equilibrion.

Transforming System Wide Decarbonisation Approaches with Nuclear Energy

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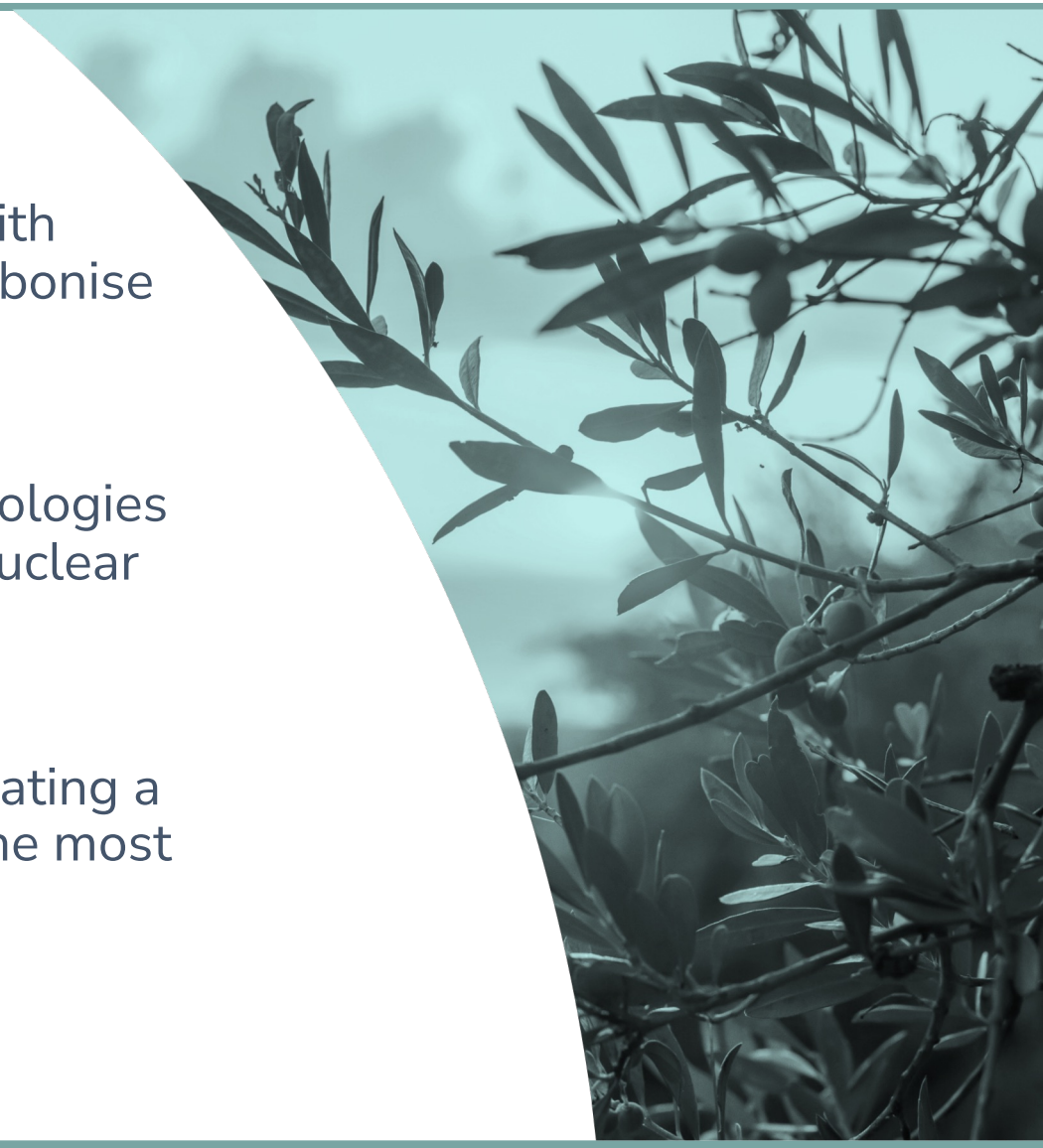
Our Vision

Equilibrion has been set up for one purpose; to work with businesses to fulfil the potential of nuclear energy to decarbonise our heat, transport and industrial sectors

We bridge the gap between nuclear and non-nuclear technologies to create value chains that deliver on the opportunity for nuclear energy to decarbonise our global energy system

We are a vehicle for change: addressing perception and creating a route by which nuclear heat can tackle decarbonisation of the most difficult parts of the energy system



Decarbonisation Challenge: Beyond Electricity

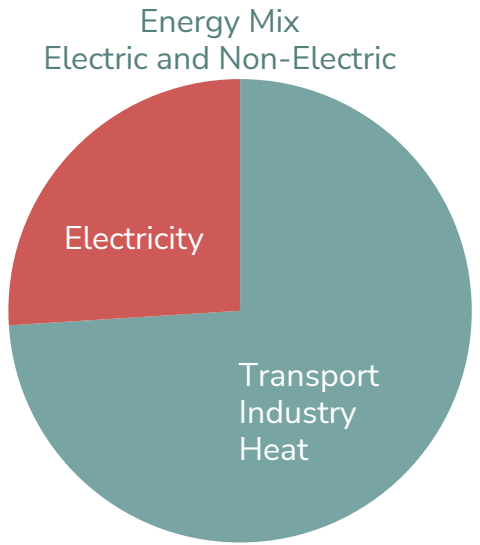
UK domestic transport **27%** of our GHG emissions
Solutions include: Electrification, production of low carbon/carbon neutral fuels

UK Aviation **3%** of our GHG emissions
Solutions include: SAF, with UK constructed SAF plants

UK Shipping **5%** of our GHG emissions
Solutions include: Low carbon fuels such as ammonia and methanol

Heat **23%** of our GHG emissions (exc. Industrial Heat)
Solutions include: Electrification, hydrogen solutions

Industry **16%** of our GHG emissions
Solutions include: Electrification, hydrogen solutions

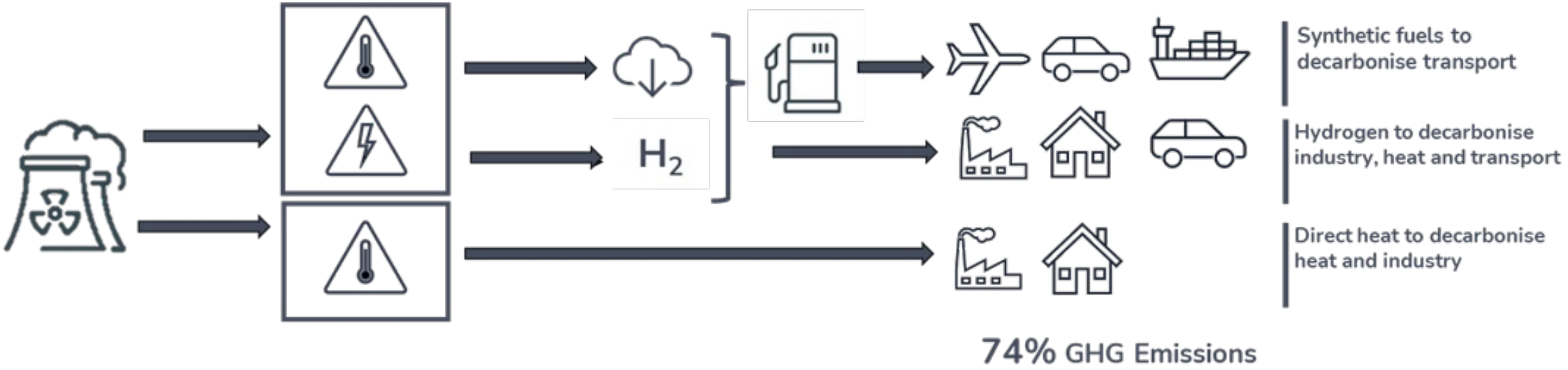


CO_2 capture is identified as a vital technology for reaching GHG emission reduction targets
Solutions include: Direct Air Capture and Seawater Extraction powered by renewable energy

Electricity is Changing

Nuclear Energy and the Decarbonisation Challenge

Nuclear Energy is a huge, dense energy source that can support the production of hydrogen, low carbon fuels and CO_2 removal technologies



New Markets for Nuclear

Land Transport

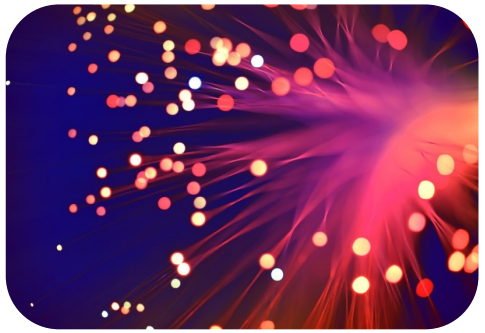
Shipping

Industry & Refining

Aviation

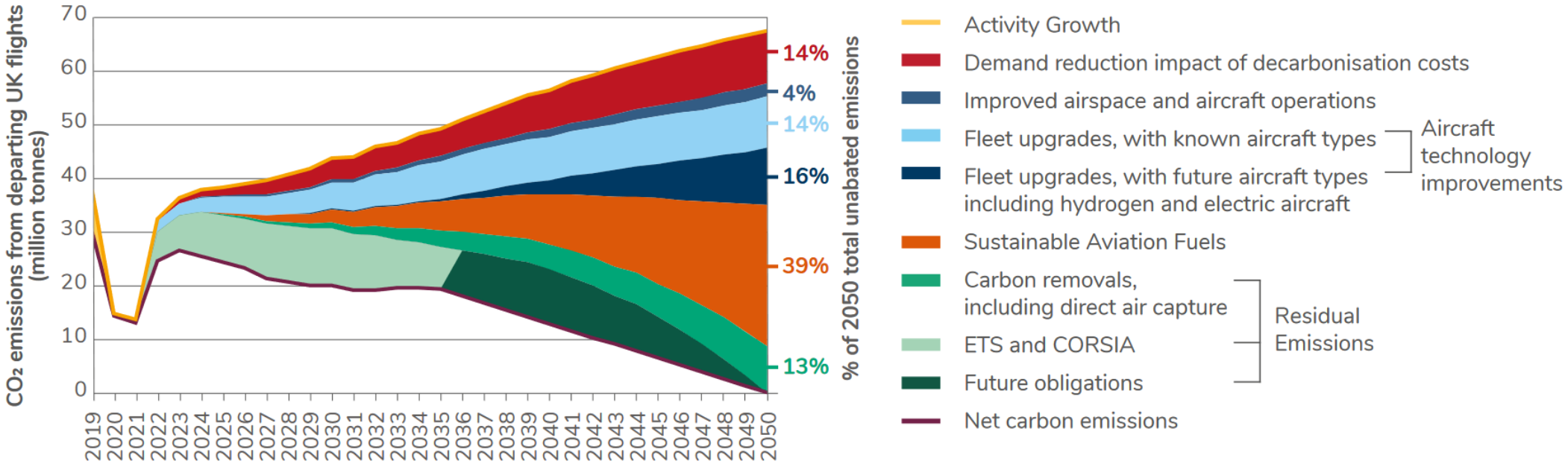
Gas Networks

Electricity



Heat Networks

Synthetic Fuels



2100

Typical London to New York flights each year from a single SMR

Aviation fuel from one SMR equivalent to

550,000

tonnes of biomass annually

What Do Airlines Say?

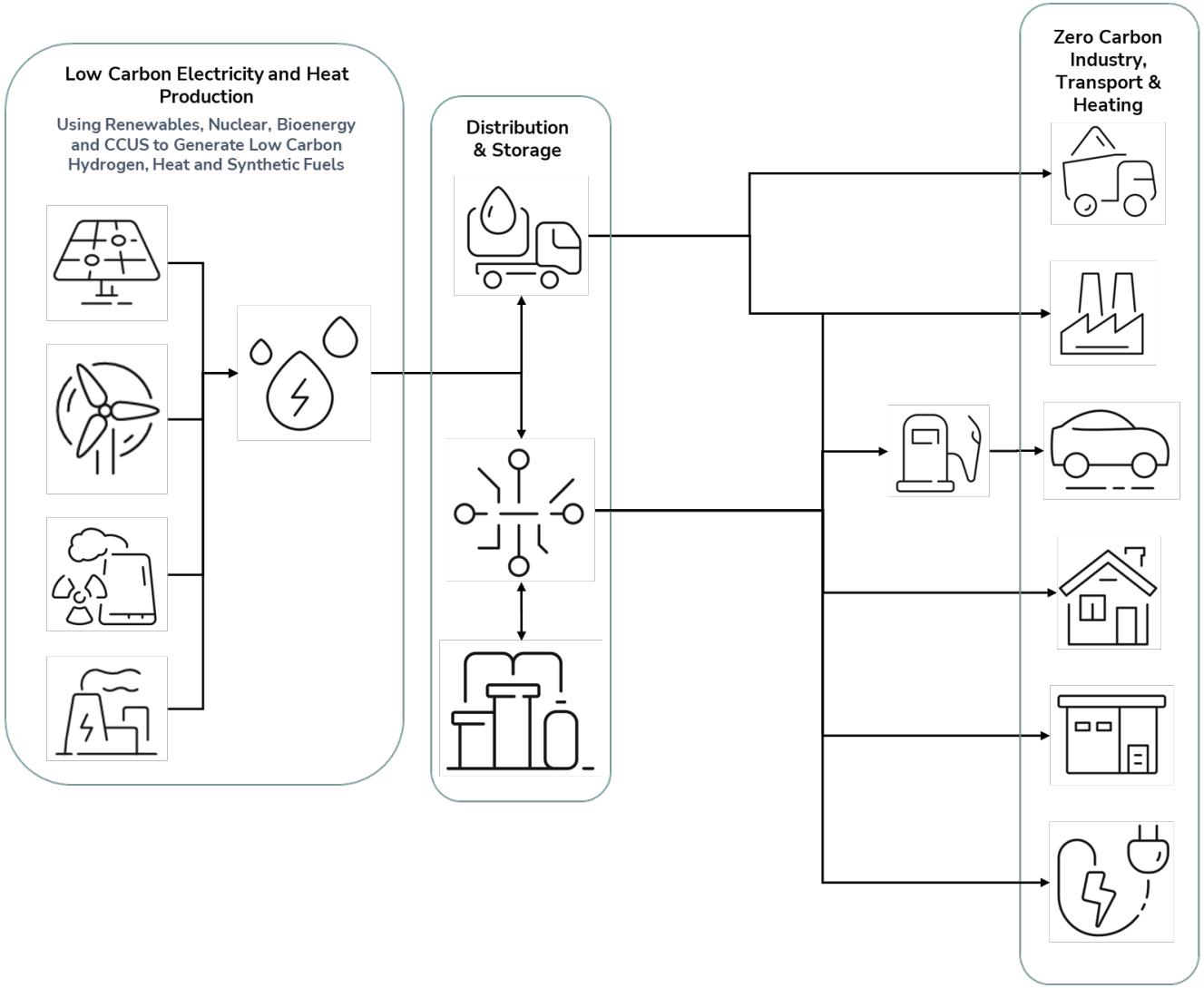
"I don't think that we will be able to achieve net-zero emissions by 2050. Everybody's talking about it, but let us be realistic - ***there is not enough production of sustainable aviation fuel.****"*
Akbar Al Baker, Qatar Airways CEO

"...if we are going to find an alternative source of fuel it has to be based on green hydrogen and synthetic fuels. ***Modular nuclear reactors around the coastlines of Australia or the United Kingdom*** *would give you the power to drive the processes that allow you to extract green hydrogen."*
Sir Tim Clark, Emirates CEO

Technology Exists Today

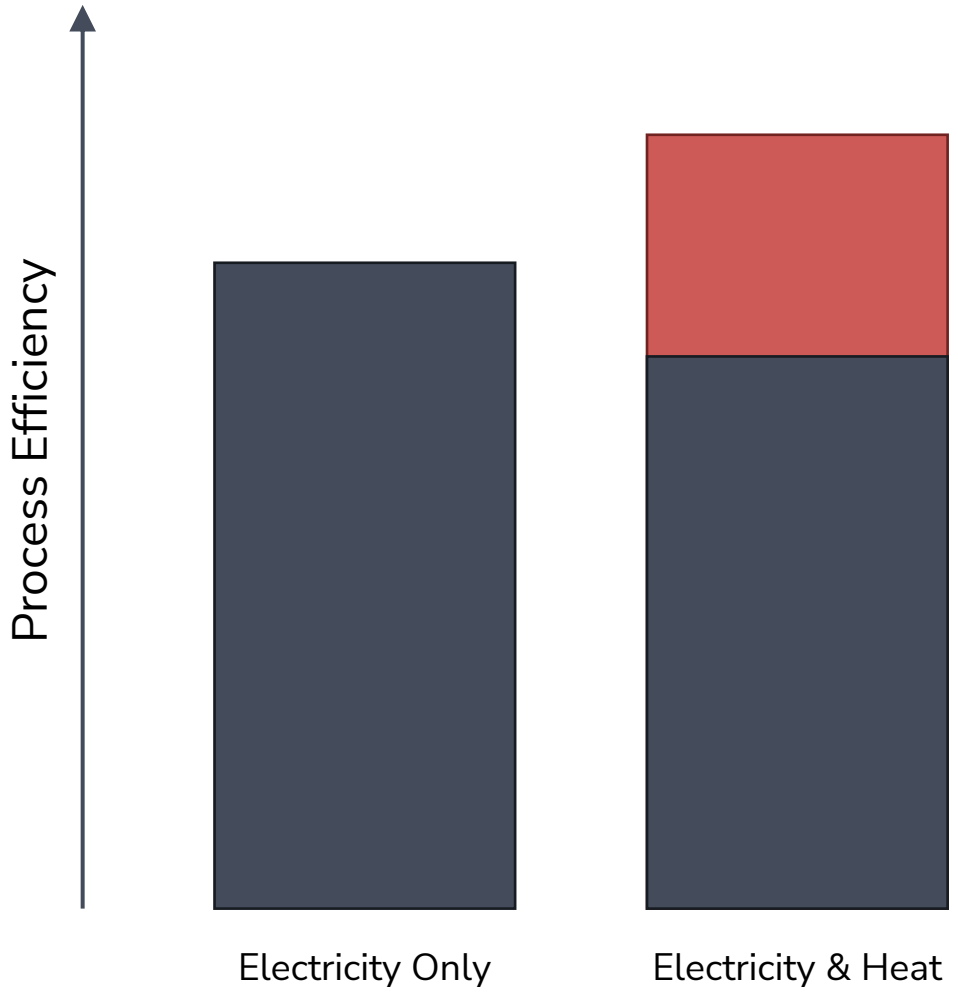
Applying Value Chain Thinking

- Decarbonised energy systems will be more heavily integrated and interdependent than traditional energy systems
- We have to work across the full value chain to understand how specific local needs and opportunities can be leveraged to reduce the cost of the energy transition



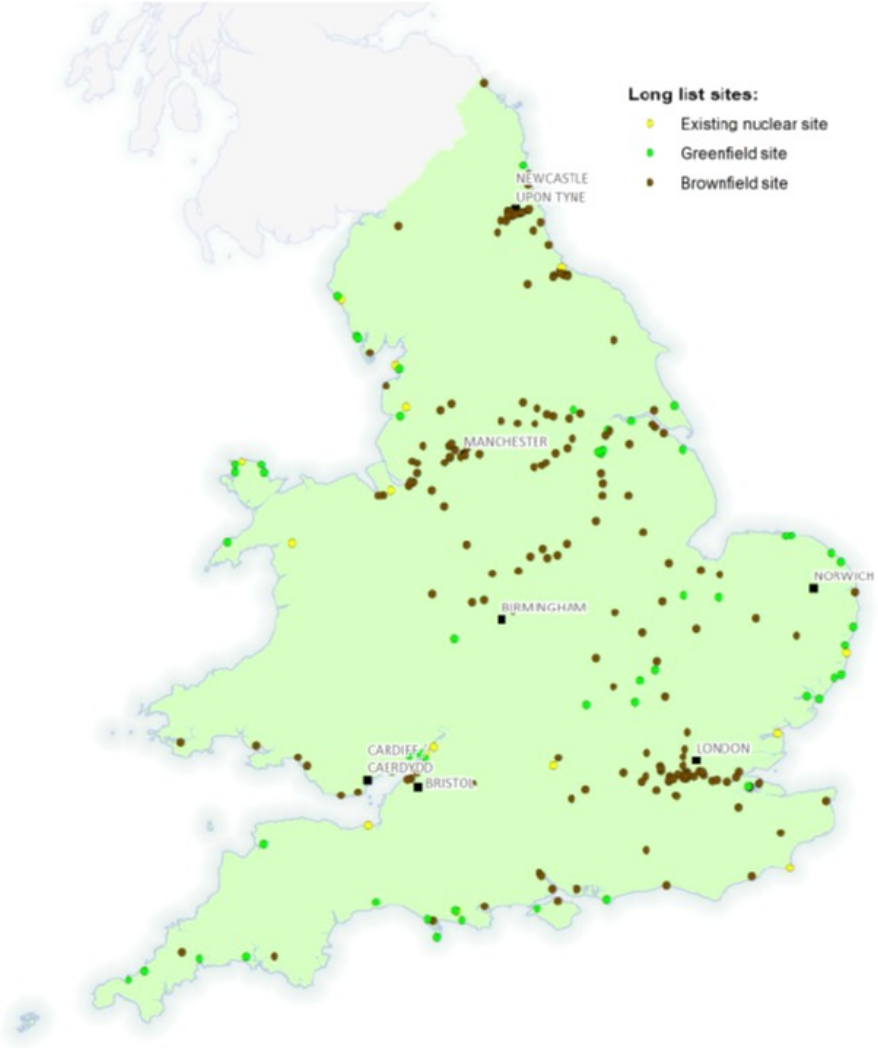
Why Heat?

- Providing additional heat can improve the efficiency of chemical and industrial processes
- This includes hydrogen and synthetic fuel production
- External heat sources can be significantly cheaper than electricity – i.e. when taken from excess heat sources
- Heat can also be used as a direct source of energy for co-located processes

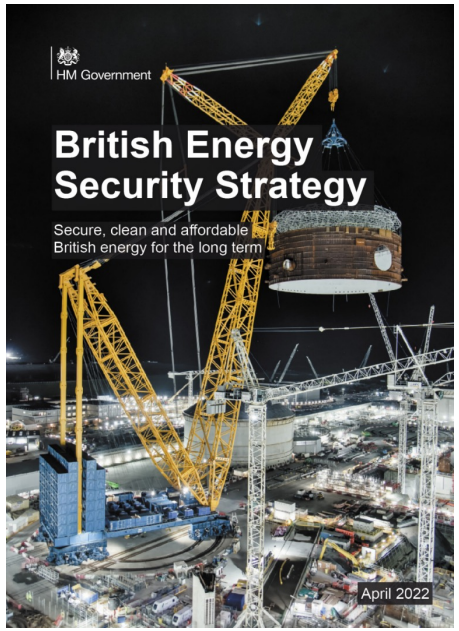


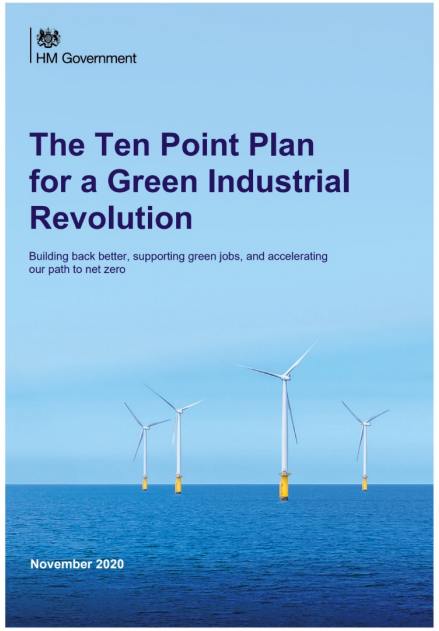
More Flexible Siting is Possible

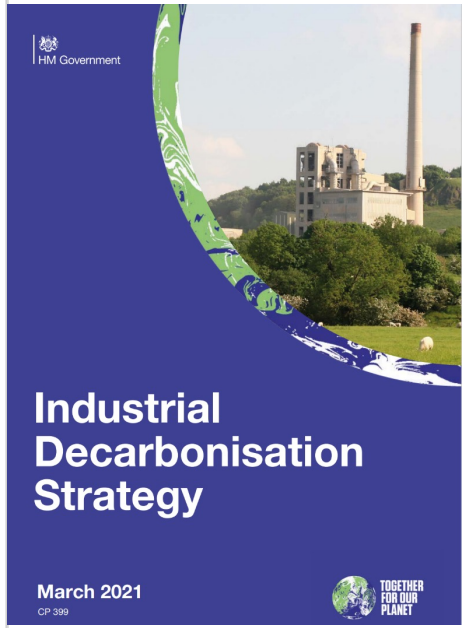
- Smaller, modern nuclear reactors offer the potential for more flexible siting, **near to off-takers**
- Previous studies have identified many sites across the UK with the technical potential to host nuclear reactors
- Siting policy is expected to be updated to explicitly capture a broader range of sites than currently

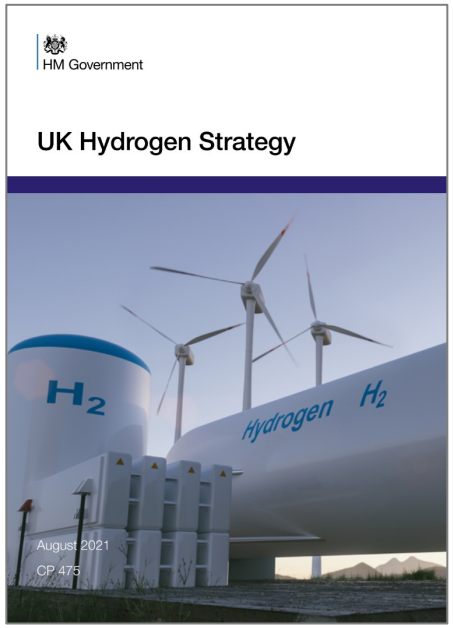


Government Policy and Nuclear Energy









Government Commitment to 24GW new nuclear power by 2050

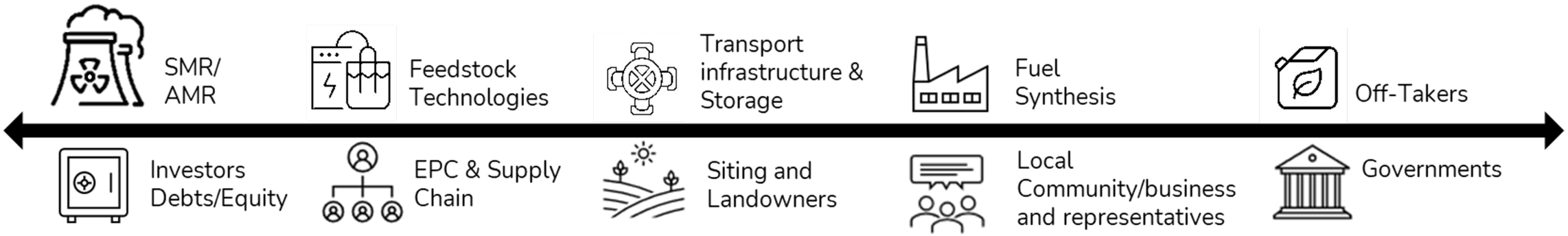
Commitment to AMR funded demonstration and SMR deployment

Inclusion in the non-nuclear decarbonisation policies for the first time

Consultation on Future Routes to Market

- Government consultation forthcoming on routes to market
- Industry response very important
- Industry meeting, 20th November to discuss response

Building Nuclear for a Future Flexible Energy System



- Demand Mapping
- Technology Stack Optimistion
- Interface Management
- GHG Assessment
- Techno-Economic Assessment
- Heat Integration for Efficient Fuels
- Business Case Development
- Stakeholder Engagement
- Offtake Market

- Regulation
- Siting Development
- Bid Strategy and Writing
- Project Governance, Definition and Management
- Government Relations
- Government Funding

Equilibrion – Our Business

Equilibrion is a new company set up to fulfil the potential of nuclear energy to decarbonise heat, transport and fuels

We do this in two ways.

Consultancy

High-value strategic and technical consultancy to support businesses across the full value chain from nuclear to end energy product

Project Development

Design and delivery of cross sector propositions for the deployment of end-to-end nuclear energy solutions

Our Team

Caroline Longman is a strategic and commercial leader in the nuclear sector, designing and delivering large public nuclear R&D programmes into government. Extensive experience in projects which bring together a diverse range of stakeholders to meet UK policy objectives

Phil Rogers is a technical nuclear professional with leadership, strategy and business development experience. He has been instrumental in securing nuclear energy into non-nuclear UK government policies (sustainable fuel, ammonia, hydrogen and heat)

Allan Simpson is an accomplished and respected technologist who has led the UK in the delivery of technical programmes to integrate nuclear-enabled hydrogen systems, including economics, electrochemistry, systems integration, safety implications and policy impacts

Recognised as leaders in our field in bringing the opportunity for nuclear outside the sector, we are supported by specialist capability to augment our expertise in the areas of regulation, innovation and siting.

Thank You

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