Post-COVID Recovery and the UK Energy Landscape

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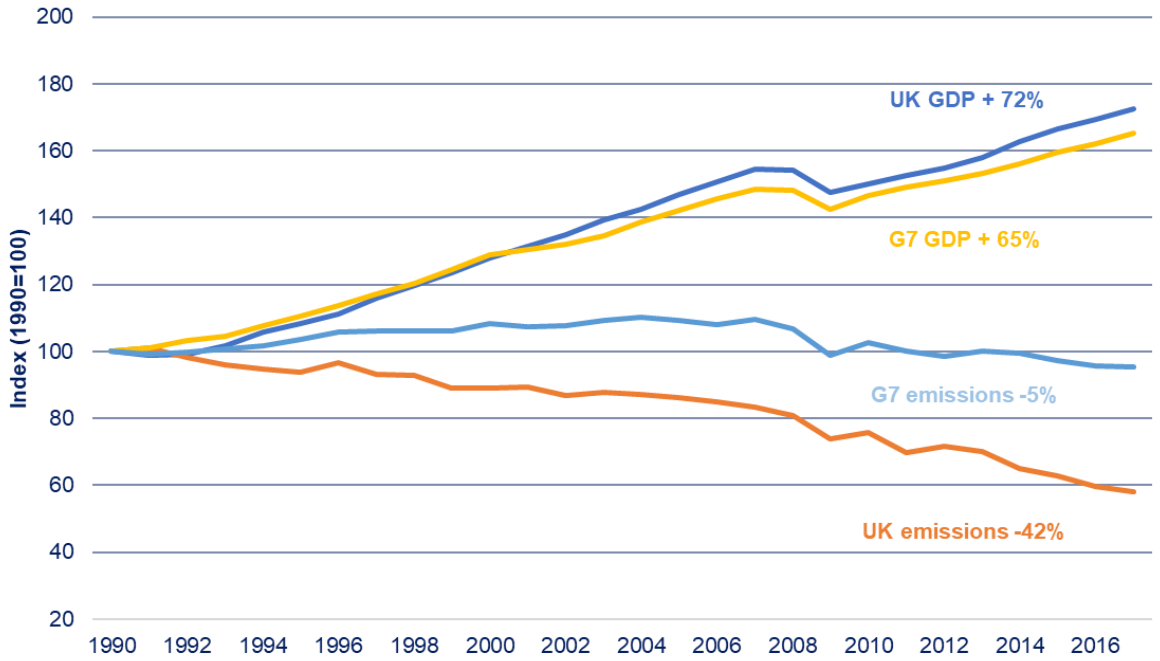
The Green Recovery

- The Prime Minister on 30 June: “build back better, greener, and at the pace this moment requires”.
- Growing the economy AND cutting emissions can be done.
- Over 460,000 jobs in low carbon businesses and their supply chains.
- Actions required to reach net zero emissions by 2050 will support the future growth of the economy.



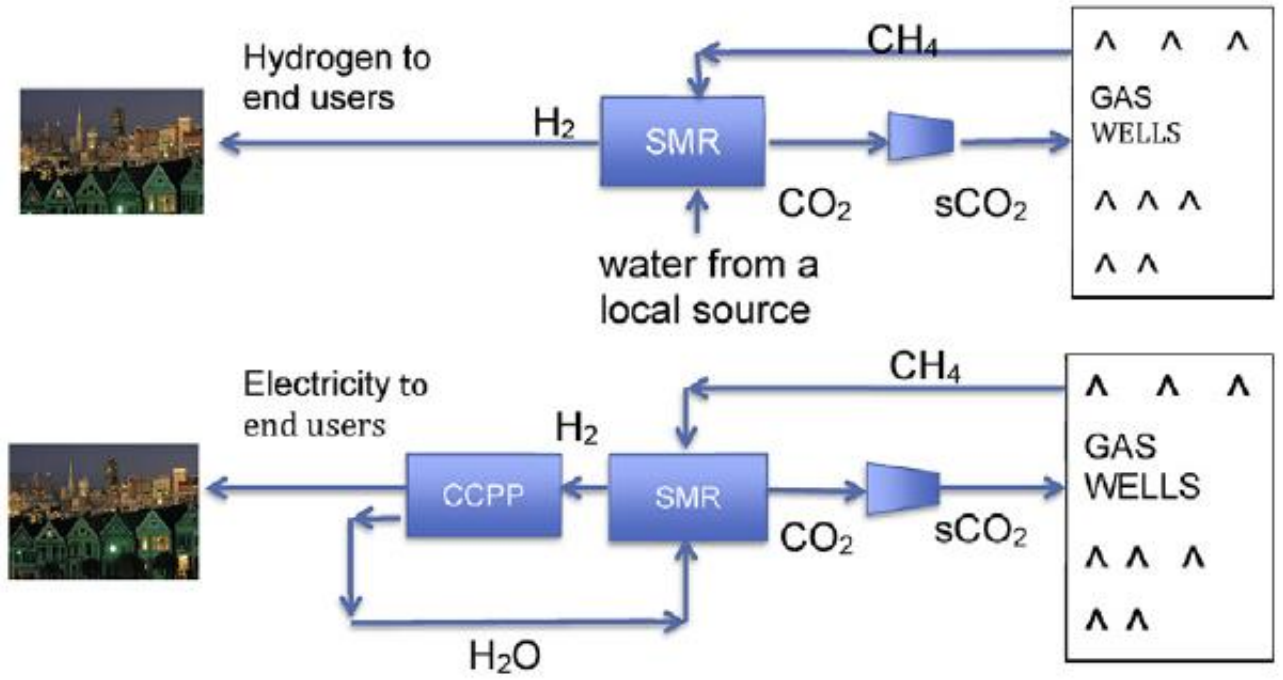
Source: *World Bank, UNFCCC National Inventory Submissions, ONS, BEIS Greenhouse Gas Inventory.*

The Green Recovery

- The Green Recovery manifests itself through specific initiatives.
- Around £350 million made available to cut carbon emissions.
  - £139 million to cut emissions in heavy industry by supporting transition to clean hydrogen power, and scaling up carbon capture and storage (CCS) technology.
  - £149 million to drive the use of innovative materials in heavy industry.
  - £26 million to support advanced new building techniques

The Green Recovery

- Providing potential opportunity for unconventional hydrocarbons research.
  - Fracking with CO_2 instead of H_2O allows carbon to be sequestered
  - Gas wells can be used as permanent CO_2 or temporary H_2 subsurface storage.



Source: *J. W. Andrews, International Journal of Hydrogen Energy (2020).*

The Green Recovery

- Wider benefits to unconventional hydrocarbon research
  - Allows for better use of the subsurface – geothermal energy, *e.g.* UK's first geothermal lido opened in Cornwall

Source: *BBC News*

R&D Roadmap

To support UK's aspiration to be best place in the world for scientists, researchers and entrepreneurs to live and work, whilst enabling the UK's economic and social recovery.

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R&D Roadmap

Engagement

The Roadmap starts to identify:

- the strengths and challenges facing the sector
- the issues that need to be addressed
- how to work with universities, businesses, the third sector and across Government to cement the UK's reputation as a science superpower.

Funding

The Roadmap builds on the commitment set out at the Budget.

- An increase to public spending in R&D to £22 billion by 2024/25, to meet the target of 2.4% of GDP is spent on R&D by 2027.

Announcements

The Roadmap sets out some new commitments.

- An 'Office for Talent', establishing an Innovation Expert Group, and tackling bureaucracy.
- Reiterates existing commitments to publish a place strategy, and create a new independent UK ARPA body.

Roadmap's Seven Themes

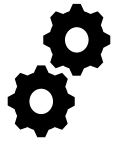
Raising our research ambitions

Inspiring and enabling talented people

Driving up innovation and productivity

Levelling up R&D across the UK

Being at the forefront of global collaboration



Developing world-leading infrastructure

Ensuring a healthy system

Raising our research ambitions

- Increase investment
  - Supporting innovation, application and deployment
- Moonshots
  - Ambitious, measurable goals which could have a significant impact on an important societal issue
- Create ARPA style body
  - At least £800 million for unique new funding body to boost transformative research

Inspiring and enabling talented people and teams

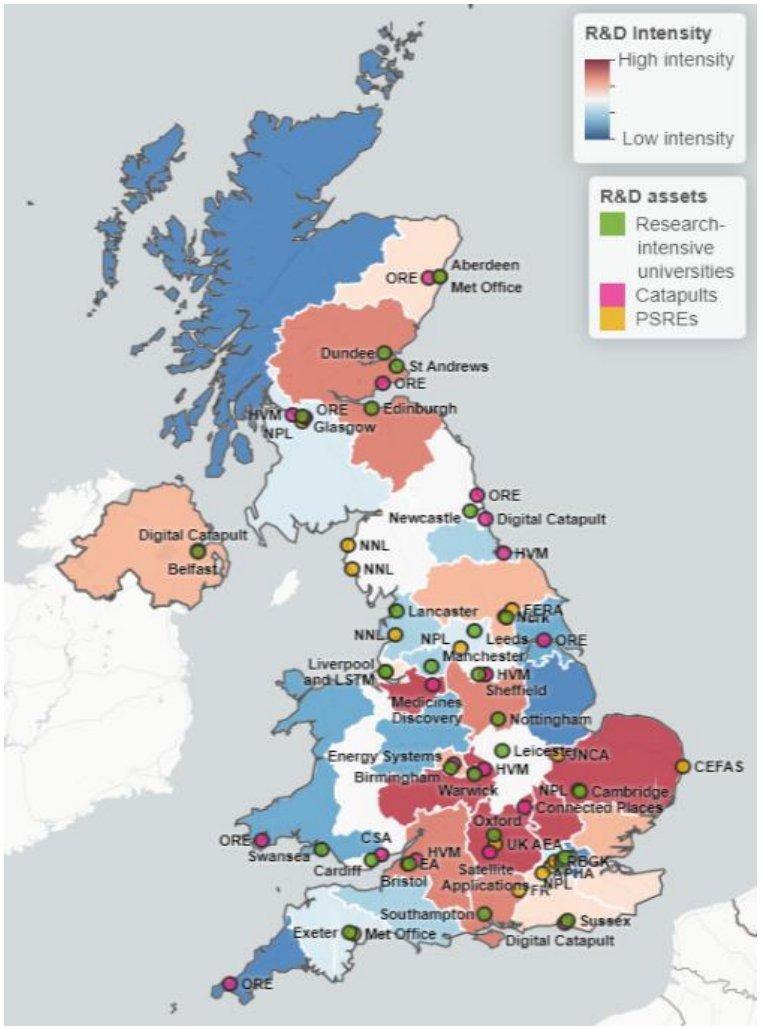
- Develop Culture & Research Strategy
  - Improving the culture of research
  - Growing the research talent pipeline
  - Attracting and retaining talent
- Establish an Office for Talent

Driving up innovation and productivity

- Convene Innovation Expert Group
  - Review and improve how Government supports research from initial idea to product development
- Access to Finance
  - Especially for small start-ups with potential for high impact
- Broader support businesses
  - To start, scale-up and invest in innovation

Levelling up R&D across the UK

- Place Strategy
  - Increasing the place focus in public R&D investment
  - Allowing greater account of place is taken when making decisions across the R&D system
  - Fostering greater co-creation and collaboration
- Launch a Place Advisory Group
  - Expert stakeholders, to propose and interrogate opportunities, challenges and analysis to inform decision making



Selected UK government funded R&D assets

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Being at the forefront of global collaboration

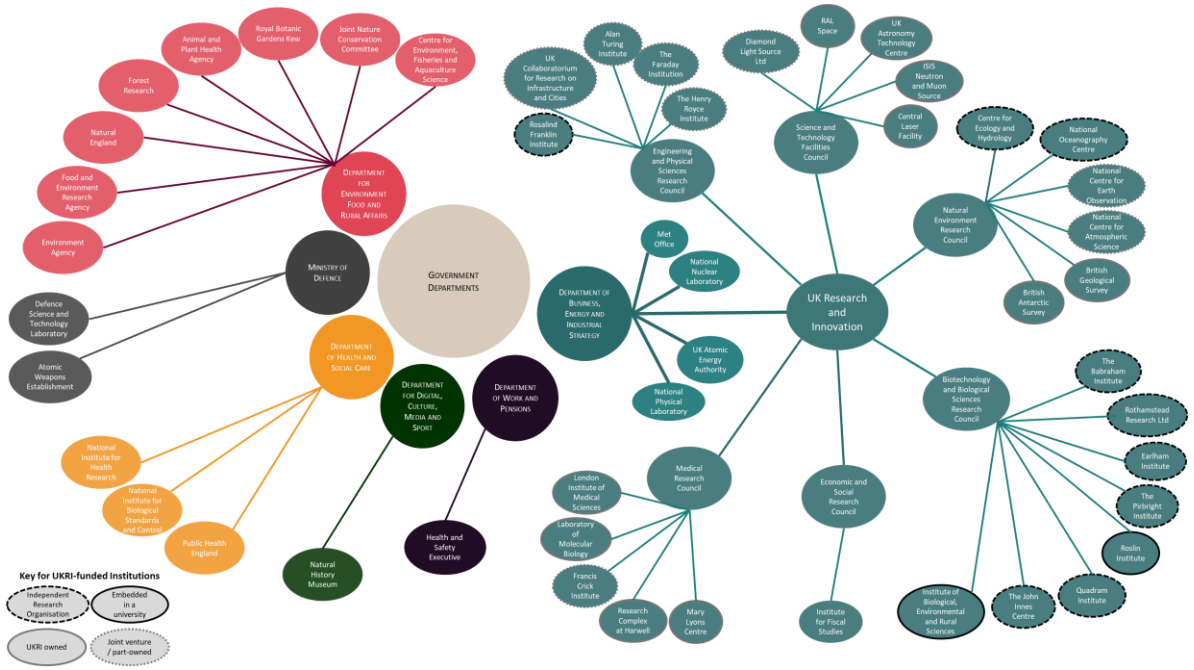
- Growing our global collaborations with a new, agile offer
  - including Official Development Assistance, existing multilateral leadership and new trading partnerships
  - Aim to fully associate with EU programmes
- Demonstrating the UK's leadership in existing key multilateral research and innovation organisations
  - Getting the most out of international scientific collaboration while protecting intellectual property, sensitive research and personal information

Developing world-leading infrastructure and institutions

- Infrastructure prioritisation
  - Investing in infrastructure for the long term
  - Making the most of our national assets
  - Facilitate access to facilities stimulating long-term private investment in our national assets and supporting new innovation tie-ups.
- Catalysing Innovation
  - Reduce financial red tape to ensure a sustainable, long-term approach to funding with built-in flexibility and agility to fund different types of organisations.

Ensuring a healthy R&D system

- Minimising bureaucracy in the public funding system
- Increasing clarity and coherence in public R&D funding
- Strengthening the role of our research and innovation institutions
  - Science Capability Review



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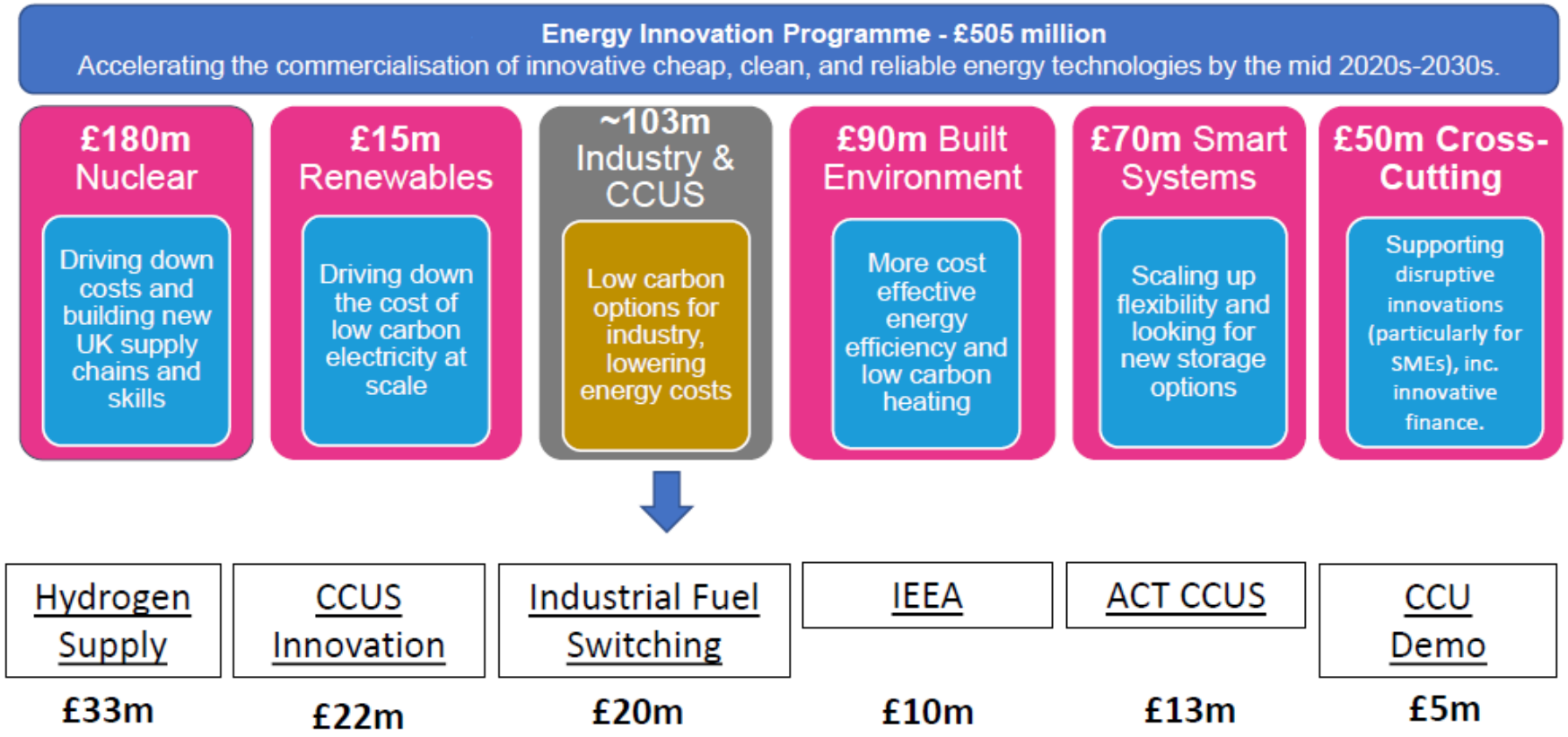
Energy Innovation Programme

- Aims to accelerate the commercialisation of innovative clean energy technologies and processes into the 2020s and 2030s
- Committed to at least doubling to £1 billion in March budget.



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Energy Innovation Programme

- Energy Innovation Board provides strategic oversight of government funding of energy innovation programmes.
- Board includes 3 independent members
  - Xavier Mamo, Director of Energy Research & Development at EDF in UK
  - Jo Coleman, UK Energy Transition Manager at Shell
  - Ian Simm, Founder & Chief Executive of Impax Asset Management
- Will become Net Zero Innovation Programme and Board

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Mission Innovation

- Announced at COP21 on November 30, 2015.
- Double clean energy innovation funding over 5 years.

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Mission Innovation

Around 35% of the cumulative CO_2 emissions reductions needed to shift to a sustainable path come from technologies currently at the prototype or demonstration phase (IEA, 2020)

Country leadership

Country leadership to drive and convene action supported by the private sector and market creation.

Innovation Platform

A strengthened global platform to increase impact of investments and shorten innovation times by **enhancing collaborations, accelerating learning and connecting solutions with investments.**

- **Insight**
- **Accelerate**
- **Collaborate**

Missions

New public-private **innovation alliances** built around **ambitious, inspirational and measurable goals** backed by commitments that can lead to tipping points in the cost and scale of clean energy solutions.

- **Hydrogen**
- **Industry Decarbonisation**

Mission Innovation

Delivering a **major energy moment** in build-up to COP26 with announcements of commitments by public and private alliances

Q2 2020 Apr-June	Q3 2020 July-Sept	Q4 2020 Oct-Dec	Q1 2021 Jan-March	Q2 2021 Apr-June	Q3 2021 Jul-Sept	Q4 2021 Oct-Dec	2022
Small number of ambitious missions and Platform modules developed with commitments and resources to deliver. Virtual events held to maintain momentum.						Mission roundtables and new commitments at **COP26**	**MI-7**
Industry Day and IEA Energy Transitions Summit	Agreement on MI 2.0 principles at **MI-5** (23rd Sep alongside G20 KSA)	New Steering Committee and seed resources put in place.	Raise ambition at Davos	Small number of ambitious missions and Platform modules developed with commitments and resources to deliver.			

Non-state actors engagement

Summary

Climate Change Act 2008

CHAPTER 27

CEM11
MI·5
SAUDI ARABIA
المملكة العربية السعودية

- Opportunities for new thinking and technologies

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You are part of a growing effort!

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