International Collaboration opportunities for businesses Case Study – Greater Manchester

26th January 2021

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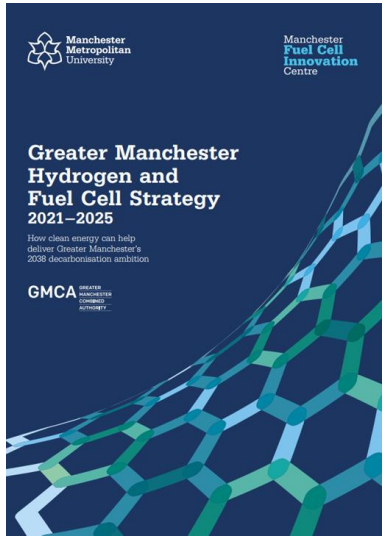
Director – Manchester Fuel Cell Innovation Centre

Manchester Fuel Cell Innovation Centre

green city region

New University-led energy agency to turn Greater Manchester green



Cadent Your Gas Network · Carlton Power · electricity north west · Greater Manchester · Manchester Metropolitan University · Trafford Council

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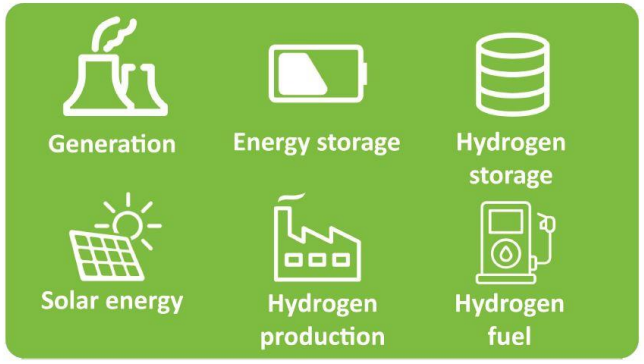
Trafford Low Carbon Energy Park



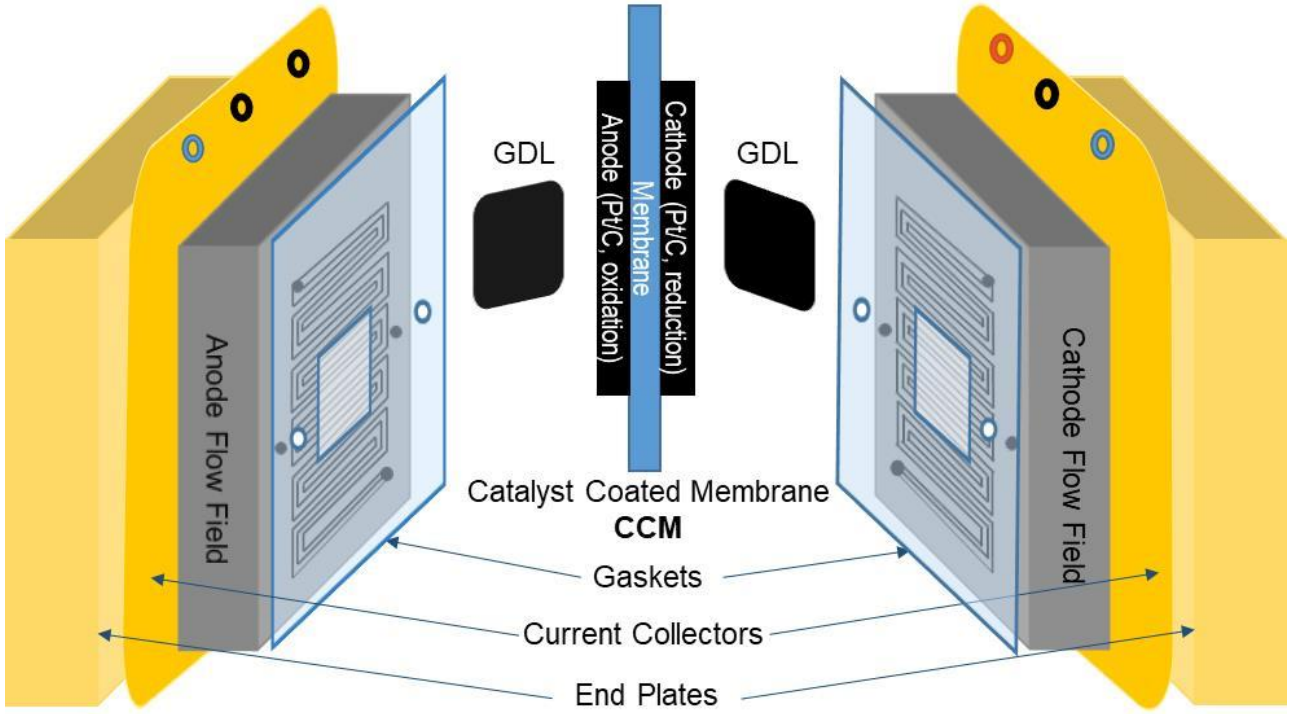
Green Hydrogen and Fuel Cells

We are:

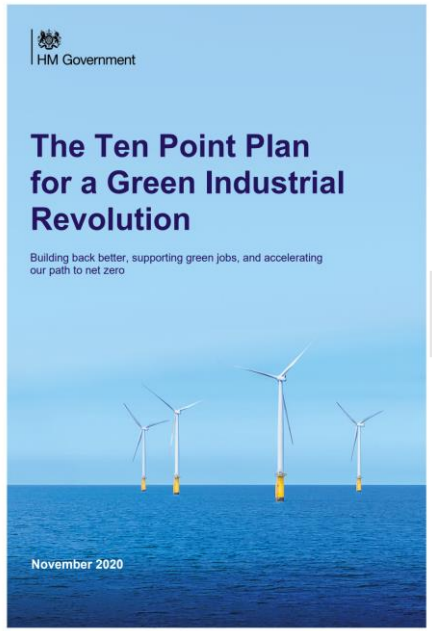
- A world class, £4.1m facility with world-leading academics
- Advancing green hydrogen technologies
- Designing and investigating new and alternative clean energy fuels and devices
- Helping industrial partners to test their new technologies
- We are supporting 100 SMEs working in the hydrogen value chain

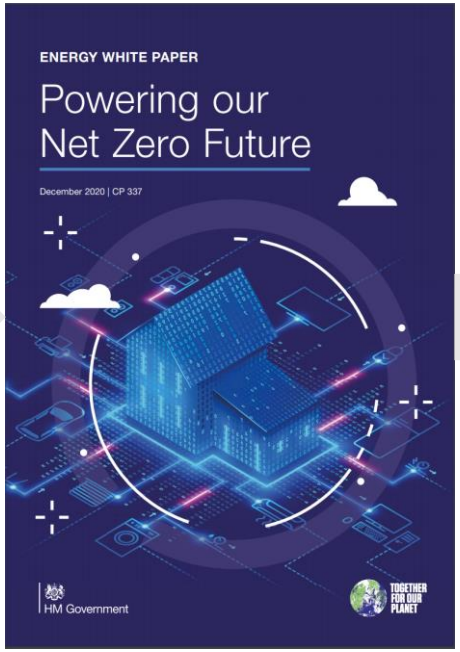
Our research

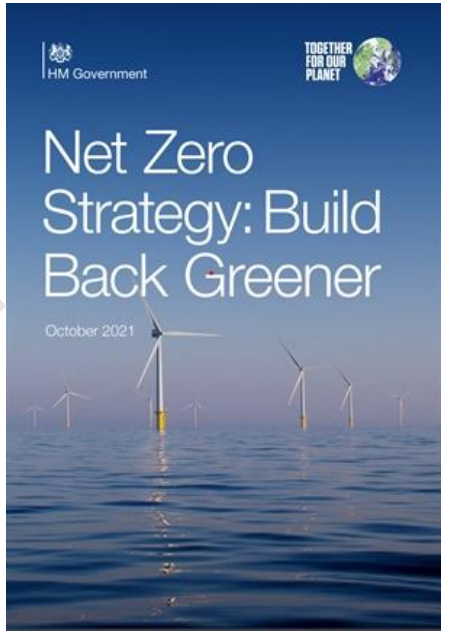
- Developing novel and economically impactful catalysts components for green hydrogen technologies (fuel cell, electrolyser)
- Developing novel materials and coatings that can replace and reduce expensive iridium components
- Largely funded by research council or industry



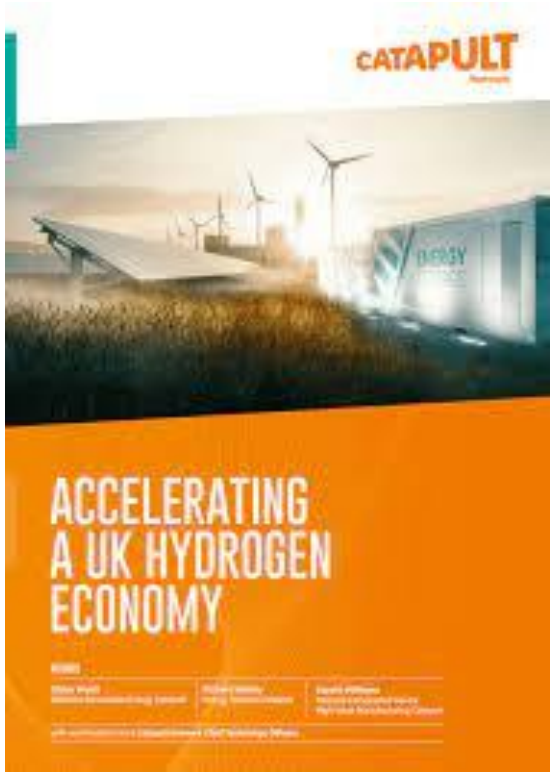
Government focus on Net Zero and Hydrogen

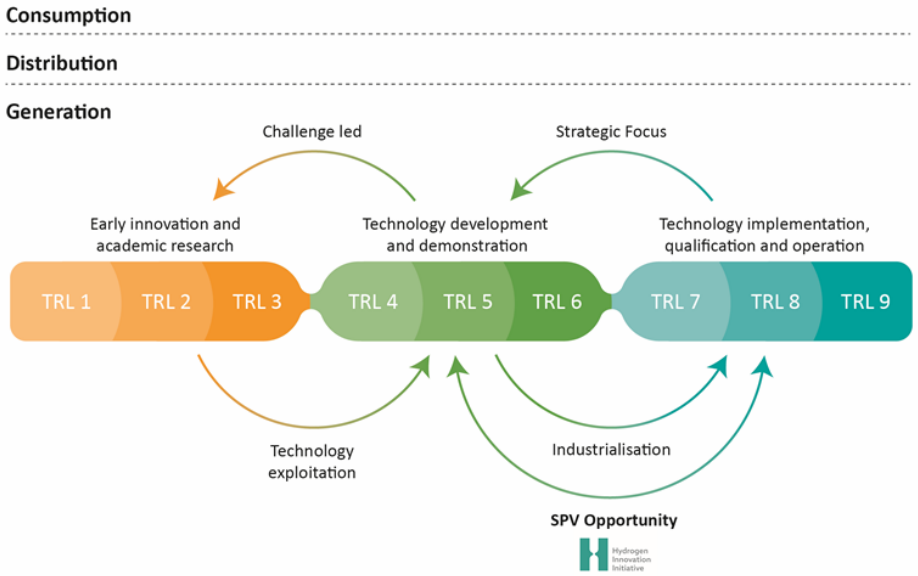






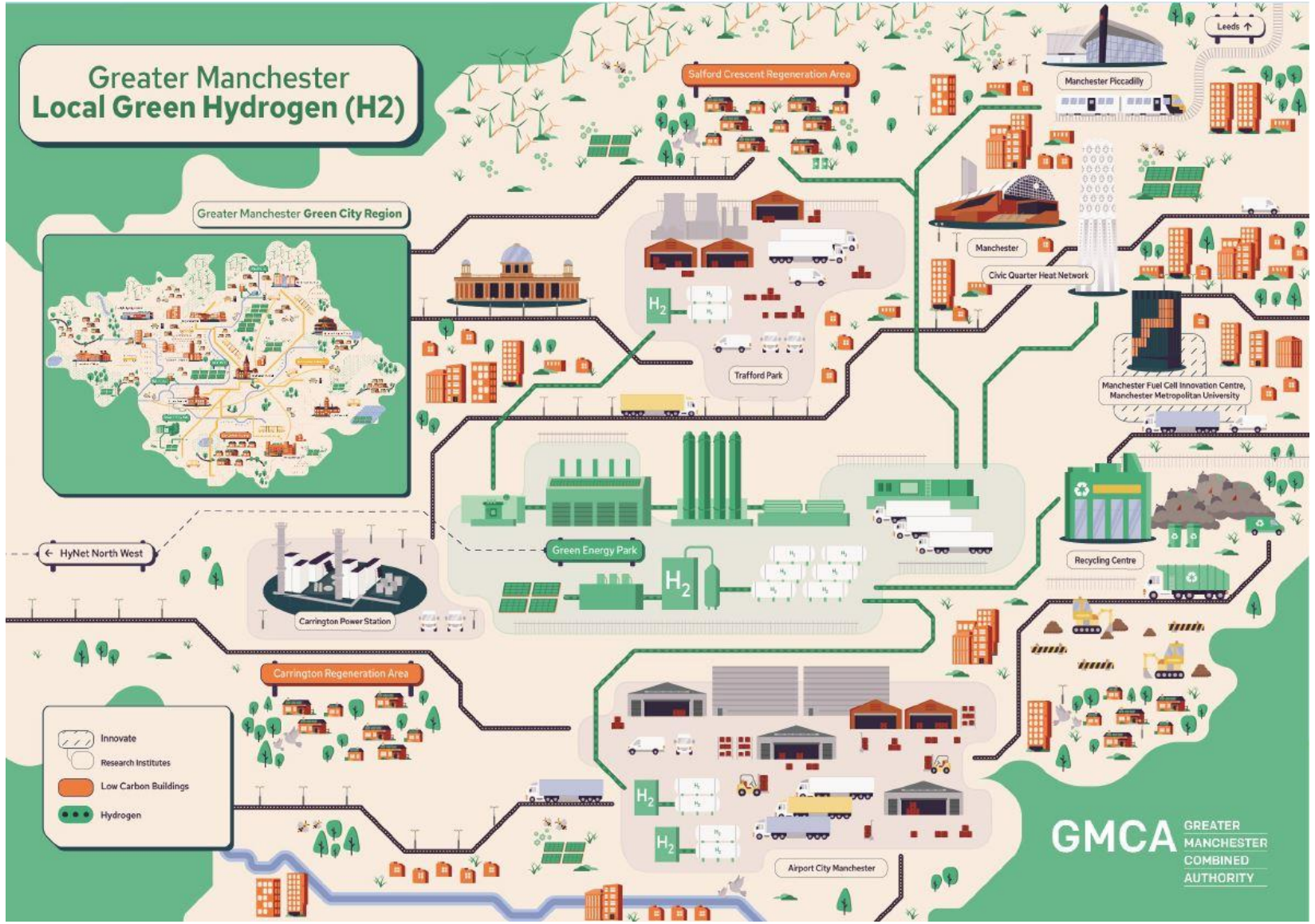
National coordination – Hydrogen Innovation Initiative





Net Zero Skills Hub

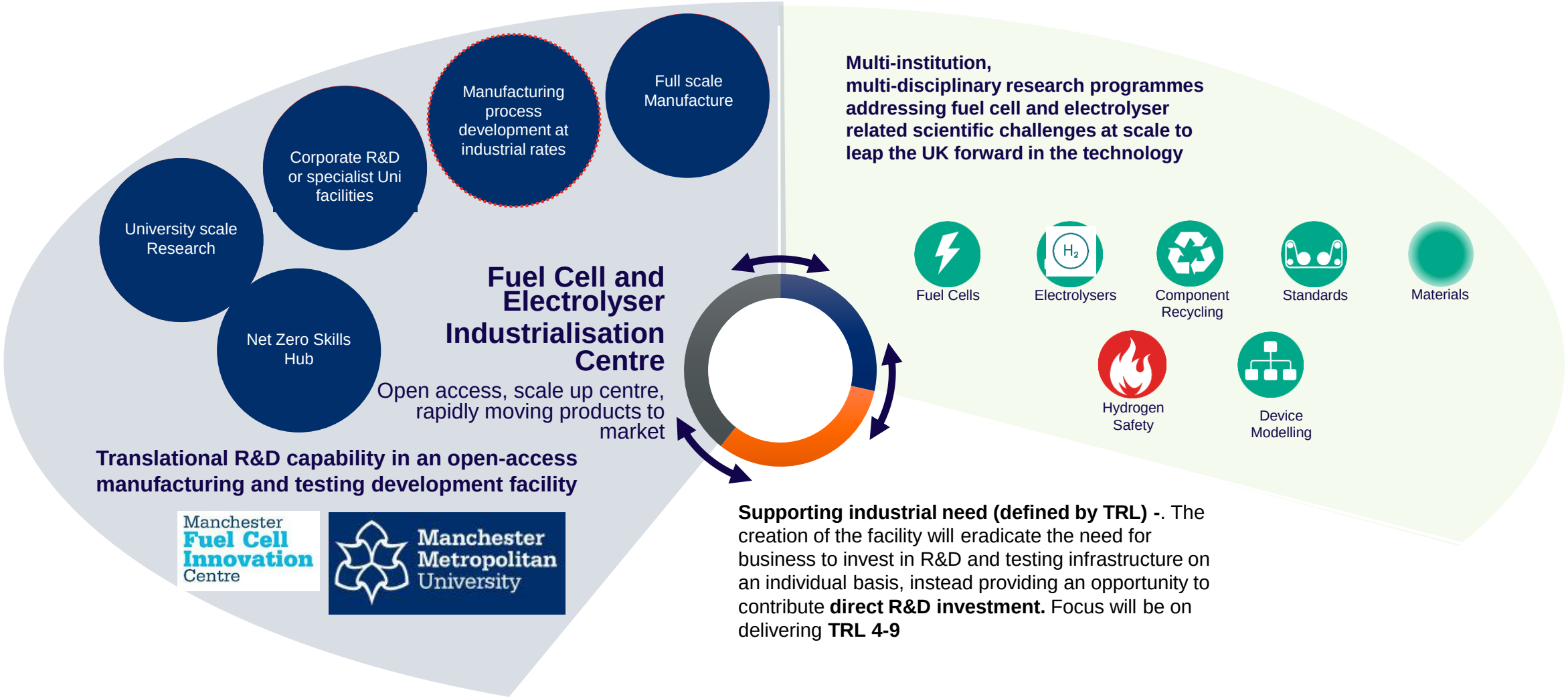
- **Net Zero Skills** – Manchester Met is leading and developing a skills pathway for a group of industrial organisations who have formed Net Zero NW to drive investment into the net zero economy
  - Industrial Challenges **-** Focus on delivering skills from Level 1-8 for example a Doctoral Training Centre where PhD students are registered at Universities but supported by industrial challenges
  - Upskilling workforce – Net Zero training, FE colleges, Training Providers, HE sector, Local Authorities
  - The UK Hydrogen Strategy means the creation of a thriving new hydrogen industry, which could support over 9,000 jobs and £900 million of GVA by 2030.
  - Under a high hydrogen scenario, up to 100,000 jobs and £13 billion of GVA could be generated from the UK hydrogen economy by 2050



Greater Manchester has agreed a target of 2038 to become carbon neutral. To achieve this target, GM will need to aim for an average 15% carbon emission reduction per annum.

- Rapid deployment of renewable energy generation (Solar PV/Thermal, low carbon heat networks, heat pumps) with smart distribution and storage technologies
- Extensive energy efficiency retrofit of domestic properties
- Improved efficiency of commercial heating and cooling
- Exploration of increased biomass/biofuel power generation
- Shift from fossil fuels to battery or hydrogen fuel cells for transport
- Shifting domestic transport behaviour
- Accelerated waste reduction/resource efficiency, reuse and recycling
- Enhanced natural capital to provide the ecosystem services needed to create a city region resilient to climate change and support

Focus is on supporting local generation of Green Hydrogen assets



The Green Hydrogen Opportunity for Greater Manchester – Collaborative Working Model

The Business Case

Working with key partners we are currently in consultation to address how we can build a specific proposition to bring green hydrogen, use of fuel cells and countrywide programmes to Manchester that is :

- Collaborative
- Credible

Work in progress

- Working in consultation with industry to address market demand
- Working in collaboration with the region to develop a collaborative proposition
- We are mapping to get us from where we are to where we are going
    - The landscape is moving at pace in line with strategies like the UK's first ever Hydrogen Strategy and Net Zero Strategy
    - **Can we develop a position in the national landscape across the value chain to focus on developing the Fuel Cell and Electrolyser focus of the Hydrogen Economy in Manchester**

The Opportunity

- Globally, hydrogen is gathering strong momentum as a key energy transition pillar. As a result of a global shift of regulators, investors, and consumers toward decarbonization, hydrogen is receiving unprecedented interest and investment.
- Test with us, to see what could work for your businesses
- Capitalise on regional, national and international market demand
- Identify industries to champion the hydrogen and skills related opportunities
- Co-create a collaborative industry and academia vision for industrialisation of the Hydrogen opportunity to share globally
- **Businesses**
    - The existing cost of materials
    - Manufacturing and assembling of fuel cells and electrolysers is prohibitive to early-stage research and innovation projects.
    - For Manchester Met an investment in the industrialisation opportunity would address this challenge, incentivise investment in R&D and unlock significant private sector spend.

Thank you

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