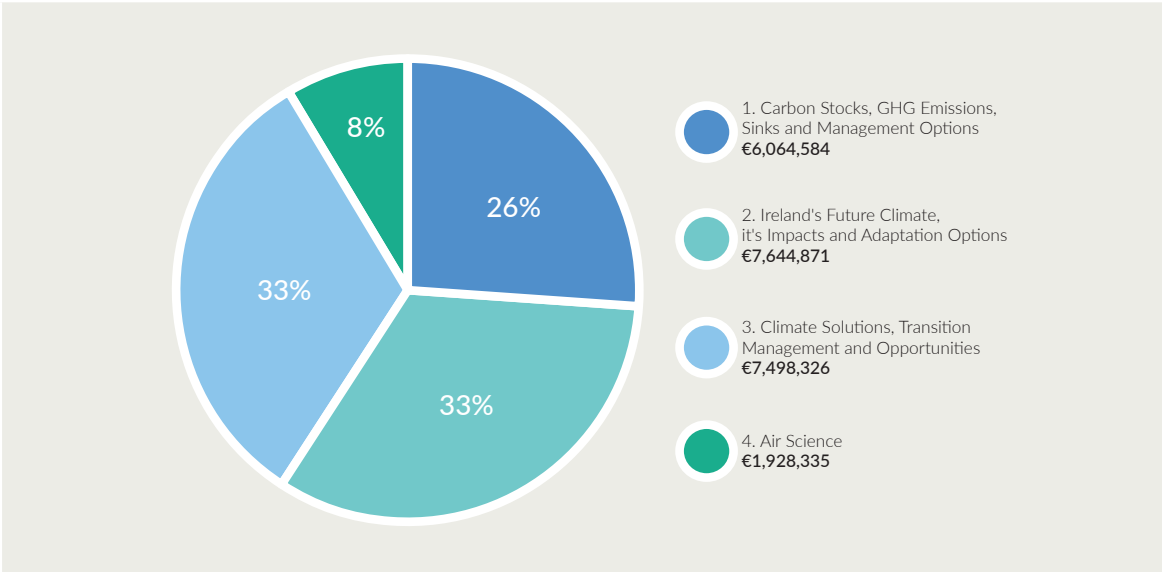


Figure 4: Breakdown of new competitive research awards in terms of budget committed (total budget committed €23.1 million) by thematic area funded by CRCG members during 2019⁴³.

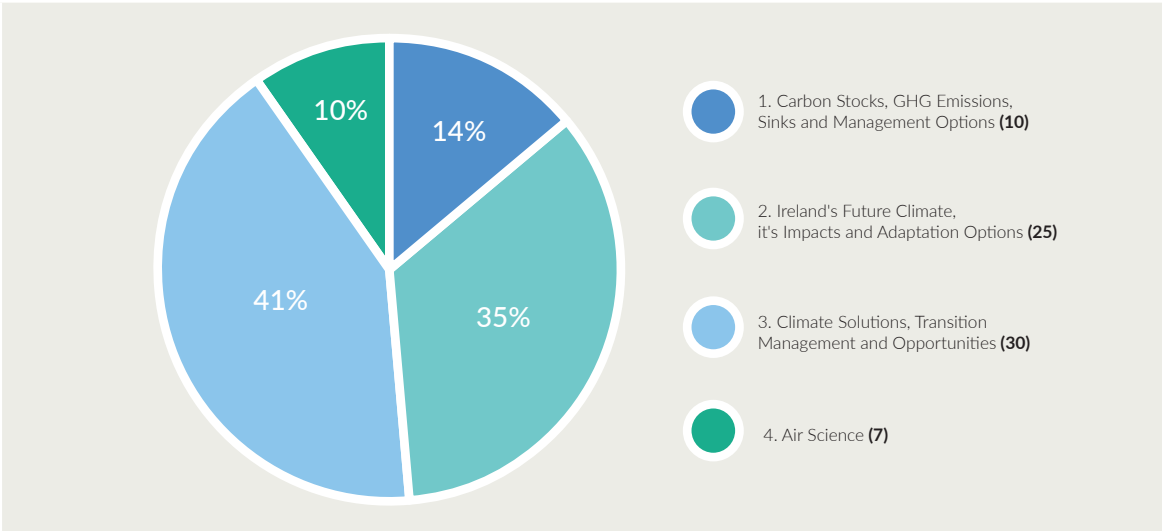


Figure 5: Breakdown of new competitive research awards in terms of number of awards (total number: 72) by thematic area funded by CRCG members during 2019⁴⁴.

⁴³ Competitive funding only for research and development performed elsewhere – excludes SFI funding for MaREI Phase 2.
⁴⁴ Competitive funding only for research and development performed elsewhere – excludes SFI funding towards MaREI Phase 2.

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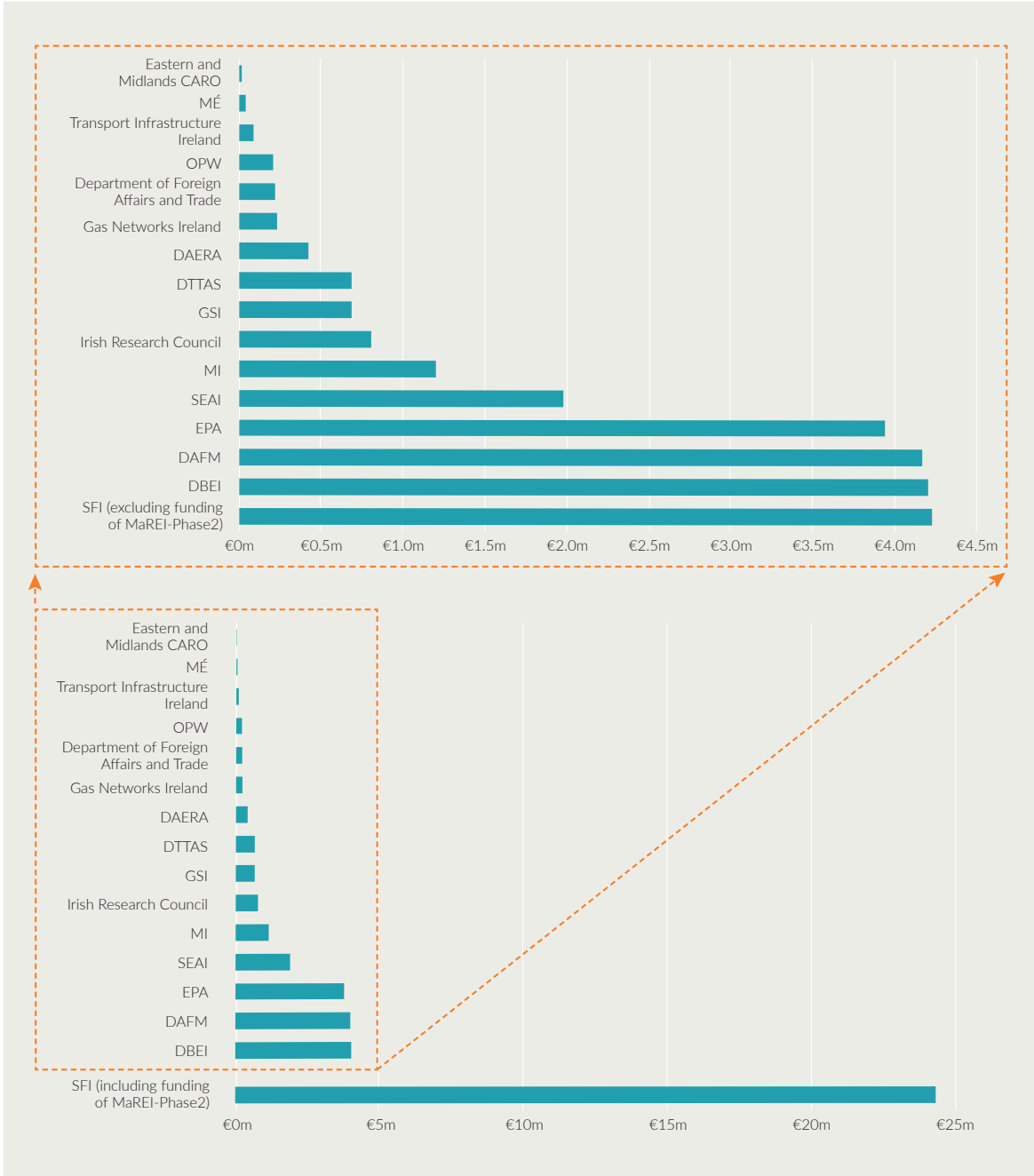


Figure 6: Budget committed by CRCG members⁴⁵ for new 2019 competitive research awards.

⁴⁵ Department of Agriculture, Environment and Rural Affairs (DAERA), Transport Infrastructure Ireland, the Department of Foreign Affairs and Trade, and Gas Networks Ireland are not CRCG members, but they are included for completeness.

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Table 7 details the funding committed for the new 2019 competitive awards, as reported by CRCG members. Appendix 3 provides a list of the new 2019 competitive awards.

Figure 7 provides a breakdown of the total budget committed in 2019 for new competitive awards by receiving lead research organisation.

Table 7: New 2019 competitive awards budget committed

Organisation	Funding received from	Lead funder	As co-funder	Total
SFI, including MaREI Phase 2	DBEI	€23,763,514	–	€23,763,514
SFI, excluding MaREI Phase 2		€4,233,514		€4,233,514
DBEI	Government Exchequer	€4,200,000	–	€4,200,000
DAFM	Government Exchequer	€4,067,600	€99,995	€4,167,595
EPA	DCCAE	€3,407,402	€538,000	€3,945,402
SEAI	DCCAE	€1,981,143	–	€1,981,143
MI	DAFM	€1,158,353	€43,749	€1,202,102
Irish Research Council	DES	€810,821	–	€810,821
GSI	DCCAE	€168,000	€520,256	€688,256
DTTAS	Government Exchequer	€535,000	€150,000	€685,000
DAERA	DAERA	–	€422,852	€422,852
Gas Networks Ireland	–	–	€232,870	€232,870
Department of Foreign Affairs and Trade	–	€218,660	–	€218,660
OPW	DPER	€157,864	€43,749	€201,612
Transport Infrastructure Ireland	DTTAS	–	€85,000	€85,000
MÉ	DHPLG	–	€43,749	€43,749
Eastern and Midlands CARO	DCCAE	–	€17,540	€17,540

Note: Department of Agriculture, Environment and Rural Affairs (DAERA), Transport Infrastructure Ireland, the Department of Foreign Affairs and Trade, and Gas Networks Ireland are not CRCG members, but they are included for completeness.

DES, Department of Education and Skills; DHPLG, Department of Housing, Planning and Local Government; DPER, Department of Public Expenditure and Reform.

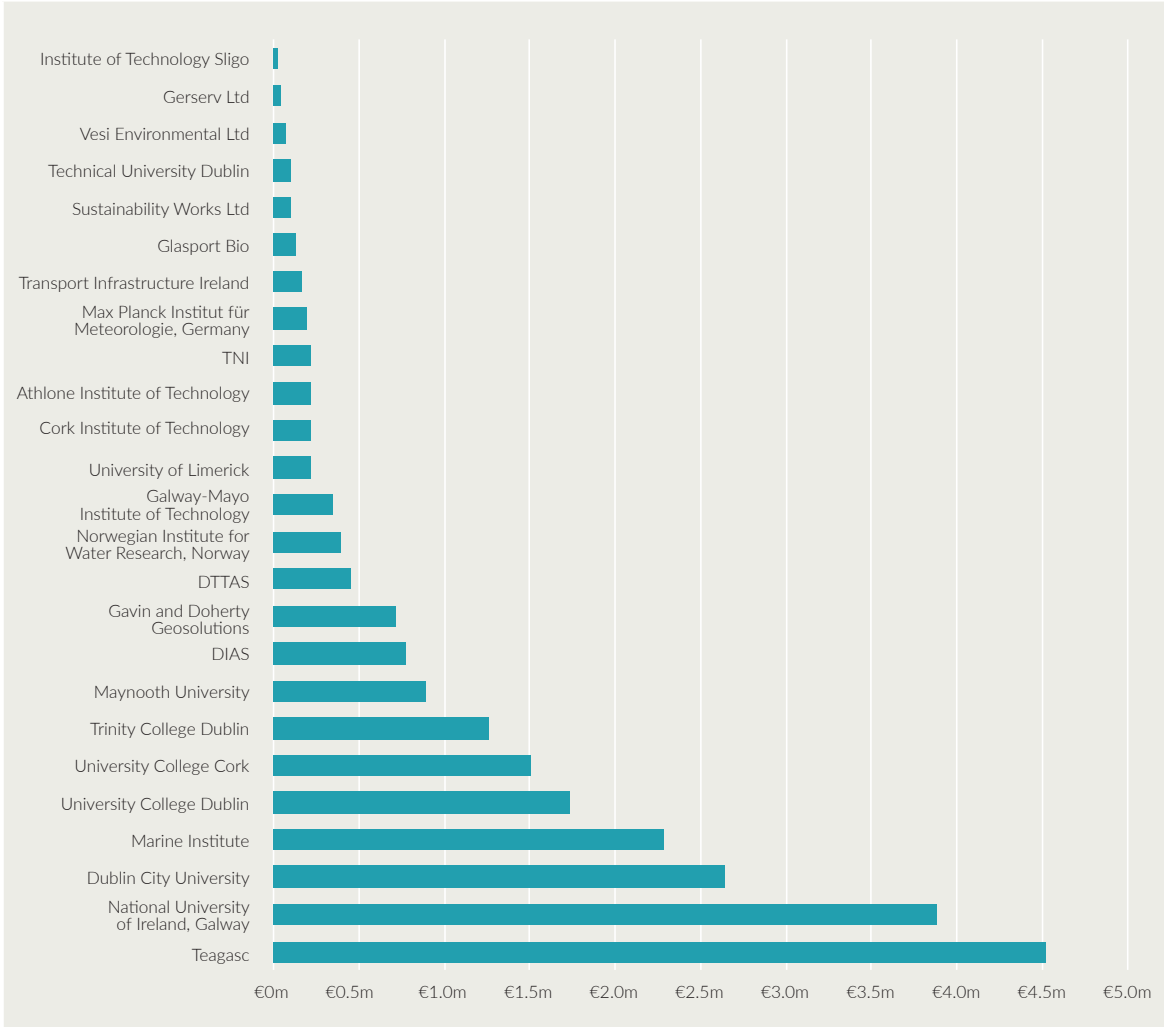


Figure 7: Total budget awarded for new competitive awards in 2019 by receiving lead research organisation (excludes SFI funding for MaREI Phase 2; lead organisation: University College Cork – total award €19.5 million). DIAS, Dublin Institute for Advanced Studies; TNI, Tyndall National Institute.

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Research Co-funding

Based on the information provided, among the 72 new competitive awards in 2019, 21 (€6.8 million) have been identified as being co-funded between members of the CRCG.

This is in keeping with the objectives of the NAF, which calls for better coordination of national climate change research priorities. **Figure 8** provides a breakdown of co-funding committed under the four thematic areas, and **Figure 9** illustrates the number of co-funded awards under each of the four thematic areas.

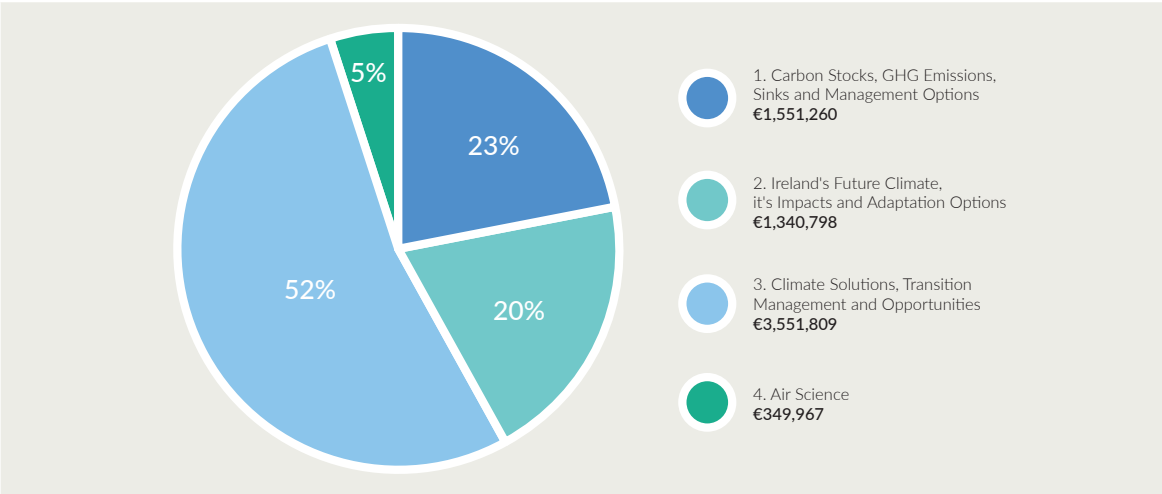


Figure 8: Breakdown of new competitive co-funded research awards in terms of budget committed (total budget committed €6.8 million) by thematic area funded by CRCG members during 2019⁴⁶

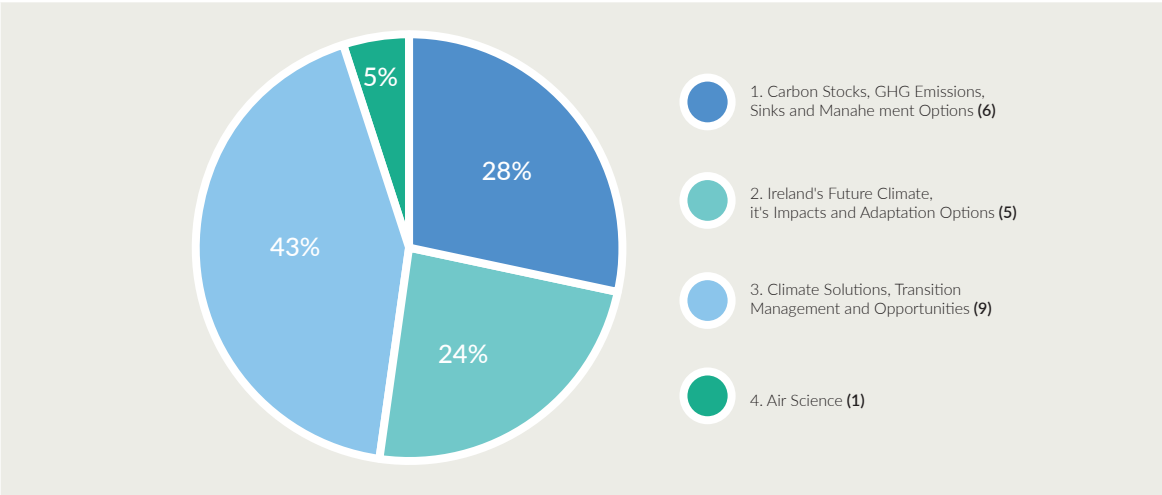


Figure 9: Breakdown of new competitive co-funded research awards in terms of number of awards (total number: 21) by thematic area funded by the CRCG members during 2019⁴⁷

⁴⁶ Competitive funding only for research and development performed elsewhere.
⁴⁷ Competitive funding only for research and development performed elsewhere.

4.2. Core Research Activities

In addition to CRCG members awarding competitive research awards or leveraging funding from EU/ international funding programmes, several CRCG members undertake research activities themselves, i.e. *core* research activities. These research activities are funded by these organisations and performed in-house.

In excess of €3.4 million was reported for core activities in 2019, i.e. research activities that are funded by an organisation and performed in-house.

Met Éireann reported that **€1.68 million** was dedicated to core research activities in 2019 in areas related to impacts and adaptation, e.g. EC-Earth (European Community earth system model), ERA4CS [European Research Area for Climate Services, a Joint Programming Initiative (JPI) Climate initiative], MÉRA (Met Éireann ReAnalysis; climate reanalysis approach to produce meteorological datasets for climate monitoring and research), AGMET (Joint Working Group on Applied Agricultural Meteorology), marine meteorology, hydrometeorology, climate archive, data rescue and data homogenisation.

The **Marine Institute** reported that **€0.24 million** was dedicated to core research activities in 2019 through its participation in the International Council for the Exploration of the Sea Working Group on Oceanic Hydrography (ocean climate monitoring).

Teagasc reported that **€0.23 million** was dedicated to core research activities in 2019 related to (1) the National Farm Survey sustainability report (assesses the economic, environmental and social sustainability of different farm systems) and (2) farm-level marginal abatement cost curve modelling across different environmental dimensions [integrates greenhouse gas (GHG) mitigation with other environmental dimensions].

Irish Water reported that c.**€0.275 million** was dedicated to core research activities between 2016 and 2019 in the area of climate change adaptation – linking science with industry and customers – identification of climate-sensitive catchments⁴⁸.

Geological Survey Ireland reported that c.**€1.03 million** was dedicated to core research activities in 2019 in the area of climate change adaptation, looking at (1) developing a Coastal Vulnerability Index to map the impacts of sea level rise and (2) remote sensing from space aiming at detecting and tracking coastal erosion and accretion to inform coastal management plans, climate-related hazards (e.g. landslides) and estimating climate change impacts on groundwater resources.

4.3. New 2019 EU Funding Leveraged for Climate Change Research Projects

National research investment is the main funding source for climate change research in Ireland. However, researchers from Ireland have been successful in attracting international funding at a European level. As well as being an important funding source, this enables researchers from Ireland to work with and lead on projects that involve prominent international research groups.

Based on the projects identified by the CRCG members, the Irish research community leveraged **€29.8 million** of EU funding through Horizon 2020 (50 projects), **€15.1 million** of funding from Interreg (11 projects⁴⁹) and c.**€14.4 million** of funding from the **LIFE Programme** (two projects) for climate-related research. In addition, **three** climate-related **COST Actions** involving Irish partners were approved in June 2019.

Several of the CRCG members, namely the DAFM, the DCCAE, the EPA, GSI, the MI, NPWS, SEAI and Teagasc, participated in successful proposals. The successful 2019 climate-related proposals with Irish participants are listed in:

- **Appendix 4** for Horizon 2020;
- **Appendix 5** for Interreg;
- **Appendix 6** for the LIFE Programme; and
- **Appendix 7** for COST.

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⁴⁸ This project is now complete and is accessible at www.water.ie/our-customer-commitment/research-and-innovation/. In 2019, the final report was being prepared by Maynooth University. Payments were made to this project in 2017, 2018 and 2020.

⁴⁹ Includes projects approved, contracted and started in 2019.

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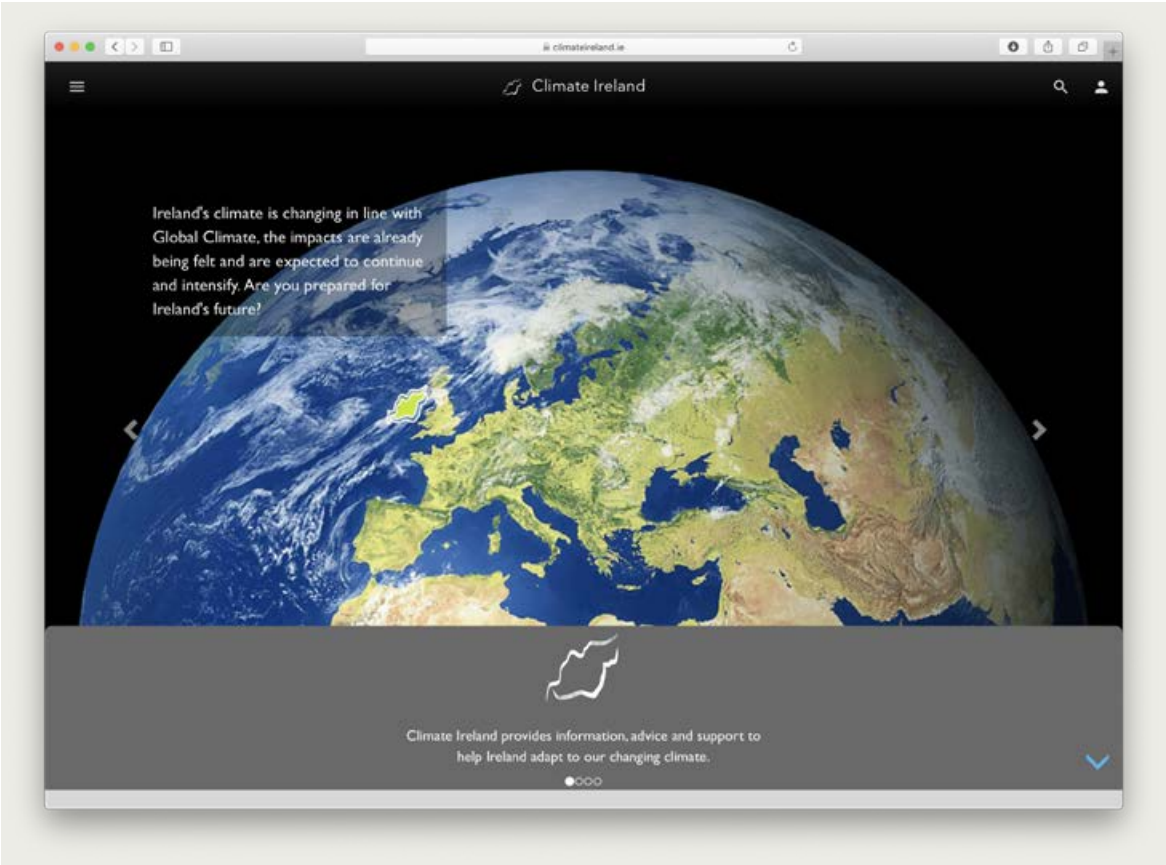
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4.4. National Climate Research Infrastructure

Irish Climate Information Platform

The Irish Climate Information Platform is a service provided through the Climate Ireland web portal (www.climateireland.ie) to support the implementation of the NAF (i.e. Action 7). It provides informational support, scientific and technical advice, workshops, etc. to help organisations, sectors and government adapt to the consequences of climate change.

In its report of activities (July 2018–June 2019), the following activities were identified for 2019:

- ▶ Support for sectoral planning under the NAF through workshops and consultations (for the following sectors: built and archaeological heritage; water; agriculture, forestry and seafood; and health).
- ▶ Support for the CAROs through development of a CARO training framework, the development of a

geographic information systems (GIS) application for data collection and reporting on climate impacts and support at meetings, including CARO steering group meetings.

- ▶ Delivery of a training workshop (Planning for Local Climate Adaptation Action) for local authorities.
- ▶ Production of a Climate Ireland Pullup and Wall to disseminate information about Climate Ireland at events – showcased at the National Climate Conference on the 15th May 2019.
- ▶ Participation in the European Climate Change Adaptation conference (ECCA) in Lisbon (May 2019). In collaboration with Climate Northern Ireland, Adaptation Scotland and the Environment Agency (UK), Climate Ireland co-organised a session entitled “Connecting the Dots: Challenges and Opportunities of Place Based Adaptation from a Regional Perspective in the UK and Ireland”. The session aimed to share experiences and lessons learned in planning for adaptation at the local scale and across the UK and Ireland.

Atmospheric Composition and Climate Change and AEROSOURCE networks

The Network for Monitoring Atmospheric Composition and Climate Change (NACC) is composed of the European Monitoring and Evaluation Programme (EMEP) network and GHG monitoring network. The NACC consists of the monitoring stations and instruments, which are run in cooperation with MÉ and Teagasc, with support provided from National University of Ireland, Galway (NUIG) towards their operation and maintenance. The stations operated and maintained by the EPA include Carnsore Point (located at the ESB wind farm), Malin Head (located at the MÉ station), Oak Park (located at the Teagasc research farm) and Johnstown Castle (located at the Teagasc research farm). The national network also includes Mace Head Atmospheric Research Station (operated and maintained by NUIG,

with financial support from the EPA) and Valentia Observatory (operated and maintained by MÉ). The data from the EMEP network are important for assessing the impact of air pollution on ecosystems, which is required under the revised National Emission Ceilings Directive (2016/2284/EU).

The AEROSOURCE network was set up under an EPA-funded research project, which deployed state-of-the-art aerosol mass spectrometry techniques in conjunction with source apportionment techniques and modelling to determine and assess the transboundary air pollution and biogenic source contribution, as well as an impact from local domestic solid fuels and transport on the ambient air quality in Ireland and in Dublin.

The location of monitoring stations in the NACC and AEROSOURCE network is presented in **Figure 10**.



Figure 10: Monitoring of GHGs and short-lived climate pollutants at Malin Head, Mace Head and Carnsore Point.

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4.5. Joint Research Events

Several joint research events took place in 2019, as reported by the CRCG members. This section also provides examples of climate research communication workshops and of research project briefings and workshops that took place in 2019.

5-Year Assessment of Research Report Scoping Workshop

The 5-year assessment of research report scoping workshop was held on the 16th September 2019 in Dublin. The EPA hosted the workshop, which included over 31 participants from the Irish policy and research communities. The purpose of the workshop was to discuss and progress the overall purpose, scope, structure and process for the new 5-year assessment of “wider related research activities”, which is required under Action 11 of the NMP.

The workshop consisted of presentations, breakout sessions and a plenary discussion. CRCG member participation included the EPA, NTA, DAFM, DCCAE, DBEI, CARO-Dublin, GSI, SFI, Irish Research Council, CSO, MÉ, OPW, SEAI, NESC, MI and Teagasc. The output was a document highlighting the issues and identifying the next steps for producing a 5-year assessment of research report.

SFI Climate Action Workshop

Science Foundation Ireland held a workshop at the SFI Summit 2019 on the 8th November 2019 in Athlone to carry out a broad and inclusive consultation with the wider research community. This workshop was heavily subscribed (80 people signed up), with representation from other public agencies

and departments, including the EPA, IDA, EI and the DAFM, in addition to researchers interested in engaging with multi- and transdisciplinary research to inform climate action. The following questions were explored in multidisciplinary breakout groups:

- ▶ What are the major challenges in meeting the objectives of the Climate Action Plan?
- ▶ What are the gaps in the Irish research context to address these challenges?
- ▶ What partnerships are needed to deliver on new research projects to cover these gaps?

The high-level outputs of the workshop pointed to gaps in coordination and coherence across the system, lack of engagement with communities, lack of systems-level solutions and lack of a defined framework for knowledge sharing. These outputs are being fed into SFI's new cross-functional climate strategic team and will inform the new SFI climate action sectoral plan and SFI's contributions to the next iteration of the national CAP.

MÉRA Data Users Workshop

Met Éireann organised the second MÉRA data users workshop⁵⁰ in collaboration with CRCG members, on the 2nd May 2019. The workshop consisted of presentations by a number of users, supplemented with invited presentations by members of the Copernicus global and regional reanalysis projects.

Climate Research Communication Workshops

Table 8 provides examples of climate research communication events and workshops that took place in 2019.

Table 8: Examples of 2019 climate research communication events and workshops

Event	Website	Date(s)
Irish Geological Research Meeting, University College Dublin	www.ucd.ie/earthsciences/igrm2019/	1 st – 3 rd March 2019
International Association of Hydrogeologists: Irish Group Proceedings of the 39 th Annual Groundwater Conference	www.iah-ireland.org/Report-IAH-Malaga-Philip-Maher.pdf	30 th April – 1 st May 2019
National Climate Conference: “Ireland as a Leader in Climate Action – Rising to the Challenge”	www.epa-pictaural.com/nav/sCcConf19.php	15 th May 2019

50 www.met.ie/mera-workshop-may-2nd-2019

Event	Website	Date(s)
Climate lecture: Dr Edward Cameron, “New Climate Leadership, For a Low Carbon, Climate Resilient and Inclusive World”	www.youtube.com/watch?v=SYcPFDhRHpA&list=PL-CDE951EB77E87100&index=3	17 th May 2019
Royal Irish Academy Climate Change and Health Workshop	www.ria.ie/climate-change-and-health-workshop	11 th June 2019
International Quaternary Map of Europe (IQUAME) Consultation Workshop	www.gsi.ie/en-ie/events-and-news/events/Pages/CGMW-GSI-BGR-IQUAME-Consultation-Workshop-Dublin-2019.aspx	23 rd July 2019
20 th Congress of the International Union for Quaternary Research (INQUA). Included tracks on humans and the biosphere, paleoclimate and coastal and marine processes	www.inqua2019.org	25 th – 31 st July 2019
Peatlands and National Land Cover Mapping Workshop	–	4 th September 2019
18 th Annual Rural Water Services Conference: “Enhancing Resilience and Sustainability in the Group Water Scheme Sector”	https://nfgws.ie/2019-annual-rural-water-conference/	12 th September 2019
46 th International Association of Hydrogeologists Congress: “Groundwater Management and Governance: Coping with water scarcity”	www.iah2019.org	22 nd – 27 th September 2019
Institute of Geologists of Ireland: “The Climate Emergency And The Role Of Geoscientists”	https://igi.ie/20th-anniversary-event/ ; https://igi.ie/20th-anniversary-event/speakers-include/	11 th October 2019
National Air Event: “Working Together Towards Clean Air”	www.epa.ie/pubs/reports/other/events/oeel/nationalairevent2019/	16 th and 17 th October 2019
GSI Annual Conference, climate theme: “Geoscience for Climate Action”	www.gsi.ie/en-ie/events-and-news/annual-events/Pages/Geoscience-Conference.aspx	5 th November 2019
Science Week	www.sfi.ie/engagement/science-week/	10 th – 17 th November 2019
SEAI-DCCA National Energy Research and Policy Conference	www.seai.ie/events/research-conference/ www.youtube.com/watch?time_continue=15&v=ZkG2kHg-H8E&feature=emb_logo	20 th November 2019
Climate lecture: Dame Professor Julia Slingo, “Facing up to Climate Change: What Next for Climate Science?”	www.youtube.com/watch?v=h3glSBITbXs&list=PLCDE951EB77E87100&index=3&t=0s	20 th November 2019
HSE-EPA-ESRI Environment, Health and Wellbeing Conference: “Opportunities & Implementation Challenges”	www.epa-pictaural.com/nav/sHse19.php	21 st November 2019
JPI Climate Governing Board Meeting and ERA4CS General Assembly	www.jpi-climate.eu/search/item/10900171/ERA4CS-5th-General-Assembly	26 th -29 th November 2019

ESRI, Economic and Social Research Institute.

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Selected examples of research project briefings and workshops are as follows:

- ▶ A Citizens’ Climate Research Project Workshop was held on the 6th September 2019. The purpose of the workshop was to engage policy stakeholders across sectors, departments and agencies to facilitate a high-level, user-designed discussion on deliberative opportunities for public engagement on the climate crisis.
- ▶ iSCAPE (Improving the Smart Control of Air Pollution in Europe), an Irish-led Horizon 2020 project, held its end-of-project workshop on the 8th November 2019⁵¹.

4.6. Meetings of the Climate Research Coordination Group

In 2019, **three meetings** took place in January, June and November 2019 (the first meeting was a combined meeting of the Climate, Water and Sustainability Research Coordination Groups).

CRCG meetings have focused on the proposed scope of the 5-year assessment and synthesis of research report (required under Action 11 of the NMP), the development of national research programmes, information exchange on activities, coordination of research and leveraging of EU funding and realising the benefits of Europe-wide research. The need for more co-funded research across Irish stakeholders has been recognised by CRCG members as a main priority and goes hand in hand with an urgent need to improve research data management and access to research outputs across all research bodies. It was noted that this has previously been highlighted as a recommendation in the Department of Public Expenditure and Reform (DPER)/Irish Government Economic and Evaluation Service (IGEES) climate research funding report⁵².

4.7. Research Publications

Table 9 provides a list of climate change-related research publications arising from the funded research projects⁵³ that were published in 2019, as reported by the CRCG members.

Table 9: Climate change-related CRCG research publications (2019)

Lead funding organisation	Report title	Information source/website/publication link
DAFM	Various publications	www.agriculture.gov.ie/publications/2019/
EPA	Challenges of Transformative Climate Change Adaptation: Insights from Flood Risk Management	www.epa.ie/pubs/reports/research/climate/research265.html
EPA	Ground-based Remote-sensing Synergy for Cloud Properties and Aerosol–Cloud Interactions	www.epa.ie/pubs/reports/research/climate/research266.html
EPA	Climate Research Coordination Group: First Report on Activities: June 2017–December 2018	www.epa.ie/pubs/reports/research/climate/climateresearchcoordinationgroupreport.html
EPA	Irish Climate Futures: Data for Decision-making	www.epa.ie/pubs/reports/research/climate/research277.html
EPA	CON+AIR: Addressing Conflicts of Climate and Air Pollution	www.epa.ie/pubs/reports/research/climate/research286.html
EPA	Catalysing and Characterising Transition	www.epa.ie/pubs/reports/research/climate/research287.html

51 www.iscapeproject.eu/iscape-project-final-event-dublin-8-november-2019/
52 <https://igees.gov.ie/wp-content/uploads/2015/02/Climate-Change-Related-Research-and-Funding-in-Ireland.pdf>
53 Accessible to the public from the CRCG members’ websites.

Lead funding organisation	Report title	Information source/website/publication link
EPA	A Review of Livestock Methane Emission Factors	www.epa.ie/pubs/reports/research/climate/research288.html
EPA	Assessment of Agricultural Activity on Drained Organic Soils	www.epa.ie/pubs/reports/research/climate/research299.html
EPA	Climate Change in Irish Media	www.epa.ie/pubs/reports/research/climate/research300.html
EPA	Adaptive Responses to Climate Impacts (ARC)	www.epa.ie/pubs/reports/research/climate/research301.html
EPA	Fossil Fuel Lock-in in Ireland: How Much Value Is at Risk?	www.epa.ie/pubs/reports/research/climate/research302.html
EPA	Scaling Soil Greenhouse Gas Emissions to the National Level	www.epa.ie/pubs/reports/research/climate/research304.html
EPA	BRIAR: Biomass Retrieval in Ireland using Active Remote Sensing	www.epa.ie/pubs/reports/research/climate/research305.html
EPA	Online Bioaerosol Sensing (OLBAS)	www.epa.ie/pubs/reports/research/air/research269.html
EPA	Air Quality Modelling for Ireland	www.epa.ie/pubs/reports/research/air/research270.html
EPA	EU ETS and Competitiveness of Irish Industry	www.epa.ie/pubs/reports/research/air/research276.html
EPA	An Integrated Source Apportionment and Climatic Implications of PM2.5 and PM10 Particulate Matter	www.epa.ie/pubs/reports/research/air/research298.html
EPA	Research Support for Integrated Atmospheric Studies at Mace Head	www.epa.ie/pubs/reports/research/air/research303.html
EPA	The Role of Incentivising Biomethane in Ireland Using Anaerobic Digestion	www.epa.ie/pubs/reports/research/waste/research279.html
EPA	How Do We Engage Communities in Climate Action? Practical Learnings from the Coal Face	www.mareil.ie/wp-content/uploads/2019/06/How-do-we-Engage-Communities-in-Climate-Action.pdf
EPA	Innovative Methods of Community Engagement – Towards a Low Carbon Climate Resilient Future Workshop Proceedings	www.ucc.ie/en/media/projectsandcentres/imagining2050/InnovativeMethodsofCommunityEngagement(lowres).pdf
GSI	Integration of landslide hazard into urban planning across Europe	www.sciencedirect.com/science/article/pii/S0169204619308874?dgcid=author
GSI	A toolkit to manage AGS data for geotechnical usage – result of GSI-funded projects; output data hosted by GSI	www.gsi.ie/en-ie/publications/Pages/GSI-2017-Short-Call-Quigley-Development-of-a-toolkit-to-manage-AGS-data-for-geotechnical-usage-TAGS.aspx
GSI	Report Series from 2015 and 2017; Short Calls now available online	www.gsi.ie/en-ie/research/funding/projects-funded/short-calls/Pages/default.aspx
GSI	Dublin city geo-environmental challenges as addressed by GSI	http://cityfutures2019.com/uploads/files/ExOrdo_CityFutures_AbstractBook_FINAL.pdf

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Lead funding organisation	Report title	Information source/website/publication link
GSI (University College Dublin)	PS-InSAR analysis of Sentinel-1 data for detecting ground motion in temperate oceanic climate zones: a case study in the Republic of Ireland	https://doi.org/10.3390/rs11030348
MI	Various publications	www.marine.ie/Home/site-area/publications/publications
MÉ	Various publications	www.met.ie/education/publications
NPWS	Elucidating the consequences of a warming climate for common bat species in north-western Europe	https://bioone.org/journals/Acta-Chiropterologica/volume-21/issue-2/15081109ACC2019.21.2.011/Elucidating-the-Consequences-of-a-Warming-Climate-for-Common-Bat/10.3161/15081109ACC2019.21.2.011.short
Teagasc	Various publications	www.teagasc.ie/publications/
Teagasc	TResearch Publications	www.teagasc.ie/publications/tresearch/
Teagasc	National Farm Survey	https://teagasc.ie/media/website/publications/2019/2017-sustainability-report-250319.pdf
Teagasc	Teagasc GHG MACC	https://teagasc.ie/media/website/publications/2018/An-Analysis-of-Abatement-Potential-of-Greenhouse-Gas-Emissions-in-Irish-Agriculture-2021-2030.pdf
Teagasc	Teagasc Ammonia MACC update for S1 Scenario	https://teagasc.ie/media/website/publications/2019/Updated-Ammonia-Abatement-Potential-in-the-Projected-S1-Activity-Scenario.pdf
Teagasc	Agricultural nitrous oxide emissions: How animal excreta and fertiliser management fit together	www.teagasc.ie/publications/2020/agricultural-nitrous-oxide-emissions-how-animal-excreta-and-fertiliser-management-fit-together.php
Teagasc	Nitrous oxide from ruminant excreta	www.teagasc.ie/media/website/publications/2017/11-Nitrous-oxide-from-ruminant-excreta.pdf
Teagasc	Teagasc GHG webinar series	www.teagasc.ie/corporate-events/greenhouse-gas-training-webinar-series/



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Section 5

Conclusions and Proposed Actions for 2020



5. Conclusions and Proposed Actions for 2020

5.1. Conclusions

This second report presents a summary of CRCG activities during the 12-month period from **January to December 2019**.

In summary, in 2019:

- ▶ **Based on the information provided, 72** new climate-related research competitive awards were made during the reporting period, with a total budget commitment of **€23.1 million**. In addition, SFI awarded €19.3 million towards Phase 2 of the MaREI SFI Centre, which covers, but is not limited to, climate-related research. Among these 72 projects, collaboration between the CRCG members was evident through the co-funding of **21** research projects, with a committed budget of **€6.8 million**.
- ▶ **In excess of €3.4 million** was also reported for core activities in 2019, i.e. research activities that are funded by the organisation and performed in-house.
- ▶ The Irish research community leveraged **€29.8 million** of funding under Horizon 2020 (50 projects), **€15.1 million** of funding from Interreg (**11** projects⁵⁴) and **€14.4 million** of funding under the LIFE Programme for climate-related research projects. In addition, **three** climate-related **COST** Actions involving Irish partners were approved in June 2019.
- ▶ **Five** new members joined the CRCG, namely the National Economic and Social Council, Enterprise Ireland, Irish Water, the Built Heritage and Architectural Policy Unit of the Department of Culture, Heritage and the Gaeltacht, and the Office of the Planning Regulator.
- ▶ The CRCG held **three** meetings. In addition, **three** workshops took place in 2019 involving CRCG members.
- ▶ In addition, one workshop took place in September 2019 in relation to the **scoping of the 5-year assessment and synthesis of research report** (required under Action 11 of the NMP and contributing to Action 14 of the 2019 CAP).

Table 10 summarises possible indicators of CRCG activities for 2019 compared with those reported in the First Report (May 2019), which covered an 18-month period from June 2017 to December 2018.

54 Includes projects approved, contracted and started in 2019.

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Table 10: Indicators of CRCG activities for 2019

Indicator	First report	Second annual report	Comments
Reporting period	June 2017–December 2018 (18 months)	January 2019–December 2019 (12 months)	–
Number of new competitive awards	104	72+ MaREI SFI Centre Phase 2	The first annual report covered an 18-month period where this report covers a 12-month period Larger awards were made in 2019
Budget committed towards new competitive awards	€25 million	€23.1 million + €19.5 million towards the MaREI SFI Centre Phase 2	More complete returns from the CRCG members were received in 2019 than for the first annual report (for which some financial data were not available) Larger awards were included in 2019. In particular, six awards above €1 million were made by the SFI, DBEI and DAFM Improvements in the reporting of awards, which are not just climate-related, will be further discussed with the CRCG The refresh of the research priority areas could also have had an influence on the funding priorities
Collaboration/co-funding among CRCG members	€6 million (19 projects)	€6.8 million (21 projects)	CRCG meetings allow members to review research gaps, avoid duplication, promote synergies and identify opportunities among funding programmes of CRCG members. This strengthens collaboration, which is reflected in the level of co-funding
Core research activities	Not reported	c.€3.4 million	Improvements in the reporting of core research activities will be further discussed with the CRCG
Number of CRCG meetings	3	3	–
Irish drawdown under Horizon 2020	€3 million (14 projects)	€29.8 million (50 projects)	In the first annual report, only results for Societal Challenge 5 were provided. In the second annual report, a more comprehensive overview of the Irish drawdown for the whole of Horizon 2020 is provided
Irish drawdown under Interreg	Not reported	€15.1 million (11 projects)	–
Irish drawdown under the LIFE Programme	Not reported	€14.9 million (2 projects)	–

The review of climate change-related research during the period from January to December 2019 highlights the increasing collaboration between the CRCG member organisations. Crucial complementarities exist between the research areas.

Climate Research Coordination Group

Reporting Period:
January - December 2019

28
Members



3 CRCG
Meetings



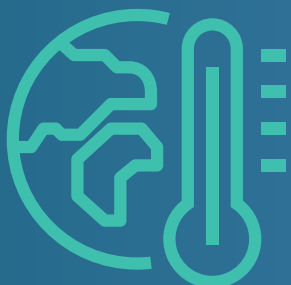
72 New
climate-
related
awards



€23.1m
Committed*



€50m
EU Funding
leveraged



>€3.4m
for core research activities

* Does not include €19.3 million towards Phase 2 of the MaREI SFI Centre, which covers, but is not limited to, climate-related research

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5.2. Proposed Actions for 2020

Schedule of Call timing and co-funding opportunities

An understanding of the timing of calls would allow for greater engagement by CRCG members in research calls and increase the potential to identify co-funding opportunities. CRCG members have therefore completed in 2020 a template document with details on the timing of their research calls (see **Appendix 8**).

Development of an online database for climate research projects

As part of collating the information reported by the CRCG members to prepare the CRCG annual report of activities, the EPA maintains a spreadsheet with details of all research projects and funding sources. It has been agreed in 2020 to progress the development of an online database for Climate Research Projects.

Thematic structure

The CRCG agreed to maintain the thematic structure for the time being, but it may be amended as part of the 5-year assessment of research process. Climate change research thematic areas include:

- ▶ Theme 1: Carbon Stocks, GHG Emissions, Sinks and Management Options;
- ▶ Theme 2: Ireland's Future Climate, its Impacts, and Adaptation Options;
- ▶ Theme 3: Socio-economic and Technological Solutions - Transition Management and Opportunities; and
- ▶ Theme 4: Air Science (Air Pollution and Short-lived Climate Forcers).

Other recommendations

Other recommendations discussed among the CRCG members for consideration in 2020 included:

- ▶ Improve how the CRCG functions as a group;
- ▶ Improve the research coordination;
- ▶ Develop metrics on the targets the CRCG is trying to achieve that could be monitored and reported on in the annual reports;
- ▶ Review how core research activities are reported; and
- ▶ Form of a sub-group to review the funding agencies' impact indicators.



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Section 6

Appendices



Appendix 1:

Terms of Reference for Research Coordination Groups

Purpose

The main purpose of the CRCG is to provide a cross-sectoral national strategic coordination forum for climate environmental research in Ireland.

Aims and Objectives

The objectives for each Research Coordination Group will be to:

- ▶ facilitate, support and promote coordination, synergies and liaison between relevant cross-sectoral funding organisations, public and private, to reduce the fragmentation and/or duplication of climate research in Ireland;
- ▶ facilitate an exchange forum between research funders and key stakeholders, providing an interface for funding organisations of climate research to facilitate the dissemination, sharing and uptake of relevant scientific outputs to policymakers and decision makers and the uptake of research outputs for commercialisation;
- ▶ identify key research needs and emerging policy needs with the aim of informing the research strategy of Irish funding organisations of climate research;
- ▶ provide a platform for cross-sectoral research funding organisations to liaise and/or collaborate with European and international activities related to climate research, such as JPIs, Technology Platforms, LIFE.

Added Value

Each of the Research Coordination Groups acts as a research forum, coordinated by the EPA (i.e. Research Coordination Groups do not serve as an EPA forum). The added value of membership and participation in the Research Coordination Groups includes:

1. Networking, collaboration, consultation, maximised synergies and coordination between the strategic partners throughout the whole research funding cycle. This will ensure that research programmes are relevant and responsive to current and new emerging policy priorities.
2. Provision of a platform to coordinate co-funding opportunities between the strategic partners and thus contribute to maximising the impacts of funding provided across Ireland.

3. Promotion and facilitation of increased synergies and reduced risk of duplication.
4. Support and facilitation of increased communication and visibility and better dissemination for national research strategies.
5. Provision of a platform for knowledge transfer and knowledge exchange of research outputs and uptake for commercialisation.

Composition

The Research Coordination Groups comprise research funding organisations, the EPA, relevant government departments and other strategic stakeholders. Many environmental issues can have transboundary and/or cross-border impacts. Therefore, the Research Coordination Groups invite contributions from relevant strategic stakeholders across the island of Ireland.

Meetings

The Research Coordination Group meetings are facilitated by the EPA. Secretariat support will be provided by EPA Research. It is anticipated that the Research Coordination Groups will meet three times per year:

- ▶ Meeting 1: combined cross-disciplinary and cross-sectoral meeting for all three Research Coordination Groups chaired by the EPA.
- ▶ Meeting 2: May/June.
- ▶ Meeting 3: October.

The EPA will circulate the schedule of meetings for the following year in December.

Each Research Coordination Group has the option to rotate the position of the meeting chairperson between the strategic partners/membership for the second and third meetings, to promote and support partner engagement and inclusiveness.

Each Research Coordination Group may decide to have additional meetings depending on developments within the national/European policy and/or research funding landscape.

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Appendix 2:

New Climate Research Coordination Group Members

The CRCG is facilitated by the EPA and includes members across several government departments, local authorities, agencies and stakeholders whose functional areas are directly or tangentially relevant to furthering Irish climate change research. This appendix provides a brief overview of the members that joined in 2019.

National Economic and Social Council

The National Economic and Social Council was established in 1973 and advises the Taoiseach (Prime Minister) on strategic policy issues relating to sustainable economic, social and environmental development in Ireland.

Enterprise Ireland

Enterprise Ireland is the government organisation responsible for the development and growth of Irish enterprises in world markets. It works in partnership with Irish enterprises to help them start, grow, innovate and win export sales in global markets. In this way, it supports sustainable economic growth, regional development and secure employment.

Irish Water

Irish Water is Ireland’s national water utility responsible for providing water and wastewater services throughout the country. Irish Water’s mission is that all of its customers should receive a safe and reliable supply of drinking water and have their wastewater collected and safely returned to the environment. It protects the environment in all of its activities and supports Ireland’s social and economic growth through appropriate investment in water services. Incorporated in July 2013 as a company under the Water Services Act 2013, Irish Water brought the water and wastewater services of the 31 local authorities together under one national service provider.

In 2015, the Commission for Regulation of Utilities established the Water Services Innovation Fund. This fund enables Irish Water to explore innovative environmental approaches and technologies for many projects that would not otherwise receive funding. In order for an innovative project to receive funding, Irish Water must demonstrate that the project will deliver defined and tangible benefits for Irish Water customers and the long-term benefits of the project will outweigh the overall project costs. Projects must be designed to deliver improvements in at least one of the following areas:

- ▶ provision of safe, secure and reliable water services;
- ▶ increased understanding of customer behaviours and their drivers and effective customer engagement;
- ▶ enhanced energy savings in the provision of water services;
- ▶ achievement of relevant environmental standards and the objectives of the Water Framework Directive;
- ▶ mitigation of negative climate change impacts;
- ▶ provision of water services in an economical and efficient manner; and
- ▶ improved conservation of water resources.

Department of Culture, Heritage and the Gaeltacht – Built Heritage and Architectural Policy Unit

The functions and services of the Built Heritage and Architectural Policy Unit are as follows:

- ▶ provide an administrative, policy and legislative framework to protect architectural heritage as a national resource, including through direct capital investment in Ireland's built heritage;
- ▶ promote increased public awareness and appreciation of architecture and Ireland's built heritage;
- ▶ ensure that Ireland's built heritage is conserved, managed and planned for effective, sustainable management of its heritage resources;
- ▶ promote best practice in modern architecture and urban design;
- ▶ provide line unit support to the Heritage Council.

Office of the Planning Regulator

The Office of the Planning Regulator has a range of functions, including:

- ▶ independent assessment of all local authority and regional assembly forward planning, including the zoning decisions of local authority members in local area and development plans;

- ▶ conducting reviews of the organisation, systems and procedures used by any planning authority or An Bord Pleanála in the performance of any of their planning functions under the Planning and Development Act 2000 (as amended), including risks of corruption and on foot of individual complaints from members of the public; and
- ▶ driving national research, education and public information programmes to highlight the role and benefit of planning.

In performing its functions, the Office of the Planning Regulator OPR will take into account the objective of contributing to proper planning and sustainable development and the optimal functioning of planning under the Planning and Development Act, as amended.

Climate Action Regional Offices⁵⁵

Climate Action Regional Offices have been established in four geographical regions to drive climate action at regional and local levels in Ireland:

- ▶ Atlantic Seaboard North
- ▶ Atlantic Seaboard South
- ▶ Dublin Metropolitan
- ▶ Eastern and Midlands

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55 CAROs joined the CRCG in 2018, but no details were provided in the first annual report of CRCG activities (First Report, May 2019).

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Appendix 3:

New 2019 Climate-related Competitive Awards

Lead CRCG funding organisation	CRCG co-funders ⁵⁶	Project title	Total Irish grant aid approved/requested
Theme 1. Carbon Stocks, GHG Emissions, Sinks and Management Options			
DAFM	–	Improvements to the dynamic yield models and to Growfor	€213,353
DBEI ⁵⁷	–	Next generation heat pump for affordable decarbonisation of housing (NEXTGEN Heat)	€2,400,000
DBEI ⁵⁸	–	Sustainable bio-renewable energy from wastewater (S-BREW)	€1,800,000
EPA	–	Diversification of Dairy and Beef Production for Climate Smart Agriculture (CattleDiVersa)	€99,971
EPA	DAFM	Farm-Carbon: Hedgerows and other non-forest woodland carbon	€249,987
SEAI	GSI	Thermal Resource Extraction from a Deep Standing Column Well (Thermowell)	€215,638
SEAI	GSI	Characterisation of Shallow Geothermal Properties (ShallowTHERM)	€49,267
SEAI	<i>Gas Networks Ireland</i>	A roadmap for the deployment of electrofuels for the decarbonisation of heat and transport in Ireland	€130,200
SEAI	GSI	De-risking Ireland's Geothermal Energy Potential (DIG)	€775,606
SEAI	–	Development of novel antimicrobial cocktails to mitigate GHG emissions from stored slurries and manures	€130,562
Theme 2. Ireland's Future Climate, its Impacts, and Adaptation Options			
DAFM	–	Towards an Agricultural Greenhouse Gas Research & Innovation Centre (AGGRIC)	€71,864
DAFM	DAERA	Response of tree species to climate change	€798,398
DAFM	–	Lowering the carbon and ammonia footprints of pasture-based dairy production (LoCAM-dairy)	€599,821
EPA	–	Built Environment Resilient Futures. Best practice in implementing climate adaptation (BE-Resilient)	€99,172
EPA	–	Enhancing Integration of Disaster Risk and Climate Change Adaptation into Irish Emergency Planning (EIDRCCAIEP)	€82,342
EPA	–	Climate Change Adaptation: Risks and Opportunities for Irish Businesses (CARIB)	€100,000
EPA	–	Cross-sectoral impact assessment of droughts in complex European basins (CROSSDRO)	€225,000
EPA	–	Transboundary Adaptation Learning Exchange (TaIX)	€342,780
EPA	–	Climate change in the Republic of Ireland: Societal health Impacts and Solutions (CRISIS)	€348,599
EPA	MI, MÉ, OPW	High-resolution Coupled Atmosphere-Ocean-Wave Regional Climate Projections for Ireland	€174,995
EPA	–	SOil MOisture estimates from SATellite based Earth observations (SoMoSAT)	€348,462

56 Co-funders in Italics are not CRCG members – added for completeness.

57 Disruptive Technologies Innovation Fund administered by Enterprise Ireland.

58 Disruptive Technologies Innovation Fund administered by Enterprise Ireland.

Lead CRCG funding organisation	CRCG co-funders ⁵⁶	Project title	Total Irish grant aid approved/requested
EPA	–	Research-based Assessment of Integrated approaches to Nature-based Solutions (RainSolutions)	€71,438
EPA	–	Biological Tools to Measure the Impact of Flow on Ecology in Irish Rivers	€349,676
GSI	–	Earth Observation for Intertidal Mapping and Monitoring EO Intertide	€150,000
Irish Research Council	–	Irish Droughts: Environmental and Cultural Memories of a Neglected Hazard	€219,000
Irish Research Council	EPA	Climate Smart Ireland: Identifying Regulators of Aerenchyma, the "Snorkel" Tissue for Survival of Waterlogged Crops	€96,000
Irish Research Council	EPA	Of Land and Ocean: Culture and Climate on Ireland's Islands	€96,000
Irish Research Council	–	Thermal Biology of Ireland's Ocean Giants	€96,000
MI	–	Ocean Climate Section: South Rockall Trough	€237,600
MI	–	A Small Waterplane Area Twin Hulled (SWATH) Tide Buoy with Real-time Kinematic (RTK) Positioning for Accurate (Centimetre Level) Tide Gauge Calibration	€22,520
MI	–	The Role of ocean dynamics and Ocean-Atmosphere interactions in Driving cliMAtE variations and future Projections of impact-relevant extreme events (ROADMAP)	€199,887
MI	–	Downscaling Climate and Ocean Change to Services: Thresholds and Opportunities (CE2COAST)	€400,000
MI	–	Decoding Arctic Climate Change: From Archive to Insight (ACCAI)	€298,346
OPW	Eastern and Midlands CARO	Sensitivity of Fluvial Flood Peak Flows to a Changing Climate	€175,404
SFI	–	EirOOS Irish Ocean Observing System: A Component of the European Ocean Observing System (EOOS)	€2,041,566
Theme 3. Socio-economic and Technological Solutions: Transition Management and Opportunities			
DAFM	–	Modular Mass Timber Building for the Circular Economy	€592,067
DAFM	DAERA, EPA	Development and Validation of Novel Technologies to Reduce Methane Emissions from Pasture Based Irish Agricultural Systems (METH-ABATE)	€1,249,005
DAFM	EPA	Abating Ammonia in Agriculture (Triple A)	€1,215,944
DTTAS	Transport Infrastructure Ireland	Feasibility Study on Decarbonising Freight in Ireland	€170,000
EPA	–	Connecting People to Climate Change Action: Longitudinal Analysis for Informing Participatory Frameworks in the NDCA (C-CHANGE)	€99,035

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Lead CRCG funding organisation	CRCG co-funders ⁵⁶	Project title	Total Irish grant aid approved/requested
EPA	–	Identifying Barriers and Opportunities to Local Government Climate Action in Ireland (LocalGovClimate)	€48,000
GSI ⁵⁹	–	(Re)Imagining Climate Governance and Low Carbon Futures: How a Social Imaginaries Lens Can Advance Irish Climate Policy and Communications	€18,000
Irish Research Council	–	Moving Forward with the Ecosystem Approach: Integrating the Sustainable Management of Freshwater and Ocean Ecosystems	€91,910
Irish Research Council	–	Understanding and Linking the Fundamental Ecological Requirements of Ireland's Solitary Bees For Their Long-term Conservation and the Creation of Evidence-based Policy	€91,910
Irish Research Council	EPA	When Places Change: Impacts of Environmental Change on Coastal Communities' Health, Well-being and Adaptive Capacity	€48,000
Irish Research Council	EPA	The Role of Science in Environmental Policy and Law-making: A Critical Legal Analysis	€72,000
Irish Research Council	–	Reimagining Human Rights to Avert Dangerous Climate Change: An Ecofeminist Perspective	€48,000
Irish Research Council	–	Defending the Local: A Political Ecology Approach to the Study of Repression of Environmental Rights Defenders	€72,000
Irish Research Council	–	Changing the Shape of the Environmental Movement: Biodiversity Advocacy on Twitter in Ireland	€48,001
Irish Research Council	EPA	Economics of Renewable Energy: Modelling the Uptake of Low-carbon Energy Technology in the Residential Sector	€24,000
Irish Research Council	–	Cocoa and Biodiversity: Interactions between Pollinators, Cocoa Production and Rural Livelihoods in Ghana	€96,000
SEAI	–	Health Impact Assessment of Deep Energy Renovations on Irish Domestic Dwellings (HAVEN)	€264,17
SEAI	–	Informing and Mapping the Offshore Renewable Environment	€504,129
SEAI	<i>Gas Networks Ireland</i>	Farm Level Economic, Environmental and Transport modelling of alternative feedstock solutions for regional anaerobic digestion plants in Ireland (FLEET)	€335,539
SFI	–	MAREI Phase 2	€19,530,000
SFI	–	Smart Mobility Initiative for Lower Emissions; Transforming Mode Selection through HMI, Machine Learning, Personalisation, Transport Engineering and Behavioural Science (SMILE)	€220,000
SFI	–	National Autonomous Pod Sharing Service (NAPSS) – Autonomous Roving Test Demonstration and Controlled Initial Deployment	€219,856
SFI	<i>DFAT</i>	Day-time Radiative Cooling for Passive Climate Control	€217,402
SFI	–	Creating a Carbon Neutral Resilient Dairy Farm	€219,809

59 With Fulbright Commission of Ireland

Lead CRCG funding organisation	CRCG co-funders ⁵⁶	Project title	Total Irish grant aid approved/ requested
SFI	–	Carbon-Impact: Implementing Atmospheric CO ₂ -Capture Technologies	€219,956
SFI	–	ElectroFuels in A Circular Economy (EFACE)	€216,358
SFI	–	Low Energy Carbon Capture Devices to Enable On-site Carbon Capture and Net Negative Carbon Technologies (C-MINUS)	€220,000
SFI	DFAT	Closing the Circuit –Bringing Lithium Cobalt Batteries into the Circular Economy	€219,918
SFI	–	Hybrid Bio-Solar Reactors for Wastewater Treatment and CO ₂ Recycling	€217,886
SFI	–	Quantification and Reduction of the Environmental Impact of Additive Manufacturing Processes	€220,000
SFI	–	A Novel Sustainable Electric Motor using High-grade Permanent Magnets Based on Common Metallic Elements	€219,423
Theme 4. Air Science			
DTTAS	–	The Alternative Fuel Bus Trial	€450,000
EPA	–	Assessing potential for National Integrated Atmospheric Research (ANIAR)	€75,020
EPA	–	NEC Indicators for Air Pollution Effects on Terrestrial Ecosystems (NEC Indicators)	€426,448
EPA	–	Fire, Land and Atmospheric Remote sensing of EmissionS (FLARES)	€248,845
EPA	DTTAS	Roadside Emissions in Dublin: Measurements And Projections (REDMAP)	€349,967
EPA	–	Development of a Roof-top Clean Air Deflector System for the Control of Air Pollution Hot-spots (DEFLECT-AIR)	€48,904
SEAI		Assessing Indoor Environmental Quality and Energy Efficiency In a Range of Naturally Ventilated Buildings: A Multi-Disciplinary Approach (ALIVE)	€329,150

DAERA, Department of Agriculture, Environment and Rural Affairs; DFAT, Department of Foreign Affairs and Trade.

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Appendix 4:

Climate-related Horizon 2020 Projects Awarded in 2019

Proposal title	Proposal acronym	Number of partners in consortium	Applicant role	Applicant name ⁶⁰	Applicant EU financial contribution ⁶¹
Promoting and Implementing Joint Programming to Reinforce Transnational Research at the Crossroad between Biodiversity and Climate Change	BiodivClim	32	Partner	EPA	€145,397
Marine Coastal Ecosystems Biodiversity and Services in a Changing World	MaCoBioS	17	Partner	Maynooth University	€380,909
Toward Just, Ethical and Sustainable Arctic Economies, Environments and Societies	JUST-NORTH	15	Partner	University College Cork	€107,834
New Exploration Tools for European Pegmatite Green-Tech Resources	GREENPEG	13	Partner	University College Dublin	€686,928
			Partner	Blackstairs Lithium Ltd	€198,713
Visionary Nature-based Actions for Heath, Wellbeing and Resilience in Cities	VARCITIES	25	Partner	IES R&D	€391,125
			Partner	Louth County Council	€422,500
			Partner	Crowdhelix Ltd	€339,238
Novel Building Integration Designs for Increased Efficiencies in Advanced Climatically Tunable Renewable Energy Systems	IDEAS	14	Coordinator	Trinity College Dublin	€680,134
			Partner	Mayo County Council	€319,375
			Partner	Energy Co-operatives Ireland	€240,625
			Partner	Power Capital Renewable Energy Ltd	€110,250
			Partner	APK Architects & Engineers	€43,750
SME Program for Energy Efficiency through Delivery and Implementation of EnERgy Audits	SPEEDIER	10	Coordinator	University College Cork	€320,875
			Partner	Limerick Institute of Technology	€258,811
			Partner	TFC Research and Innovation Ltd	€210,494
Development of a Novel Wave Energy Converter Based on Hydrodynamic Lift Forces	LIFTWEC	10	Partner	Maynooth University	€340,93
			Partner	University College Cork	€244,625
Renewables for Clean Energy Buildings in a Future Power System	RES-4BUILD	15	Partner	Ove Arup & Partners Ireland	€269,113
			Partner	Intrigo Ltd	€273,160

60 Shading indicates CRCG members.
61 Based on H2020 eCORDA data (extraction date 24 April 2020).

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opportunities

Proposal title	Proposal acronym	Number of partners in consortium	Applicant role	Applicant name ⁶⁰	Applicant EU financial contribution ⁶¹
Driving Decarbonization of the EU Building Stock by Enhancing a Consumer Centred and Locally Based Circular Renovation Process	DRIVE 0	20	Partner	Technological University Dublin	€329,951
			Partner	Coady Partnership Architects Ltd	€847,000
TURNKEY Solution for Home RETROFITting	TURNKEY RETROFIT	9	Partner	National University of Ireland Galway	€161,875
			Partner	Irish Green Building Council	€142,800
FACilitating Regional CROSS-border Electricity Transmission through Innovation	FARCROSS	31	Partner	Smart Wire Grid Europe Ltd	€1,051,750
Hybrid Photovoltaics for Efficiency Record Using Integrated Optical Technology	HIPERION	16	Partner	X-Celeprint Ltd	€1,051,750
Next Evolution in Materials and Models for Ocean energy	NEMMO	12	Partner	Dublin City University	€1,051,750
Supporting new Opportunities for Waste Heat And cold valorisation Towards EU decarbonization	SO-WHAT	20	Partner	IES R&D	€498,750
Solutions and Technologies for deep Energy renovation Processes UPtake	StepUP	10	Partner	IES R&D	€370,825
Innovative, Low Cost, Low Weight and Safe Floating Wind Technology Optimized for Deep Water Wind Sites	FLOTANT	17	Partner	Technology from Ideas Ltd	€342,259
Fostering Socially Innovative and Inclusive Strategies for Empowering Citizens in the renewable Energy Market of the Future	socialRES	13	Partner	Trinity College Dublin	€305,100
TOwards Multi-stakeholder transition ROadmaps With citizens at the centre	Tomorrow	10	Partner	Codema	€234,353
Copper-Based Flow Batteries for Energy Storage Renewables Integration	CUBER	11	Partner	University College Cork	€234,353
Supporting Public Sector's Capacity and Leadership in Decarbonising Europe's Building Stock, through the Development of a Multi-level Renovation Impact Framework	BUILDUPON2	10	Partner	Irish Green Building Council	€161,495
Connecting Obligated Parties to Adopt Innovative Schemes towards Energy Poverty Alleviation	SocialWatt	14	Partner	ESB Networks Ltd	€136,000
SMARTER Finance for Families – Improving Citizens' Health, Comfort and Financial Well-Being by Supporting Banks, Residential Investors and Solution Providers with Green Homes and Green Mortgage Programs	SMARTER	18	Partner	Irish Green Building Council	€118,175

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Proposal title	Proposal acronym	Number of partners in consortium	Applicant role	Applicant name ⁶⁰	Applicant EU financial contribution ⁶¹
REnewable GAs TRAde Centre in Europe	RE-GATRACE	15	Partner	Renewable Gas Forum – Irish Green Gas Ltd	€113,581
Pan European Technology Energy Research Approach	PANTERA	9	Partner	University College Cork	€395,875
Pan European Technology Energy Research Approach			Partner	University College Dublin	€371,895
LAUNCH: Sustainable Energy Assets as Tradable Securities	LAUNCH	5	Partner	Energy Efficiency Deliveries Ltd	€97,188
High Performance Gas Expansion System for Halon-free Cargo Hold Fire Suppression System	ECOSYS-TEM	5	Coordinator	United Technologies Research Centre Ireland Ltd	€144,504
Support to the Realisation of the Ocean Energy Implementation Plan of the SET-Plan	OCEANSET	9	Coordinator	SEAI	€331,000
Energy Efficiency Compliant Products 3	EEpliant3	28	Partner	SEAI	€149,371
Clusters Go International Programme, Geothermal Clusters	GEE-2	9	Partner	GSI (DCCAE)	€79,086
Monitoring EU Energy Efficiency First Principle and Policy Implementation	ODYS-SEE-MURE	36	Partner	SEAI	€23,600
Renewable Energy for Self-sustainable Island Communities	REACT	23	Partner	National University of Ireland Galway	€337,533
			Partner	ESB Networks Ltd	€333,725
			Partner	SEAI	€139,500
			Partner	Údarás Na Gaeltachta	€258,190
Breaking of Highly Energetic Waves	HIGH-WAVE	1	Coordinator	University College Dublin	€2,499,946
Control Parametric Resonance of Wave Energy Conversion Systems	CONPARA	1	Coordinator	Maynooth University	€196,591
Ecologically and Economically Sustainable Mesopelagic Fisheries	MEESO	18	Partner	Teagasc	€102,844
			Partner	Bord Iascaigh Mhara	€108,000
			Partner	MI	€379,540
Southern Ocean Carbon and Heat Impact on Climate	SO-CHIC	15	Partner	National University of Ireland Galway	€243,670
Tropical and South Atlantic Climate-based Marine Ecosystem Predictions for Sustainable Management	TRIATLAS	35	Partner	National University of Ireland Galway	€101,000

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Proposal title	Proposal acronym	Number of partners in consortium	Applicant role	Applicant name ⁶⁰	Applicant EU financial contribution ⁶¹
Multiple-Use-of Space for Island Clean Autonomy	MUSICA	15	Coordinator	University College Cork	€3,173,375
			Partner	International Consortium of Research Staff Associations Company	€141,875
			Partner	Neodyne Ltd	€713,055
FLOating Wind Energy netwoRk	FLOAWER	25	Partner	University College Cork	€274,684
Multi-Use offshore platforms demoNstrators for boosting cost-effective and Eco-friendly proDuction in sustainable marine activities	UNITED	26	Partner	Seaweed Company Blue Turtle Ltd	€535,259
Improving and Integrating European Ocean Observing and Forecasting Systems for Sustainable use of the Oceans	EuroSea	55	Partner	MI	€433,744
CONtract SOLutions for Effective and lasting delivery of agri-environmental-climate public goods by EU agriculture and forestry	CONSOLE	24	Partner	University College Cork	€167,000
WeCount: Citizens Observing Urban Transport	WeCount	7	Partner	University College Dublin	€246,250
Towards Climate-smart Sustainable Management of Agricultural Soils	EJP SOIL	26	Partner	Teagasc	€1,266,907
AGROforestry and MIXed farming systems – Participatory research to drive the transition to a resilient and efficient land use in Europe	AGROMIX	28	Partner	Teagasc	€71,785
Minimal Size Thermal and Electrical Energy Storage System for In-situ Residential Installation	MiniStor	18	Coordinator	Tyndall	€1,083,578
			Partner	Cork City Council	€335,751
Service Platform to Host and share REsidential data	Sphere	21	Partner	National University of Ireland Galway	€250,125
			Partner	VRM Technology Designated Activity Company	€593,281
Aerosol, Clouds and Trace Gases Research Infrastructure Implementation Project	ACTRIS IMP	34	Partner	University College Cork	€80,215
PALEOcene greenhouse climate and the effect of basalt weathering on CARBON sequestration	PALEO-CARBON	1	Coordinator	Trinity College Dublin	€294,886
Towards the Sustainable Development of the Atlantic Ocean: Mapping and Assessing the Present and Future Status of Atlantic Marine Ecosystems under the Influence of Climate Change and Exploitation	MISSION ATLANTIC	34	Partner	Intrigo Ltd	€172,688
			Partner	MI	€553,125

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Appendix 5:

Climate-related Interreg Projects Awarded in 2019⁶²

Proposal title	Proposal acronym	Number of partners in consortium	Applicant role	Applicant name ⁶³	Applicant EU financial contribution
Coastal Communities Adapting Together	CCAT	6	Coordinator	University College Dublin	€449,001
			Partner	Fingal County Council	€157,395
			Partner	University College Cork	€162,251
Effect of Climate Change on Bird Habitats around the Irish Sea	ECHOES	5	Partner	University College Cork	€329,939
			Partner	Compass Informatics	€893,468
Prevention and Mitigation of the Mycotoxin Contamination of Food and Feed Caused by Climate Change in the Atlantic Area	AGRITOX	8	Partner	Teagasc	€194,167
Development of a Streamlined Commercialisation Pathway for the Marine Renewal Energy Industry	SELKIE	6	Coordinator	University College Cork	€1,991,400
			Partner	DP Energy Ireland Ltd	€198,500
			Partner	Gavin and Doherty Geosolutions	€175,500
Sensor Technologies for Remote Environmental Aquatic Monitoring	STREAM	3	Coordinator	Waterford Institute of Technology	€1,690,118
			Partner	Cork Institute of Technology	€911,070
Climate Change Adaptation through Ecologically Sensitive Coastal Infrastructure	ECOSTRUCTURE	5	Partner	University College Cork	€346,680
			Partner	University College Dublin	€1,636,332
BLUEFISH	BLUEFISH	6	Partner	Bord Iascaigh Mhara	€491,063
			Partner	MI	€911,042
			Partner	University College Cork	€814,415

62 Includes projects approved, contracted and started in 2019.
63 Shading indicates CRCG members.

Proposal title	Proposal acronym	Number of partners in consortium	Applicant role	Applicant name ⁶³	Applicant EU financial contribution
Restoring the Carbon Storage Capacity of Peatlands	CARE-PEAT	9	Partner	National University of Ireland, Galway	€978,286
			Partner	An Taisce	Associate partner – no budget
			Partner	Community Wetlands Forum c/o Irish Rural Link	Associate partner – no budget
			Partner	Bord na Mona	Associate partner – no budget
			Partner	Eastern and Midland Regional Assembly	Associate partner – no budget
Energizing Education to Reduce Greenhouse Gas Emissions	ENERGE	7	Coordinator	National University of Ireland, Galway	€1,176,835
			Partner	Dublin City University	€170,403
			Partner	Engineers Ireland	Associate partner – no budget
			Partner	Seamount College	Associate partner – no budget
			Partner	Education and Training Boards Ireland	Associate partner – no budget
			Partner	St Enda's College	Associate partner – no budget
			Partner	Department of Education and Skills	Associate partner – no budget
			Partner	Joint Managerial Body for School Management in Voluntary Secondary Schools	Associate partner – no budget
Increase the Capacity of Renewable Energies (RE) in Farms in the North West Europe Region by using Solar Thermal Energy	ICaRE4Farms	9	Partner	Northern and Western Regional Assembly	€342,300
Rethink Electricity Distribution Without Load Following	RED WoLF	14	Partner	IT Sligo	€314,523.30
			Partner	Cork City Council	€253,370.00
			Partner	Carbery Housing Association	€521,770.00
			Partner	Eirgrid	Associate partner – no budget

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Appendix 6:

Climate-related LIFE Projects Awarded in 2019

Proposal title	Proposal acronym	Number of partners in consortium	Applicant role	Applicant name ⁶⁴	Applicant EU financial contribution	Total EU contribution
Towards Implementing the PAF for Ireland by Protecting and Restoring Ireland's Blanket Bog Natura Network along the Atlantic Seaboard	LIFE IP PAF-WILD ATLANTIC NATURE	10	Coordinator	NPWS/DCHG	€10,029,533	€12,400,000
			Partner	Failte Ireland	€2,344,752 ⁶⁵	
			Partner	Bord na Móna		
			Partner	Raidio Teilifís Eireann		
			Partner	Teagasc		
			Partner	Heritage Council		
			Partner	DAFM		
			Partner	Coillte		
			Partner	Northern and Western Regional Assembly		
LIFE Farm4More: Future Agricultural Management for Multiple Outputs on Climate and Rural Development	LIFE Farm4More	9	Coordinator	University College Dublin	€612,934	€3,022,027 ⁶⁶
			Partner	Bantry Marine Research Station Ltd	€54,715	
			Partner	Biorefinery Research, Implementation and Development Ltd	€1,351,961	

⁶⁴ Shading indicates CRCG members.

⁶⁵ Breakdown for associated beneficiaries not available.

⁶⁶ DCCAE contribution of €1,600,000.

Appendix 7:

Climate-related COST Actions Awarded in 2019⁶⁷

Cost Action	Project title	Irish partner(s) organisation ⁶⁸	Number of partners in consortium
CA18201	An Integrated Approach to Conservation of Threatened Plants for the 21st Century	Maynooth University	37
CA18219	Research Network for Including Geothermal Technologies into Decarbonized Heating and Cooling Grids	GSI	31
CA18235	PROfiling the Atmospheric Boundary layer at European Scale	National University of Ireland, Galway	29

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67 Approved in June 2019.
68 Shading indicates CRCG members.

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Appendix 8: Scheduling of Competitive Calls

Funding organisation	Name of scheme	Pre-launch consultation period (identify call priorities)	Key call dates Call opening ↓ Call closing ↓ Call evaluation ↓ Awards ↓ Start of projects	Pre-call consultation		
				Does your agency have a pre-call consultation as part of its call process? (Y/N)	Does this process involve some of the CRCG members? (Y/N)	Additional information
DAFM	National Call 2020	August 2020	November 2020 ↓ January 2021 ↓ March 2021 ↓ June/July 2021 ↓ September 2021	Y	Y	N/A
EPA	EPA Research Annual Call	December to March	April/May ↓ June/July ↓ July to September ↓ November/December ↓ Until the following 31 st March	Y	Y	Steps include: 1. Research ideas consultation template circulated to CRCG members and RPO ⁶⁹ s 2. Restricted Prioritisation Workshop (March) 3. EPA Board approval before call launch
GSI	1. GSI Short Call 2. GSI Postdoctoral Fellowship Scheme		Q2 ↓ Q4	Not for GSI only funding. Consultation process for co-funding programmes	Y	Feedback gathered annually from geoscience sector, including relevant topics
MÉ	Met Éireann Research Call Programme	Q4/Q1	Q1 ↓ Q2 ↓ Q2 ↓ Q3 ↓ Q4	Y	Y	Informal consultation process so far; greater levels of consultation envisaged
MI	Marine Research Programme	January to March	April ↓ June ↓ July to September ↓ November ↓ Within 6 months	Y	Sometimes	Specific calls vary each year depending on available funding and research priorities
OPR	N/A	N/A	N/A	N	N	OPR established 2019. It is presently preparing a research programme
SEAI	National Energy Research, Development and Demonstration (RD&D) Funding Programme	May to October	Early in new year ↓ Q1 March to June ↓ August/September ↓ Before end of year	Y	Y	SEAI invites stakeholders to participate in a consultation process and propose topics

N/A, not applicable.

69 RPO: Research Performing Organisation

and Co-funding Opportunities

Co-funding opportunities				
Can your agency provide co-funding to other agencies? (Y/N)	When is the best period for other agencies to contact you in relation to potential co-funding?	Can other agencies provide co-funding to your calls? (Y/N)	Is co-funding for your calls sought: (i) pre-call launch, (ii) after call launch, (iii) both?	Additional information
Y	August 2020	Y		
Y	Before end of March	Y	Pre-call launch ● After call launch ○ Both ●	Co-funding can be secured after call launch, but prefer to have it secured before launch of call
Y	Flexible	Y	Pre-call launch	
Y	Q4	Y		Preliminary considerations subject to change
Y	January or September	Y	Pre-call launch ○ After call launch ○ Both ●	
N	N/A	N	N/A	As OPR was only recently established, not in a position to co-fund but hopes to do so in the future
Y	April to October	Y	Pre-call launch ○ After call launch ○ Both ●	N/A

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