Industrial Decarbonisation Research & Innovation Centre
IDRIC

Prof Mercedes Maroto-Valer
UKRI Industrial Decarbonisation Champion

Agenda

- Overview of the Industrial Decarbonisation Challenge
- Developing IDRIC research agenda
- Stakeholder engagement
- Next steps and summary
Industrial decarbonisation challenge

This challenge aims to accelerate the cost-effective decarbonisation of industry by developing and deploying low-carbon technologies. It also aims to enable the deployment of infrastructure at scale by the mid-2020s.

- Boost the competitiveness of key industrial regions and drive inward investment, creating and protecting jobs for a low-carbon global economy with growing low-carbon export markets.
- Support delivery of the Clean Growth Grand Challenge and the Industrial Clusters Mission.

The Industrial Strategy Challenge Fund is part of government’s Industrial Strategy, the long-term plan to raise productivity and earning power in the UK.


Industrial Clusters Mission

Establish at least one low-carbon industrial cluster by 2030 and the world’s first net-zero carbon industrial cluster by 2040

- Clusters of large industrial plants for energy-intensive industries.
- The largest six clusters, recently mapped by the Industrial Clusters Mission, have high emission plants totalling around 40 million tonnes of CO₂ per year.
- Manufacturing businesses in industrial clusters often share infrastructure and resources (both supply chains and workforce).
- Industrial Decarbonisation seeks to harness the scale of the industrial clusters to create opportunities to work together to find cost-effective solutions to decarbonisation.

Where does the Programme sit?

Current UK Decarbonisation Policy Landscape

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Industrial Clusters Mission

The Industrial Decarbonisation programme is funded by £170 million from the Industrial Strategy Challenge Fund which is expected to be matched by funding of up to £261 million from industry.

The ISCF challenge will be delivered through three different programme strands:

1. Industrial Demonstrators and Shared Infrastructure (£132m, Innovate UK)
2. Cluster Decarbonisation Roadmaps and Feasibility Studies (£8m, Innovate UK)
3. Industrial Decarbonisation Research and Innovation Centre (£20m, EPSRC)

https://www.gov.uk/guidance/industrial-energy-transformation-fund

# UKRI Industrial Decarbonisation Deployment projects

<table>
<thead>
<tr>
<th>Name of project</th>
<th>Region</th>
<th>Description</th>
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<tbody>
<tr>
<td>Scotland's Net Zero Infrastructures</td>
<td>Scotland</td>
<td>This project enables CCS by linking the gathering of CO₂ from industrial emitters around Grangemouth, with a pipeline to transport CO₂ to St Fergus in Aberdeenshire, with the Azote CCS Project.</td>
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<tr>
<td>Net Zero Teesdale Project</td>
<td>Teesdale</td>
<td>Net Zero Teesdale is a Carbon Capture, Utilisation and Storage (CCUS) project. In partnership with local industry and world-class partners, it aims to decarbonise a cluster of carbon-intensive businesses by as early as 2025. Each year, the project plans to capture up to 6 million tonnes of CO₂, emissions equivalent to the annual energy use of up to 2 million UK homes.</td>
</tr>
<tr>
<td>Humber Industrial Decarbonisation Deployment Project (Humber IDIP)</td>
<td>The Humber</td>
<td>Humber IDIP will identify and develop potential sites for projects to maximise emission reductions in the most appropriate, timely, cost effective and efficient manner and develop world-leading industrial CO₂ transport and storage systems</td>
</tr>
<tr>
<td>MyNet Carbon Capture Utilisation and Storage (CCUS)</td>
<td>North West</td>
<td>MyNet was conceived in 2018 as a hydrogen / CCUS project to provide a decarbonisation pathway to the North West. The Hynet CCUS network will provide the infrastructure to transport and store the carbon dioxide produced as a by-product of the hydrogen production process.</td>
</tr>
<tr>
<td>South Wales Industrial Cluster (SWIC)</td>
<td>Wales</td>
<td>SWIC will identify processes and technologies to reduce carbon emissions, options for Carbon Capture Usage and Storage (CCUS) and for an infrastructure backbone to enable large scale CO₂ emissions reduction across Wales and beyond.</td>
</tr>
<tr>
<td>Green Hydrogen for Humberside</td>
<td>The Humber</td>
<td>&quot;Green Hydrogen for Humberside&quot; will lead to the production of renewable hydrogen, at the Gigawatt (GW) scale, from potash electrolyte membrane (PEM) electrolysis. This will be distributed to a mix of industrial energy users in Humberside. Humberside, the UK\’s largest cluster by industrial emissions (12 AMRCs per year), contributes £18bn to the national economy each year and has access to a large renewable resource from offshore wind in the North Sea.</td>
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# UKRI Industrial Decarbonisation Roadmap projects

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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Net Zero Teesdale Valley - Decarbonising the Full-Carbon Roadmap Pathfinder</td>
<td>Teesdale Valley</td>
<td>Net Zero Teesdale Valley will allow the industrial net-zero roadmap of the Teeside Industrial Cluster to be extended. This will develop a deliverable, and realistic, plan for regional deep decarbonisation which can be adopted by Industry, Government, Local Government, finance sectors and investors.</td>
</tr>
<tr>
<td>Scotland's Net Zero Roadmap (SNZR)</td>
<td>Scotland</td>
<td>SNZR builds upon work by SCDS in Carbon Capture and Storage research, and by the University of Sheffield's Centre for Energy Policy in identifying decarbonisation pathways that deliver economic prosperity, and applies them to a high value industrial cluster.</td>
</tr>
<tr>
<td>Humber Industrial Decarbonisation Roadmap</td>
<td>The Humber</td>
<td>HIDER will enable the Humber's large industrial emitters, low carbon infrastructure providers and other stakeholders to develop a shared approach to achieving net zero by 2040.</td>
</tr>
<tr>
<td>North West Hydrogen and Energy Cluster to Net Zero</td>
<td>North West</td>
<td>This project\’s primary focus is on the industrial emitters of Cheshire, parts of North East Wales, Warrington, Liverpool City Region and Greater Manchester.</td>
</tr>
<tr>
<td>South Wales Industrial Cluster (SWIC)</td>
<td>Wales</td>
<td>The Phase 1 work will establish NZC options for SWIC members, including two of the largest industrial UK CO₂ emitters, several large sites and several medium sized sites. This will allow the several mini-cluster clusters to form, before growing and combining with each other, ultimately merging to connect to the large coastal CO₂ emitters, at which point large scale CO₂-CCS options could create value from residual regional carbon.</td>
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<tr>
<td>Repowering the Black Country</td>
<td>Midlands</td>
<td>This study will specifically identify the best ways to deliver zero carbon power to local businesses using local resources, including commercial waste and renewable energy. Small-scale, unobtrusive power stations, located on brownfield sites, will deliver electricity and heat to nearby homes and businesses.</td>
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IDRIC Overview

IDRIC vision is to realise the opportunities for industrial cluster decarbonisation by integrating research and innovation programmes, supporting policy, building capacity, developing leadership, sharing knowledge, forming active networks and mission advocacy.

Conduct a series of consultation and engagement events with industry, academia, policymakers and technical experts to develop an industrial decarbonisation proposal for approval August 2020.

Delivery phase is due to get underway in September 2020 and is backed by £20m funding until March 2024.

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The remit of IDRIC includes:

- Research on multidisciplinary topics relevant to industrial decarbonisation such as carbon capture and storage, hydrogen, gasification, policy, economic analysis and institutional and regulatory analysis.

- Knowledge sharing activities across a breadth of industrial clusters stakeholders such as academia industry and government through workshops, seminars, networking and engagement events.

- Funding secondments to build a critical mass of individuals who can work across academia and industry and share learning by understanding the research challenges in each environment.

www.idric.org
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The remit of IDRIC includes (2)

**Enhancing** links between academia, the industrial clusters and policy makers

**Managing a flexible fund** of £2m to ensure that the Research and Innovation Centre can be agile and respond to research challenges faced by the industrial clusters

**Options assessment** to support skills and (re-)training, informed by the broader challenge

**Other impact activities** such as public engagement, training of staff, early stage commercialisation exploration etc.

IDRIC Development Timeline

**Stage 1:** Mapping & Consultation
- January to February

**Stage 2:** Co-creation
- March to April

**Stage 3:** Proposal Synthesis
- May to July
Challenge-led themes development

**Identify Challenges**
January-February

- Ideas Factory workshop (80 delegates)
- 14 ‘deep dive’ interviews
- Over 100 questionnaires
- Visits/video calls to the industrial clusters
- 5 workshops/seminars/roundtables

**Explore Solutions**
February-April

- Top Down Approach: 16 Priorities
  - Mission Model Canvas for co-creation of research programmes.
  - Top-down synthesis of multidisciplinary projects
  - Collaborative events to disseminate projects, identify gaps and add collaborators.

**Define Programmes**
April-June

- Bottom Up Approach: 32 Challenges
  - Focused approach
  - Discussions with clusters to prioritise research and innovation themes

**Ideas Factory Workshop**

- Welcome
- IDRIC Ideas Factory
- Mission Model Canvas
- Top-down synthesis
- Collaborative events
- Disseminate projects
- Identify gaps
- Add collaborators
Ideas Factory Workshop
Day two: Defining impact and activities

32 themes explored

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Ideas Factory
20th-21st February 2020
Research and innovation programmes definition

- We are currently defining the initial set of projects -Sept 2020.
- We are planning further calls over the Centre’s lifetime.
- Please, visit https://idric.org/events/ and download the presentation (12th May webinar) for further details.
### Key Stakeholders

**Local communities**
- Wider public, including younger generation (schools)

**Third sector organisations**
- Nonprofit, industry associations, charities, expert/consultancy organisations

**Industry/business**
- Cluster industries key to meeting decarbonisation targets, their sites and incubation facilities
  - Academia
  - Academia and research and innovation centres, inside and outside of the clusters
  - Government
  - Local and central setting policies and regulations

**Funders**
- Public and private, including corporate/industry-led funding programmes
  - Access to finance

#### 156 organisations

- 44 Academic Research Organisations
- 64 Industry Companies
- 32 Associations, NGOs, Trade Organisations
- 16 Government Regulatory
- 875 Newsletter Total Reads

### Mapping stakeholder & engagement activities

<table>
<thead>
<tr>
<th>Key Stakeholders</th>
<th>Webinars, workshops, meetings, assemblies</th>
<th>Work package/project meetings</th>
<th>Crucible events (RAF calls)</th>
<th>Multi-cluster meetings</th>
<th>Annual showcase events</th>
<th>Digital media (incl. newsletters, VR experiences)</th>
<th>Position papers, case studies, reports</th>
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<td>Government</td>
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<td>Academia</td>
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<td>Industry / businesses</td>
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<td>Funders</td>
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<td>Third sector organisations</td>
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<td>Local communities</td>
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<td>International community</td>
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**Engagement activities**
- Feb-Jul'20
- Sep-Dec'20
- Jan'21+
**Stakeholder engagement**

- **Digital Touchpoints**
  - Webinars, workshops
  - Newsletters
  - Follow-up videos with clusters
  - Feedback forms
  - Online questionnaires
  - Social media: Website, Twitter, LinkedIn
  - Website, Twitter, LinkedIn

- **Physical Touchpoints**
  - Individual consultations
  - Internal diagnostic and virtual environment set up
  - Website
  - Work package coordination meetings, IDRIC consortium meetings and other events
  - Policy workshops and briefings
  - Work packages coordination meetings and other events
  - Work package coordination meetings and briefings
  - Research and Industry communities assemblies and collaborative events

- **Consultation (Jan-Feb’20)**
  - Individual consultations
  - Website, Twitter, LinkedIn
  - Newsletters
  - Social Media
  - Webinars, workshops, meetings

- **Co-Creation (Feb-Apr’20)**
  - Individual consultations
  - Website, Twitter, LinkedIn
  - Newsletters
  - Social Media
  - Webinars, workshops, meetings

- **Synthesis (May-July’20)**
  - Work packages development meetings
  - Position papers, case studies, reports and recommendations
  - Website, workshops, meetings
  - Newsletters
  - Social Media
  - Website, Twitter, LinkedIn

- **Launch (Sep-Dec’20)**
  - Work package coordination meetings
  - Work package coordination meetings and other events
  - Work package coordination meetings and other events
  - School visits and community events
  - Annual showcase (UK and international audience)

- **Jan’21+**
  - Work package coordination meetings and other events
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**What’s next?**

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<tr>
<th>Activity</th>
<th>Deadline</th>
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<tr>
<td>Development of Phase 2</td>
<td>Jan.-June 2020</td>
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<td>Webinar UKCCSRC</td>
<td>5th June</td>
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<td>Webinar CREDS</td>
<td>18th June</td>
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<td>Submission of full bid</td>
<td>6th July 2020</td>
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<td>Phase 2</td>
<td>2nd September 2020 – March 2024</td>
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How IDRIC can help UK reach its industrial decarbonisation goals

Transforming multidisciplinary research and innovation

Forming active networks of stakeholders

Growing our skills together

Sharing knowledge

Supporting policy
IDRIC Team

Industrial Decarbonisation Champion
- Professor Mercedes Maroto-Valer

Project Manager
- Rob Abbey

Business Development Managers
- Laura Finlay
- Alexandra McConnachie

To find out more about IDRIC, please contact info@idric.org or visit www.idric.org

@IDRICUK
LinkedIn Industrial Decarbonisation

Thank you and close

Contacts for follow up: info@idric.org

Register following the link: www.idric.org

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