



# Eight Ways to Catalyse the Zero-carbon Economy

Work with us to accelerate climate innovation in the UK and Ireland



Climate-KIC is supported by the  
EIT, a body of the European Union



### **CLIMATE-KIC UK & IRELAND**

The UK & Ireland is a core geographic region within Climate-KIC and is one of 17 national centres. It is home to some of the most energetic climate innovation clusters and businesses in Europe. This document sets out opportunities to partner with Climate-KIC UK & Ireland to shape and accelerate the transition to a climate-resilient society and zero-carbon economy.

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An aerial photograph of a winding asphalt road cutting through a dense, lush green forest. A single blue car is driving on the road, positioned in the lower third of the frame. The text 'Let's build this zero-carbon economy' is overlaid in white, sans-serif font on the left side of the image.

Let's  
build this  
zero-carbon  
economy

# What is Climate-KIC?

Climate-KIC is a pan-European innovation agency working to accelerate the transition to a prosperous and inclusive climate-resilient society and a circular, zero-carbon economy.

Our role is to catalyse deep decarbonisation and strengthen climate resilience through innovation.

We believe that tackling the causes and effects of climate change through innovation in all areas of human activity will unlock healthier future economies and societies.

No one organisation can solve climate change alone. To mitigate emissions and help societies adapt to climate change we're going to need a climate innovation pipeline of great ideas and the right network of partners to bring them to scale.

- Climate-KIC convenes Europe's largest **network** focused on transformative climate innovation. We bring together business, academia, research and government to create the critical mass for global scaling of climate solutions.
- We run **programmes** across Europe via centres in major cities for climate innovators and entrepreneurs, postgraduates and professionals. We support climate innovation within established businesses through our partner programmes.
- We develop multi-stakeholder innovation **projects** to catalyse **systemic change**, focusing on specific outcomes\* we want to see in the world. Specialist teams within Climate-KIC (focused on four priority areas: Decision Metrics and Finance; Sustainable Production Systems; Sustainable Land Use; and Urban Transitions) help to shape outcomes with the most potential for transformation and for economic and environmental gain.
- Climate-KIC is active in 25 countries. Our national centres deliver Climate-KIC programmes and projects, create **local innovation ecosystems**, and bring the most influential climate innovation partners from their regions into our European network. The result is a highly responsive, pan-European network that works across borders and sectors.

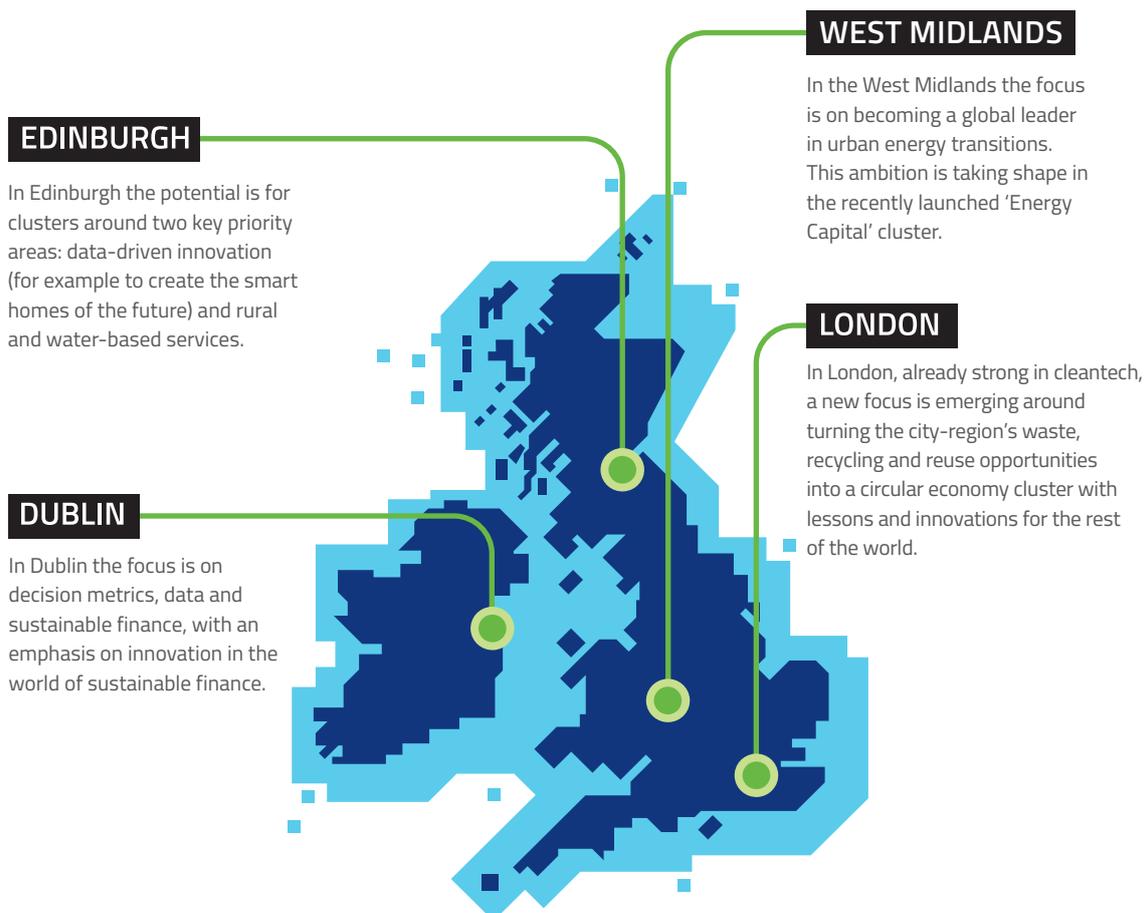
\*See Theory of Change on page 32.

# Climate-KIC UK & Ireland

Our national team works to accelerate climate innovation within the UK and Ireland and acts as a bridge into Climate-KIC's pan-European network.

We have offices in **Birmingham** and **London**, and we work with Sustainable Nation in **Dublin** and the Edinburgh Centre for Carbon Innovation in **Edinburgh** – four city-regions where climate innovation clusters are emerging around local strengths in the new climate economy.

Our approach is to align a proportion of our education and entrepreneurship activities with these local strengths, to build local competitive advantages. Over the next five years we aim to expand our programmes and projects, both within these clusters and into other city-regions across the UK and Ireland.



# We're shaping the future. Shape it with us!



Letter from Dr Tom Mitchell, Director of Climate-KIC UK & Ireland

## A framework for the future

The transition to a climate-resilient society and zero-carbon economy is a collective effort. In this document are **eight ways** Climate-KIC UK & Ireland is contributing to that effort by tackling the causes and effects of climate change through innovation.

Each one of these eight interventions – from strategic entrepreneurship programmes to multi-partner projects that cross borders and sectors – can be replicated or scaled up to build on our momentum. Over the next five years we aim to expand our network of partners in business, philanthropy, research and the public sector to help shape the emerging economy and bring climate change solutions to scale, quickly.

## We turn city-regions into climate innovation clusters

The eighth 'intervention' in these pages highlights the work we are doing in city-regions to accelerate the evolution of climate innovation clusters. This place-based, mission-oriented approach to innovation offers many layers of benefits for the UK and Ireland. Clusters bring local economic growth and jobs, the ability to respond quickly to demand for low-carbon and adaptation goods and services at home and abroad, and a framework for achieving national and international climate targets. With their focus on local competitive advantages, they also have the potential to heal concerns surfaced by Brexit

about a lack of control over local futures. The approach emerges neatly out of our existing model. All seven of our other interventions are key ingredients of strong climate innovation clusters.

We believe that putting climate innovation at the heart of our future economy provides our best bet for achieving growth on a 1.5 degree trajectory, and a leading role for British and Irish businesses in the changing global economy.

## BE A PART OF IT

Our innovation approach to tackling climate change is not just about harnessing the business opportunities on the cusp of a new economy. It is about momentum, creativity and hope. The climate economy is an area people *want* to work in. We need to build on that momentum, post-Paris, and move faster into a new phase of climate action.

## Turning investment into impact

As you will see in the pages that follow, Climate-KIC has established a range of climate innovation programmes, projects and approaches in the UK and Ireland. Our model offers an opportunity for other parties to invest and collaborate – both locally and nationally – to grow the number of cities, businesses and individuals receiving support, and to increase the rate of transition to a climate-positive world.

We look forward to collaborating with you!



We need  
a better  
quality of  
life for more  
people on  
a 1.5 degree  
trajectory

# Challenges and opportunities

## **The climate change challenge**

The Paris Agreement built an unprecedented consensus ambition to hold temperature rise to well below 2 degrees, ideally 1.5. Britain is part of the delivery team for this global ambition.

## **The innovation challenge**

Rapid innovation in low-carbon and resilience goods, services and approaches is critical for getting from where we are now to an economy that operates within planetary boundaries. Few people grasp how radically – or how quickly – we will need to ramp up decarbonisation to meet Paris climate goals. Part of the UK and Ireland's innovation challenge is to understand the conditions that make this kind of rapid, mission-oriented innovation possible, and how to deliver it along with social goals.

## **The economic and social challenge**

We need a credible plan that allows the UK and Ireland to create more evenly-distributed jobs and a better quality of life, for more people, on a 1.5 degree trajectory. We need to move from a linear, extractive economy to a generous and inclusive economy that builds economic value around solutions to our biggest challenges, and invests in the sources of our health and well-being.

## **The business opportunity**

The Paris Agreement – celebrated as the greatest market signal ever – will require a raft of innovations, and provide considerable business opportunities for those who can provide solutions. In the UK, the green economy has been a positive driver of economic growth over the last six years. At the last count, it generated £46.2 billion turnover through 238,500 full-time jobs in 2014 (ONS 2016). A 2015 report by the Carbon Trust forecast that the UK has a credible opportunity to triple its low-carbon exports to £30 billion by 2020 and double its global market share to 10 per cent. Globally, the low-carbon economy – projected to be worth \$5 trillion – provides a growing market for UK exports in low-carbon innovation. The adaptation market, until now a missed growth opportunity, is already worth €279 billion globally and in the next few years it is predicted to boom, growing 11 per cent annually by 2020.

# What we do: an at-a glance guide

## **1** We turn good ideas into climate-positive businesses

**PAGE 10**

We find breakthrough ideas and empower people to bring them to life. We run pre-incubation and start-up accelerator programmes in four cities, and we support innovation within established businesses via our partner programmes.

## **2** We turn talented people into climate leaders

**PAGE 12**

Our education, training and leadership programmes address the skills gaps holding back climate innovation, and contribute to the creation of a critical mass of change agents and climate leaders. We develop programmes with universities, city councils and other stakeholders.

## **3** We turn climate risks into business opportunities

**PAGE 14**

We have developed the Resilience Innovation for Growth Programme to enable the UK and Ireland to capitalise on high-growth sectors within the resilience market, and to position us as a leading exporter of climate and disaster resilience products and services.

## **4** We turn demand into markets and solutions

**PAGE 16**

Our demand-led open innovation challenges match demand for low-carbon and adaptation solutions with new ideas from start-ups and researchers. These challenges develop markets and demand-side pull for climate-positive goods and services, and help to find and scale up the best solutions, quickly.

We offer the most comprehensive innovation-oriented solution to the joint challenges of climate change and economic development

## **5** We turn complex challenges into big levers for change

**PAGE 18**

We develop and manage collaborative innovation projects and empower people to work together for systemic change. In this role we move projects along our innovation pipeline from idea to scale to impact, and offer strategic partnership, neutral brokerage and innovation grant management.

## **7** We turn innovative organisations into powerful networks

**PAGE 22**

We convene the most commercially astute and influential network for climate innovation anywhere. Our growing network is at the heart of our value as an agent and broker of climate innovation, and enhances our ability to develop markets, create demand-side pull and bring solutions to scale quickly.

## **6** We turn data and insights into shared knowledge

**PAGE 20**

We create platforms for knowledge exchange, and develop data, research and thought leadership to empower decision makers to invest confidently in climate innovation strategies. In the UK and Ireland, we are analysing opportunities to build jobs around climate innovation in four city-regions.

## **8** We turn city-regions into climate innovation clusters

**PAGE 26**



All seven of these interventions shape innovation for climate-positive outcomes. As part of a coordinated approach, they can also foster the emergence of climate innovation clusters, which accelerate innovation and bring additional benefits for regional economies.

To develop this opportunity for clean growth, Climate-KIC UK & Ireland is working with city governments, universities and businesses on a framework for supporting the emergence of climate innovation clusters across the UK and Ireland. Talk to us about our 'Connected Climate Innovation Clusters' approach.

1

# We turn good ideas into climate-positive businesses

We need to create more climate-positive businesses in the UK and Ireland, more quickly, if we're going to meet our climate goals and play a leading role in the changing global economy.

Financial markets are failing to provide finance to early-stage climate-focused companies with great innovation potential.

Climate-KIC has a proven model of financial and business support for accelerating low-carbon and resilience businesses into a global market and investment arena, at record speeds.



## The Climate-KIC Start-up Accelerator Programme

Climate-KIC runs Europe's largest and most successful start-up accelerator programme focused on climate impact. In the UK and Ireland we run programmes in Birmingham, Dublin, Edinburgh and London. Our pan-European network acts as a bridge for the free flow of best practice between the UK and Ireland and our European partners, and contributes to the rapid commercialisation of British and Irish goods and services. We draw on this network to match start-ups with markets and strategic partners, to ensure they are well-equipped for growth. Climate-KIC start-ups receive intensive coaching and financial support, and develop their ideas with Europe's most talented climate entrepreneurs.



## Pre-incubation programmes

We offer pre-incubation and ideation support through our Greenhouse and ClimateLaunchpad programmes to nurture early-stage ideas and to feed our innovation pipeline.

## Our business creation programmes work:

14

countries in Europe host Climate-KIC Start-up Accelerators, in 17 locations

900

start-ups supported since 2012; now we validate 200 low-carbon ideas a year

€83 M

of the €337 million total external investment reported since 2012 was raised by UK & Ireland start-ups

13

Climate-KIC entrepreneurs featured in 2016 Forbes '30-Under-30 List' for Europe's boldest young entrepreneurs



## SKIPPING ROCKS LAB

Climate-KIC Accelerator 2016

Mission: To eradicate packaging waste

First product: Ooho!

## Climate-KIC start-ups have given the world:

- A hybrid solar panel that produces both heat and power, with world-beating efficiency
- A bio-reactive food expiry label that prevents consumable food waste
- A retrofit microproject engine for boilers that produces electricity while providing hot water and space heating, and reduces bills and CO<sub>2</sub> emissions
- A safe, electric, autonomous flight helicopter with the potential to re-invent mobility in urban areas
- An alginate alternative to plastic water bottles
- A 'city tree' (intelligent biological air filter) that combines the natural abilities of mosses with cutting-edge IoT technology.

## WORK WITH US

Start-ups play a crucial role in the supply of innovative climate solutions. These solutions present enormous business, mitigation and resilience opportunities that are best exploited through strategic partnerships. We invite corporates, cities, national and sector-level partners to:

- Sponsor a side call within one of our existing programmes, around specific climate innovation challenges.
- Collaborate on a new accelerator programme to:
  - (1) shape and strengthen cluster priorities within the West Midlands, Dublin, Edinburgh or London
  - (2) foster climate innovation clusters in other city-regions, or
  - (3) stimulate innovation for adaptation as part of our 'Resilience Innovation for Growth Programme' (see page 14).

2

## We turn talented people into climate leaders

Our education, training and leadership programmes address skills gaps that hold back the economic potential of city-regions.

We work with universities to strengthen climate entrepreneurship within existing postgraduate courses, and we support hundreds of professionals and climate entrepreneurs every year through our incubator, summer school and leadership programmes.



### The Journey

*The world's largest climate innovation summer school for students and professionals, where participants apply climate entrepreneurship to real-world challenges*

The Journey offers a unique combination of climate knowledge and hands-on business experience, and brings together students and professionals from across the globe. Participants travel to three countries, interact with researchers, start-ups, government officials and large corporations, and get up-to-date briefings on the latest challenges, science and policy in adaptation and mitigation. Working in multidisciplinary teams supported by business coaches, participants learn how to develop and pitch their own ideas as potential business ventures.

### The Journey is seeding a global network of climate leaders:

**1200+**

participants from across the globe have participated in The Journey since 2010



The Journey format has been held up as a best-case example of Innovation in Higher Education by the OECD (HEInnovate)

**50**

different nationalities, from Europe and beyond, are represented in our alumni

**%**

An increasing number of Journey participants continue to Climate-KIC's Greenhouse programme

**240**

climate-positive business ideas have been generated by the programme since 2010



### Schools programmes for 11–18-year-olds

We are in the early stages of developing climate innovation programmes for young people in schools and youth organisations.

## CLIMATE ENTREPRENEUR

**KATE HOFMAN**, CEO and Co-founder  
of GrowUp Urban Farms

The Journey 2011

Greenhouse 2012

Climate-KIC Start-up Accelerator 2013

Climate-KIC UK & Ireland Venture  
Competition Winner 2012

Mission: To turn unused urban space into  
year-round produce through vertical and  
aquaponic farming



### Climate-KIC Associate Master's

Our recently launched Associate Master's recognises the contribution of high quality Master's courses within the UK and Ireland. These include MSc programmes in environmental science, environmental management, sustainability and business. The Associate course status enhances existing MSc programmes with work placement opportunities, real-world innovation challenges and high-profile guest lectures.



### Professional education and training

We work with universities, professional bodies and other organisations to develop and jointly run professional courses that address regional or sectoral skills gaps. These courses also enable us to share the knowledge and best practice generated in Climate-KIC projects across Europe with professionals in the UK and Ireland.

## WORK WITH US

We invite universities, foundations, LEPs and national and city-level partners to:

- Sponsor a UK and Ireland Journey for postgraduates and professionals.
- Sponsor our work in schools.
- Partner with us on short courses.
- Put forward a university course as a Climate-KIC Associate Master's.

3

## We turn climate risks into business opportunities

Adapting to climate and disaster risk has, so far, been a missed opportunity in the new climate economy. But that is changing, fast.

The global adaptation economy is already worth €279 billion and in the next few years it is predicted to boom, growing 11 per cent annually by 2020.

Climate-KIC catalyses innovation that helps countries and communities adapt to climate change, while creating growth and jobs in the new climate economy.



### Resilience Innovation for Growth Programme

*An opportunity for UK leadership*

Climate-KIC UK & Ireland, working with Innovate UK and NERC, has developed the 'Resilience Innovation for Growth Programme' to capitalise on high-growth sectors within the expanding resilience market and position the UK as a leading exporter of climate and disaster resilience products and services. The programme is designed to create jobs, economic growth and resilience benefits by supporting UK start-ups and businesses to respond to the growing demand for resilience solutions. We are developing four interrelated programmes based on our tried and tested model of: Education and Skills; Innovation Pipeline; Market Development; and Community.



### The Climate-KIC Adaptation Innovation Approach

The place of climate change adaptation on the European political and economic agenda has risen sharply in recent years. Climate-KIC's pan-European Adaptation Working Group published the 'Climate-KIC Adaptation Innovation Approach' to set out our response to the urgent need for adaptation action. Over 50 land-use and adaptation-oriented start-ups have been supported by Climate-KIC's Start-up Accelerator programme since 2012. One component of our response will be to ramp up the number of adaptation-oriented ideas we support within our Accelerator programme, with a focus on adaptation innovation for impact.

Read the report at [climate-kic.org/adapt](https://climate-kic.org/adapt)

## WORK WITH US

We conceive of the 'Resilience Innovation for Growth Programme' as a multi-party funded national programme, based on a public-private partnership with delivery through a wide set of organisations.

- Talk to us about supporting and shaping adaptation innovation for both domestic and international markets.

Let's build an economy  
that invests in the  
sources of our health  
and well-being



4

# We turn demand into markets and solutions

Demand-led open innovation challenges match demand for low-carbon or adaptation solutions with new ideas from start-ups and research organisations.

These challenges sharpen innovation priorities, develop markets and demand-side pull for new ideas, and help to find and scale up the best solutions, quickly.



## The 2016 London Climate Innovation Challenge

Climate-KIC used an open innovation process to support The London Waste and Recycling Board's (LWARB) goal to develop circular economy solutions to two of London's biggest urban waste challenges: food waste and building waste. The winners were Entomics, who use insect larvae to convert food waste into feed and fertiliser, and Adaptavate, who make plasterboard that is completely compostable at the end of its life.



## The Glasgow Resilience Innovation Challenge

Working with Glasgow City Council, Climate-KIC set up an open call to source solutions to two resilience challenges facing the city: flood risk and citizen engagement in climate adaptation. We hosted an Innovation Day side-event at the 3rd European Climate Change Adaptation Conference in Glasgow for the final pitches. The winners were SUDSBOX®, a rain garden that enables homeowners to play a part in managing Glasgow's flood risk, and River Change, an art installation that allows participants to experience the science of how climate change affects rivers.



## #Climathon

Climathon is a global 24-hour climate change hackathon which takes place simultaneously in major cities around the world. It brings together innovators, entrepreneurs, students and professionals to create solutions to a local climate challenge.

### In the 2016 Climathon:

1,400

ideas were submitted

59

cities on 6 continents took part

16.8M

people worldwide were reached through social media



LWARB is tasked with catalysing the circular economy in London on behalf of the Mayor of London and the GLA. This Challenge introduced us to the start-ups that are really going to help drive the circular economy in London.

STUART FERGUSON,  
Head of Investment at LWARB



## Business Innovation Challenge

Demand-led innovation challenges can also connect companies with opportunities for growth, investment and impact. As part of our wider efforts to develop demand-side pull for climate-positive ideas, we run Business Innovation Challenges for companies and sector organisations. In 2016 Climate-KIC partnered with Knight Frank to host a challenge focused on technologies that can significantly reduce carbon emissions from the built environment. The audience of property companies, real estate investors, fund managers and architects were on the lookout for technologies that could be implemented at scale across their portfolios and projects.

## WORK WITH US

Work with us to develop low-carbon and climate change adaptation markets and solutions:

- Talk to us about our demand-led, open innovation service for cities and businesses.
- Host a Climathon event around a local climate change challenge. Past hosts include companies, councils, universities and community groups. Visit [climathon.climate-kic.org](https://climathon.climate-kic.org)

# 5

## We turn complex challenges into big levers for change

What if investment funds were rated on their climate impact? What if the reinsurance market helped farmers to implement climate-resilient farming methods? What if climate risk information were available on an integrated open global market place?

System innovations like these, which change market structures or democratise access to data for public good, are built on trust and shared risk.

These are just three of the multi-stakeholder innovation projects in which Climate-KIC has acted as catalyst, seed-funder and neutral broker, empowering partners to work together for system change.



### Climetrics

Climetrics is the world's first climate impact rating for equity funds, launched in July 2017 by Climate-KIC, CDP and ISS-Ethix. The equity fund market is worth more than €3 trillion in Europe. At the time of its launch, Climetrics had rated funds representing about €2 trillion, making it a significant lever for mitigating climate change and a potentially key driver of growth in climate-responsible funds. Each fund's rating is based on the climate change impact of its portfolio holdings, as well as on the asset manager's own application of climate impact as an investment and governance factor. The launch of Climetrics at an event hosted by Deutsche Börse was met with intense interest from the financial media.

Find out more at [climetrics-rating.org](https://climetrics-rating.org)



### OASIS

Oasis is a family of open data and modeling initiatives for the global community. By opening up the catastrophe risk modelling market to insurers, financiers, academics, policy makers and industry it aims to (1) accelerate the ability of communities to adapt and protect themselves against severe climate-related and natural hazards, and (2) reduce the \$125 billion natural hazard protection gap, and alleviate losses to property and infrastructure that have averaged around \$180 billion annually in the last decade (70 per cent of which are uninsured). Initiatives include a Loss Modelling Framework (Oasis LMF), an e-marketplace (Oasis Hub) and a consortium of influential backers. Climate-KIC is a strategic partner and funder via our Climate Risk Information (CRI) flagship programme.

Find out more at [risk.climate-kic.org](https://risk.climate-kic.org)



We're going to need more collaborative innovations like Climetrics to reach a tipping point in environmental action. With these projects, and many others like them, Climate-KIC has established itself as a key player in the low-carbon economy.

PAUL DICKINSON,  
Executive Chair of CDP



## Winners

Winners (known as 'WINnERS' to denote Weather Index-based Risk Services) brings together a pan-European partnership of academics, climate scientists, insurance industry experts and global food buyers to build products and services that protect both food buyers and producers from weather and climate driven risks. The project builds resilient agricultural supply chains by: modelling weather and climate risk exposure through state-of-the-art technology, investing in smallholder farmers to improve farming practices and credit worthiness, sharing risk across supply chain actors with weather and climate index-based insurance services, and promoting supportive regulatory environments for insurance products in developing countries. The project was catalysed and funded by Climate-KIC, with co-financing from The World Bank.

Find out more at [winners-project.org](http://winners-project.org)

## WORK WITH US

Complex challenges need partners committed to long-term outcomes. In this role we move projects along our innovation pipeline from idea to scale to impact. We identify innovations with the most potential for systemic change, and then bring together the latest science with a diverse set of partners – including foundations, government, NGOs and companies – to grow programmes and solutions together.

- Talk to us about managing your complex, game-changing innovation ideas or portfolios.
- We offer strategic partnership, neutral brokerage and innovation grant management.

# 6

## We turn data and insights into shared knowledge

Climate-KIC invests significant resources in creating knowledge and insights for transformative climate innovation.

We convene thought leadership and data to create the information people need to take informed action and invest confidently in change.

In the UK and Ireland our focus over the next three years is on mapping, analysing and highlighting regional economic development opportunities around climate innovation.



### A new series of visual, online data stories

**Phase 1:** In 2017/18 Climate-KIC UK & Ireland will map the potential for climate innovation jobs within the West Midlands, Dublin, Edinburgh and London, focusing on local competitive advantages in the climate economy. Studies will include:

- Turning Waste Into Jobs: London's circular economy opportunity
- Exporting The Clean Energy Revolution: West Midlands as the Energy Capital
- Financing The Climate Economy: Ireland's leadership in sustainable investment
- Smart, Resilient, Energy-positive Housing: Edinburgh's growth opportunity.

**Phase 2:** We aim to work with other city-regions with a strong ambition to build jobs, growth, skills and export strategies around climate innovation. Our plan is to extend our data gathering and research into these other cities, working together with a range of city stakeholders.



### Climate Innovation Insights

Each series in Climate-KIC's 'Climate Innovation Insights' zooms in on a specific aspect of climate innovation. The series offers a platform for renowned experts to present insights on the process of tackling climate change through innovation, along with new research, best practice, and methodological approaches. The first series, 'Accelerating the Evolution of Climate Innovation Clusters' was commissioned by the UK & Ireland team to support our 2017–2020 focus on stimulating regional economic development through climate innovation. It offers lessons, tools and an emerging evidence base for any city looking to put climate innovation at the heart of future growth, jobs and skills strategies. Forthcoming series will cover innovation for climate change adaptation; accelerating transition to sustainable production systems; and financing the circular economy.

Read the series at [climate-kic.org/uki/insights](https://climate-kic.org/uki/insights)

## CLIMATE-KIC DATA STORIES

Where are the UK and Ireland's jobs? In the green export economy.

**An economy built on climate innovation**

Click on a Data Story to see opportunities for regional economic development around climate innovation.

**EDINBURGH**  
(1) Data-driven innovation in the smart building industry, and (2) innovation in rural and water-based services

**DUBLIN**  
Decision-metrics and finance, and in the world of sustainable investment

**SWANSEA**  
Leading the world in tidal energy that turn homes into power stations

**CORNWALL**  
An innovation hub for wave and tidal energy

**Exporting the Clean Energy Revolution**  
The West Midlands Energy Capital  
**DATA STORY**

**TEESSIDE**  
World-leading circular economy hub for capturing and reusing carbon dioxide in industrial processes

**HULL**  
Innovation around offshore wind energy

**NOTTINGHAM**  
Leading the world in innovation to achieve ultra-low emissions urban transport

**WEST MIDLANDS**  
The UK's 'Energy Capital', an innovation cluster to lead the way in local, clean energy transitions

**LONDON**  
A circular economy cluster that creates a revolution in zero-waste approaches to city economies

© Climate-KIC 2017



If we want to create jobs and inclusive growth on a 1.5 degree trajectory, we're going to need a new innovation agenda. The 'Climate Innovation Insights' series is our contribution to the debate about how to get to a zero-carbon economy.

DR TOM MITCHELL, Director,  
Climate-KIC UK & Ireland

## WORK WITH US

Climate-KIC Data Stories will provide a visual, interactive and data-led platform to inform regional economic development around climate innovation. We aim to work with data agencies and national and city stakeholders to commission and collate data on city-regions across the UK and Ireland.

- Talk to us about collaborative research for climate impact, or let us know your data needs.

# 7

## We turn innovative organisations into powerful networks

Climate-KIC convenes the world's most influential partnership network for transformative climate innovation.

Our partners are dynamic companies, the best academic institutions, and forward-looking cities, NGOs and public sector organisations.

We bring expertise from these different sectors into creative partnerships, which enable us to catalyse systemic change and develop innovative products and services. This is what makes us a Knowledge and Innovation Community – a 'KIC'.

Our expanding network is at the heart of our value as an agent and broker of climate innovation; it enables us to create a critical mass of key players and accelerate the rate at which solutions are brought to market and to scale.



### The Climate-KIC network

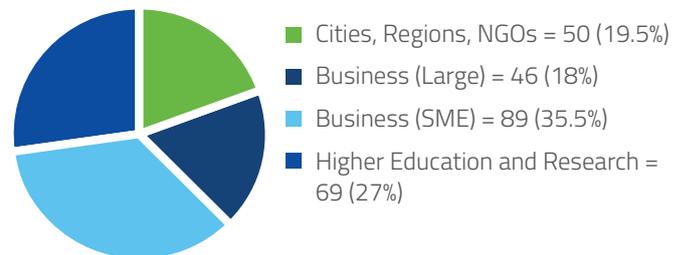
We bring new Partners into our network for a number of reasons:

- to develop solutions to critical climate change challenges through our dedicated Partner Programmes
- as strategic partners in collaborative innovations for systemic change
- as affiliate or delivery partners, to extend our programmes into new areas
- as a major funder or sponsor
- to accelerate the commercialisation and scaling of successful climate change solutions.

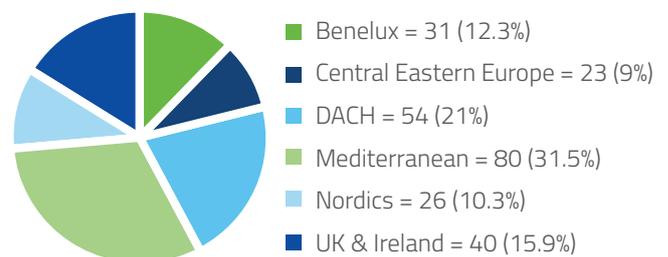
See page 24 for a full list of our current Partners.

Our graduate Alumni Network is another key ingredient in our community and an important source of climate leaders globally..

### Climate-KIC Partners by Category



### Climate-KIC Partners by Geography



## WORK WITH US

- For a summary of opportunities to partner with Climate-KIC in the UK and Ireland, and for contact details, see page 32.
- For general information about becoming a Climate-KIC Partner visit [climate-kic.org/about/our-community](https://climate-kic.org/about/our-community).

We need the right  
network of partners  
to bring climate  
change solutions  
to scale



# Climate-KIC Partners

Our partnership network spans 25 European countries. We support innovation within Partner organisations through our dedicated Partner Programmes, which include Partner Ideation, Accelerator, Demonstrator and Scaler programmes. Together with our Partners we have successfully launched 233 climate-positive products to market, and delivered over €1.8 billion in climate-innovation projects.

## Cities, Regions and NGOs

Agvesto  
Antaco UK Ltd  
Asociación Valenciana de Empresas del Sector de la Energía  
Birmingham City Council  
Birmingham Science Park  
C40  
Carbon Disclosure Project (CDP)  
CDP Worldwide  
Centre for Excellence for Low Carbon and Fuel Cell Technologies  
City of Budapest  
City of Copenhagen  
City of Gothenburg  
City of Helsinki  
City of Malmö  
Cleantech Region  
Climate Policy Initiative, Inc.  
Comune di Bologna  
CRESS Carbon Reducing Energy Storage Systems Limited  
EKO-BIEGLY  
Euro-Mediterranean Centre on Climate Change Foundation  
Foundation Institute for Sustainable Development  
Free Enterprise Association  
Global Fund for Cities Development  
HarvestaGG Green Goods B.V.  
HaskoningDHV Nederland B V  
Helsinki Uusimaa Regional Council  
ICLEI  
IFKA  
Instituto Tecnológico de la Energía  
Instituto Valenciano de Competitividad Empresarial  
Instituto Valenciano de la Edificación  
L'Agenzia Regionale Prevenzione e Ambiente e l'energia dell' Emilia-Romagna  
Las Naves

London Legacy Development Corporation  
London Waste and Recycling Board (LWARB)  
Lower-Silesia Regional Development Agency  
Municipality of Aarhus  
Municipality of Trondheim  
Municipality of Vejle  
SEED Foundation  
StartLife  
The Castellón City Council  
The Ecological Sequestration Trust  
The Energy Saving Trust Foundation  
The Gold Standard Foundation  
The HUB Zürich Association  
The Province of Utrecht  
The Valenciaport Foundation for Research, Promotion and Commercial Studies of the Valencia Region  
Timis Chamber of Commerce, Industry and Agriculture (CCIAT)  
Urban Centre of Bologna  
World Business Council for Sustainable Development  
WWF Switzerland

## Business

ABC-Kroos B.V.  
Agolin S.A.  
AgriCircle AG  
AGROMET  
Air Liquide  
Airbus Defence & Space  
Aqdot Ltd  
ARIA Technologies SA  
Arx-IT Consulting  
Asociación de Investigación de las Industrias Cerámicas  
Association pour la Promotion de la

Recherche sur l'Economie du Climat  
Bayer AG  
Betterpoints Limited  
Beyond Ratings  
BIK Bouw  
Black Bear Carbon  
Brainbows  
Budapest Sewage Works  
Building Global Innovators – IUL MIT  
Portugal Accelerator  
Carbon Trust Advisory Ltd  
Carbone 4  
Carthago Consultancy B.V.  
Center odličnosti nizkoogljične tehnologije  
Chrysalis Leap  
Clarmondial SA  
Cleantech Bulgaria  
Cleantech Forest  
Climate Bonds Initiative  
The Climate Group  
Climate KIC Holding BV  
Climate Media Factory UG  
Climate Neutral Investments Ltd  
Climpact METNEXT SA  
CO2i Ltd  
Conigital  
Cool Farm Alliance  
Covestro Deutschland AG  
Cowi A/S CybeleTech  
Danone  
Dedagroup Public Services  
Dry Gro  
E.ON SE (European HQ)  
Eaternity AG  
Ebusplan GmbH  
E-Car Club  
Ecole des Ingenieurs De La Ville De Paris  
Ecomatters B.V. EcoSCADA  
Ecospeed AG  
Edinn Global S.I.

ElectricFeel Mobility Systems GmbH  
Encraft  
ENGIE S.A.  
Esri Schweiz AG  
Exceedance FERROVIAL  
Future Water  
Green City Solutions  
greenApes Private Limited Company  
GreenCycle  
greenTEG AG  
Itecon Ingenieria Y Construccion S.I. Klm  
Knight Frank LLP  
LCA Works Limited  
Meteorological Environmental  
Earth Observation  
MIDEME S.L.U.  
Modena Energy and Sustainable  
Development Agency  
Naked Energy  
National Energy Foundation  
Ne Nomisma Energia  
NEGOS Negotiation Consulting Plc.  
Novihum  
NTU International  
NUMTECH  
Oasis Hub Ltd  
Oasis Palm Tree Ltd  
OfficeVitae  
ONF International  
Organica Technologies Private  
Company Limited by Shares  
Origen Power Ltd  
Paced  
PANNON Pro Innovation Services  
Paragon Europe  
Porta Capena  
Proambiente S.C.R.L.  
Qarnot Computing  
Quantis  
Reliable Environmental Solutions  
Rezatec Limited  
Rockwool International A/S  
Schiphol Nederland BV  
SCOR  
Select Innovation Limited  
Sky Energy BV  
South Pole Carbon Asset  
Management Ltd.  
Stichting Deltares  
Stichting Historie der Techniek  
Stichting Wetsus Centre of Excellence  
for Sustainable Water Technology  
Stowarzyszenie Centrum  
Rozwiazan Systemowych  
Suez Groupe SAS

Sustainable Nation Ireland  
Synoptic Technologies Limited  
TEP Energy GmbH  
Teralytics  
Tourisme, Transports, Territoires  
Environnement Conseil  
Trivector Traffic AB  
Unternehmer TUM GmbH  
UnternehmerTUM Projekt GmbH  
Veolia Environnement  
virtualcitySystems GmbH  
Wageningen Research  
Warsaw Institute for  
Economic Studies

## Higher Education & Research

Aalto University  
Aarhus University  
Aberystwyth University  
AgroParisTech  
Alma Mater Studiorum – Università  
di Bologna  
Asociación de investigación de  
la industria del juguete, conexas  
y afines  
ASTER – Regional Technology  
Development Agency  
Birmingham City University  
Brandenburg University of  
Technology Cottbus–Senftenberg  
Budapest University of Technology  
and Economics  
Carbon Delta AG  
Chalmers Tekniska  
Hogskola Aktiebolag  
Climate Research Foundation  
Climate-KIC Alumni Association  
CNR-IBIMET  
Commissariat a l’Energie Atomique  
et aux Energies Alternatives  
Cornelissen Consulting Services  
Cyprus University of Technology  
Ecole Polytechnique  
Edinburgh Centre for Carbon  
Innovation  
Edinburgh University  
Eidgenössische Technische  
Hochschule Zürich  
Fondazione Edmund Mach  
Forschungszentrum Jülich GmbH  
Hamburg University  
Helmoltz German Research Centre

for Geosciences  
Helsinki University  
Imperial College of Science,  
Technology and Medicine  
Institute Of Geological Sciences,  
Polish Academy Of Sciences  
Instituto Valenciano de  
Investigaciones Agrarias/Valencian  
Institute of Agricultural Research  
l’Institut national de la  
recherche agronomique  
Laborelec  
Lund University  
Mines ParisTech  
Netherlands Organisation for Applied  
Scientific Research  
Norwegian University of Science and  
Technology  
Potsdam Institute for Climate  
Impact Research  
Provadis School of International  
Management and Technology A.G.  
Riga Technical University  
RWTH Aachen University  
Technical University of Denmark  
Technische Universität Berlin  
Technische Universität München  
Technische Universiteit Delft  
The University of Birmingham  
The University of Kassel  
The University of Reading  
Trinity College Dublin  
Universidade NOVA de Lisboa,  
Faculty of Science and Technology  
Universitat Politècnica de València  
Université de Versailles Saint-  
Quentin-en-Yvelines  
Universite Pierre et Marie Curie  
Universiteit Utrecht  
University of Copenhagen  
University of Debrecen, Centre  
for Agricultural and Applied  
Economic Sciences  
University of Oxford  
University of Valencia  
University Paris-Saclay  
Wageningen University  
Wrocław University of Environmental  
and Life Sciences  
Wrocławskie Centrum Badan  
Wuppertal Institute of Climate,  
Environment and Energy  
Zurich University of Applied Sciences

# 8

## We turn city-regions into climate innovation clusters

The current pace of innovation is too slow to avoid dangerous climate change.

Climate innovation clusters have a vital role to play in increasing the rate of change to a low-carbon, resilient society while bringing local economic benefits.

We believe that stimulating climate innovation clusters should be at the heart of jobs, skills and export plans of governments at all levels.



### Connected climate innovation clusters

The UK and Ireland have a unique opportunity to create jobs and growth at home while leading the global transition to a zero-carbon, resilient global society. Fostering climate innovation within world-renowned cleantech and resilience clusters can unlock this opportunity.

A core focus of our work between 2017 and 2020 will be to accelerate the evolution of clusters around local competitive advantages in the low-carbon economy, in city-regions across the UK and Ireland. Our cluster work is most advanced in the West Midlands, where the Energy Capital initiative was launched in February 2017.

Our long-term goal is to connect these clusters, with each other and with innovation hubs in other parts of the world. The benefits of this approach are set out in 'Connected Climate Innovation Clusters: Creating Jobs, Growth and a Resilient, Zero-Carbon Economy', a proposal prepared by Climate-KIC UK & Ireland, city governments, universities and businesses.



### A recipe for growing climate innovation clusters

While it is difficult to create clusters from scratch, it is possible to strengthen the ingredients that make them most likely to emerge and grow. We have identified 18 of these ingredients and mapped them across 30 UK cities (see 'Insight 1.4: Ingredients for Climate Innovation Clusters: The UK Case\*'). The analysis identifies places where governments and organisations like Climate-KIC can actively strengthen specific ingredients to stimulate regional economic development. The ingredients are reproduced in Table 1, opposite.

Some ingredients are easier to strengthen than others. It might be difficult to create a world-renowned technical university quickly, but easier to develop a start-up accelerator, support entrepreneurship training or strengthen access to business finance. Our ingredients framework provides a useful recipe for any city that wants to put climate innovation at the heart of jobs, skills and growth strategies.

\* [climate-kic.org/uki/insights](https://climate-kic.org/uki/insights)

**TABLE 1: Ingredients that make a climate innovation cluster most likely to emerge and grow**

	Ingredient	Detail
<b>Climate specific</b>		
1	Research and teaching: good university or universities (or other research bodies)	Strong departments oriented to research relevant to climate change
2		A track record of connectivity with business
3		Strong teaching programmes; graduates/postgraduates from courses relevant to tackling climate change
4		Other organisations offering strong professional education courses relevant to climate change innovation
5	Specialisation	Specialisation evident, with a significant number of climate-focused businesses located close to each other
6	Corporations	Existence of major corporations (anchor firms) with climate change-relevant profiles that are making significant research and development investments
7	Markets	Located close to major, relevant markets for climate-related goods and services
8	Accelerator	Existence of start-up accelerator(s) or new-business support mechanisms, with a tailored focus on developing clean technology or climate-resilient businesses
9	Networking agents	Existence of climate change-relevant networking agencies with a track record of convening events that have a mixed participation of researchers and businesses; a local business support network
10	Political leadership	Strong, ambitious political leadership or a policy and/or strategy framework for low-carbon and climate-resilient economic transitions
11	Funding	Significant state sponsorship of R&D and/or innovation for low-carbon and climate-resilient solutions
12	Fiscal incentives	Long-term certainty of fiscal incentives, such as tariffs associated with energy prices from renewables
<b>Non-climate specific</b>		
13	Density	High population density (e.g. associated with a major metropolitan area) and availability of labour
14	Competitiveness	High scoring on competitiveness or innovation indices (intellectual property policies, legal frameworks, etc.)
15	Education	A high proportion of the population with an advanced degree An open immigration policy that allows global talent to move there
16	Quality of life	'Liveability' – high scoring on UK quality-of-life indices
17	A low-cost business environment and an attractive costs profile for new business development	Access to: <ul style="list-style-type: none"> <li>▪ low-cost commercial infrastructure and/or rents (e.g. science parks)</li> <li>▪ low set-up and operating costs</li> <li>▪ specific innovation, science and technology parks</li> <li>▪ tax breaks for innovation</li> </ul>
18	Connectivity	Efficient public transport, cycling and road systems that increase the chances of high attendance at meetings and networking events

Source: Climate Innovation Insights Series 1: Accelerating the Evolution of Climate Innovation Clusters (Insight 1.4: Ingredients for Climate Innovation Clusters: The UK Case)



## Case study

See overleaf for a case study on 'How the West Midlands became an Energy Capital.'

## WORK WITH US

- Get in touch to explore cluster opportunities in your city-region.
- Talk to us about shaping and supporting our 'Connected Climate Innovation Clusters' approach in the UK and Ireland.

# How the West Midlands became an Energy Capital

## Regional Economic Growth by Collaboration

Energy Capital is a new climate innovation cluster initiative that builds on existing strengths in the West Midlands energy sector. It is anchored by the city council and underpinned by organisational support from Climate-KIC.

Energy Capital aims to make the West Midlands one of the most attractive locations in the world to develop and build innovative clean energy technology companies, and to deliver a wide range of economic benefits for the people who live there. The partners that make up Energy Capital – from academia, industry and the public sector – have the collective ability to make the region a global leader in urban energy transitions. A key ingredient in its success will be the single voice it creates for energy in the West Midlands.

## What catalysed Energy Capital?

In the years leading up to its creation in 2016, Climate-KIC's Transition Cities project enabled Birmingham City Council to work with five other city-regions in Europe to compare the impact of their energy sectors. A first step was to map and compare energy stakeholders within the city-regions.



Successful commercialisation of new energy technologies is as much about market, social and political factors, infrastructure and regulation as it is about technology. Energy Capital mobilises all the key stakeholders across the West Midlands to make the region as attractive as possible for investment in new low carbon energy technologies, and a globally competitive location for innovative, high-value low carbon energy businesses.

MATTHEW RHODES, Chair of Energy Capital and MD of Encraft

The comparison between Birmingham and Frankfurt was particularly enlightening. It was immediately clear that:

- Birmingham was home to a wide variety of energy projects and actors – including a world-leading energy research institute – but lacked a clear focus and organisational lead.
- It relied heavily on external funding to support its energy projects and stakeholders.
- The heavily centralised energy system represented lost opportunities for the local economy, as did the absence of local integration within the energy system.

In contrast, the Frankfurt map highlighted the very clear leadership,

coordination and investment provided by the city energy agency ('Energierferat') in leading the city's energy transition. This cluster approach has been hugely successful and is recognised as one of the leading examples of urban transformative change in Europe.

Birmingham City Council brought this learning back to the region, with the aim of turning the low-carbon energy transition into a growth opportunity. The team used Climate-KIC award money to set out a long-term vision for energy within the city, merging the various stakeholder strategies and understanding where and how SMEs could be engaged. Energy Capital was born.

As part of their project to convene local stakeholders, Birmingham City Council and Encraft worked with Climate-KIC UK & Ireland to put on

# Birmingham



an energy-themed open innovation challenge. They invited innovative businesses and researchers from across the region to apply their minds to real energy challenges in Birmingham, Warwickshire and the Black Country, with a view to bringing them into the Energy Capital work streams.

Climate-KIC has played the role of a catalyst and neutral coordinator for Energy Capital.

Now that it has been established, we provide a secretariat for this emerging climate innovation cluster, and foster its evolution by strengthening key ingredients:

- We bring specialist competencies and start-ups into the area through energy-focused education, innovation and entrepreneurship programmes.
- We are continuing to build the business case for our system innovation approach by mapping opportunities for jobs and growth within the area's energy sector, and identifying and addressing skills gaps that could hold back the economic potential of the region.
- We continue to connect key players in the region to each other and to our growing climate innovation network across Europe and in the other parts of the world.

Birmingham also used its Climate-KIC experiment funding to develop an

outline business case for setting up a municipal energy company. This has since been taken to a full business case with a view to it becoming operational by April 2018.

Most CO<sub>2</sub> emissions in cities come from buildings, energy usage and mobility patterns. To drive system change and avoid fragmented solutions, it is vital that cities adopt a systemic view and a collaborative approach.

Effective clusters do not happen by chance. Energy Capital is a real example of how to strengthen key ingredients and bring key actors into a vibrant innovation community.

# Our vision

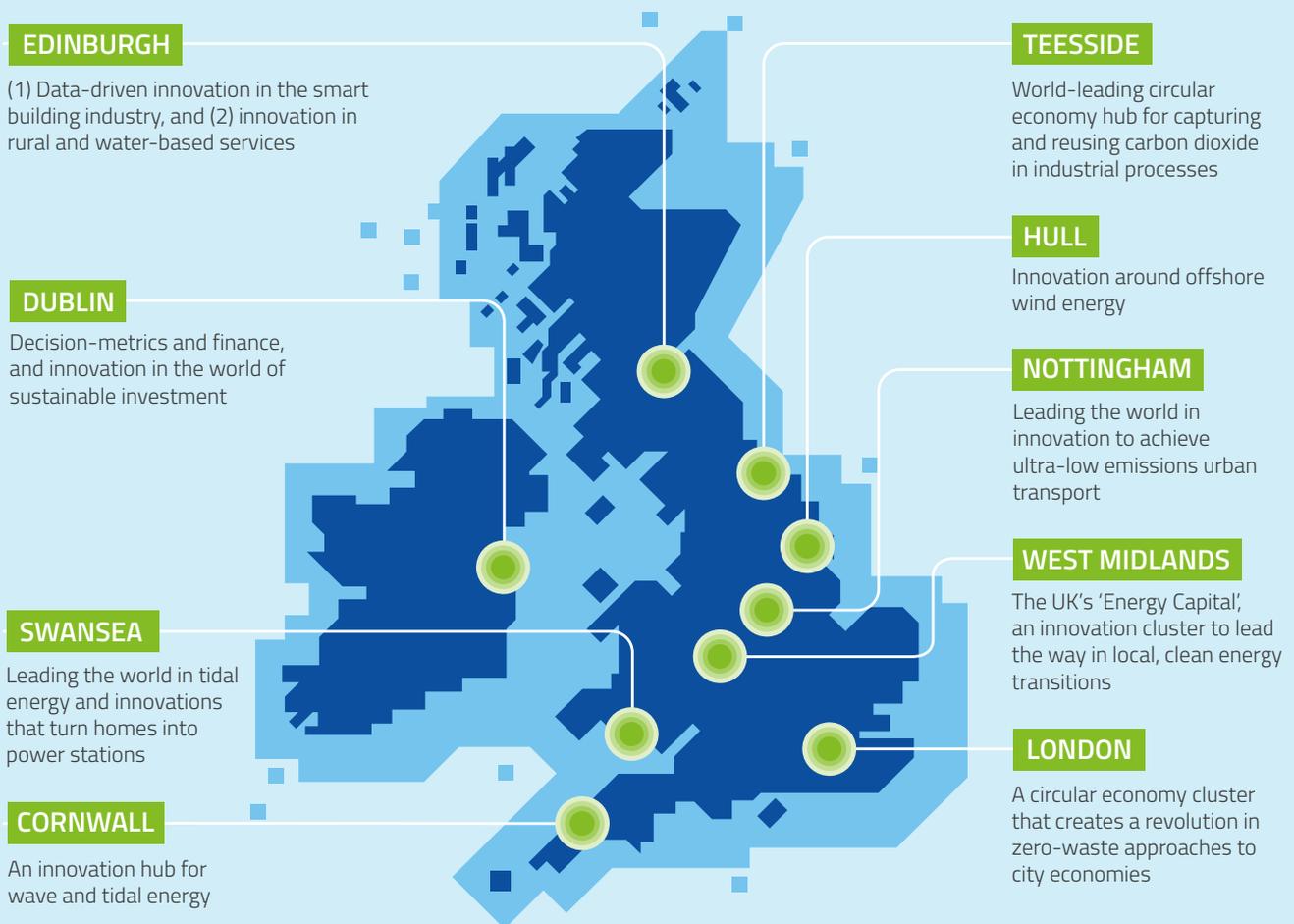
A much better economy is possible in the UK and Ireland: a place-based economy built on regional strengths in the global climate economy; an economy that creates communities and economic value around solutions to society's biggest challenges, and invests in the sources of our long-term well-being.

Within a decade Britain could be a world-leading exporter of climate change solutions, known for its leading role in the transition to a climate-resilient society and zero-carbon economy.

# What would an economy built on climate innovation look like?

A climate innovation cluster approach offers governments at all levels a framework for growth, and a joined-up strategy for jobs, skills, exports and climate change mitigation and adaptation.

This map is just a snapshot of the potential for climate innovation clusters in the UK and Ireland. Other city-regions such as Leeds, Bristol, Cambridge, Manchester and Cardiff are also developing local competitive advantages in the new climate economy.



## WHAT ARE CLIMATE INNOVATION CLUSTERS?

Climate innovation clusters are a geographically dense and dynamic mix of start-ups, SMEs, larger businesses, research organisations, community actors and public bodies that are committed to learning from each other and focused on turning ideas into solutions that are positive for climate and economy. When they emerge around local

competitive advantages in the new climate economy they can (1) become engines of high-quality job growth in city-regions, (2) foster the home-grown start-ups and scale-ups that the UK and Ireland will need to satisfy a bigger share of the growing global demand for climate innovation, and (3) increase the rate of change globally to a climate-resilient society and zero-carbon economy.

# Partner with us to turn investment into impact

Since Climate-KIC was created by the European Institute of Innovation & Technology (EIT) in 2010, we have developed several tried and tested interventions for tackling climate change through innovation, shaped by an evolving Theory of Change. Specific outcomes we need to reach along the way to a zero-carbon economy shape our programmes, projects and partnerships, for example:

- Zero carbon use in the built environment by 2050 (as well as deep decarbonisation in agriculture and forestry, materials, industry, mobility and power generation)
- By 2050, all urban areas have implemented plans to avoid, reduce and manage remaining climate change risks (and resilience in rural, industrial and coastal areas too).

We also work towards specific outcomes in behaviour and system change, organisational governance, policy, finance, skills, and market structure.

Our role is to facilitate innovation where it is most needed and to impact the forces that affect these outcomes.

## HELP BUILD A MOVEMENT FOR CHANGE

We are looking for the right partners to help shape and scale our efforts in the UK and Ireland. We invite corporates and public sector organisations, SMEs, universities, foundations and trusts, and governments at all levels to work with us, to build on this opportunity for the UK and Ireland to play a leading role in the new climate economy:

- Sponsor an Accelerator side-call or work with us to expand our business creation programme (page 13)
- Work with us to deliver or expand our education and training programmes (page 15)
- Become a UK partner in our Resilience Innovation for Growth programme (page 17)
- Use our demand-led open innovation service for cities and businesses (page 19)
- Join a collaboration for systemic change, or use our grant management service for your climate innovation portfolio (page 21)
- Work with us on data and thought leadership to help drive regional economic development in the UK and Ireland (page 23)
- Work with us to accelerate the emergence of climate innovation clusters in the UK and Ireland (page 29).

## CONTACT US

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## ABOUT CLIMATE-KIC

Climate-KIC is Europe's largest public-private partnership focused on tackling the causes and effects of climate change through innovation. Our pan-European partnership consists of dynamic companies, the best academic institutions and influential public sector organisations. Climate-KIC is active in 25 countries.

This brochure, prepared by Climate-KIC UK & Ireland, sets out eight ways the UK and Ireland can accelerate climate innovation at home to play a leading role in the global transition to a climate-resilient society and zero-carbon economy.



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