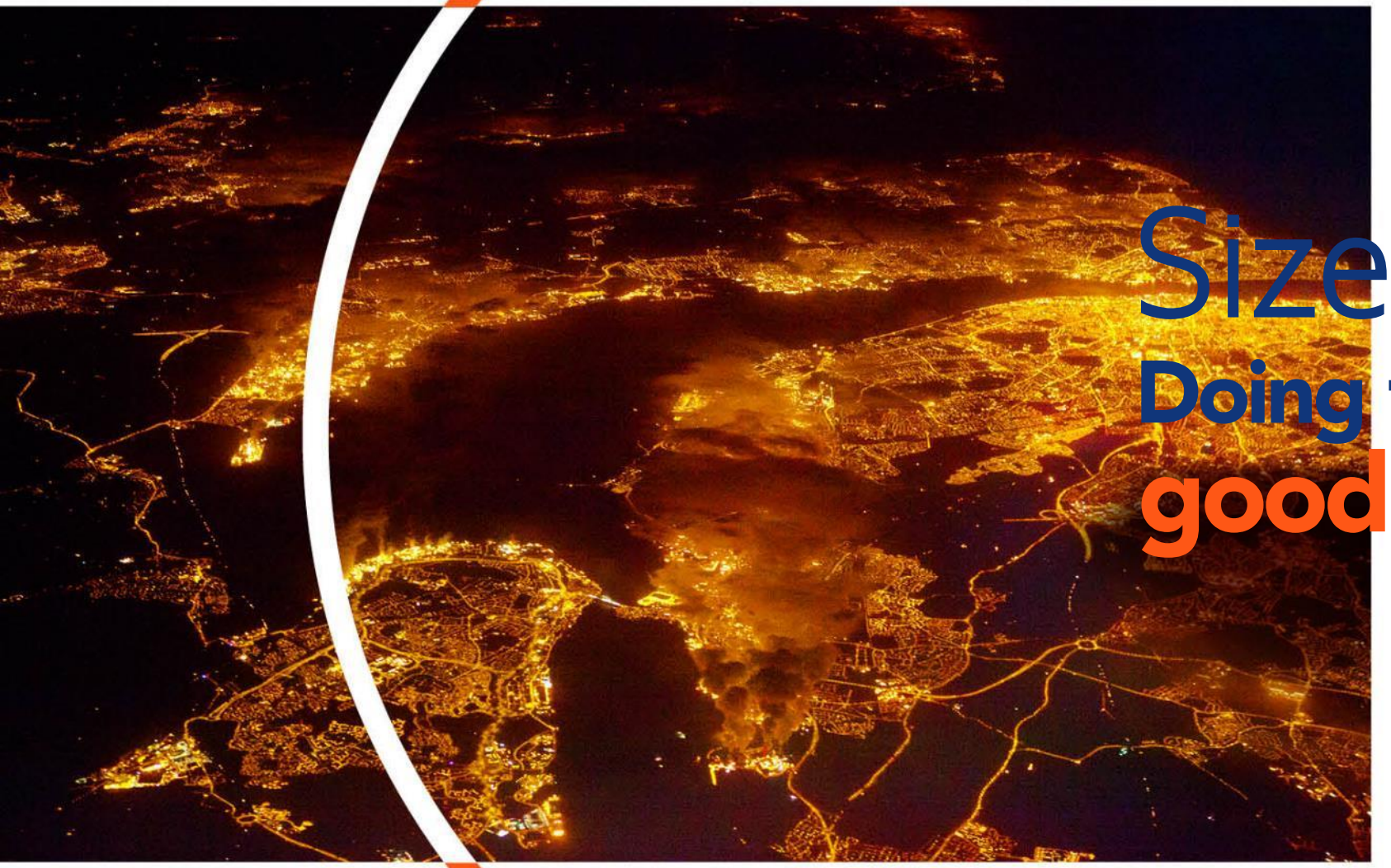

Sizewell C

Doing the power of good for Britain

Julia Pyke

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18 August 2020

The UK is legally obliged to reach **net zero by 2050**

Achieving net zero means in 2050:

2x **UK electricity demand**

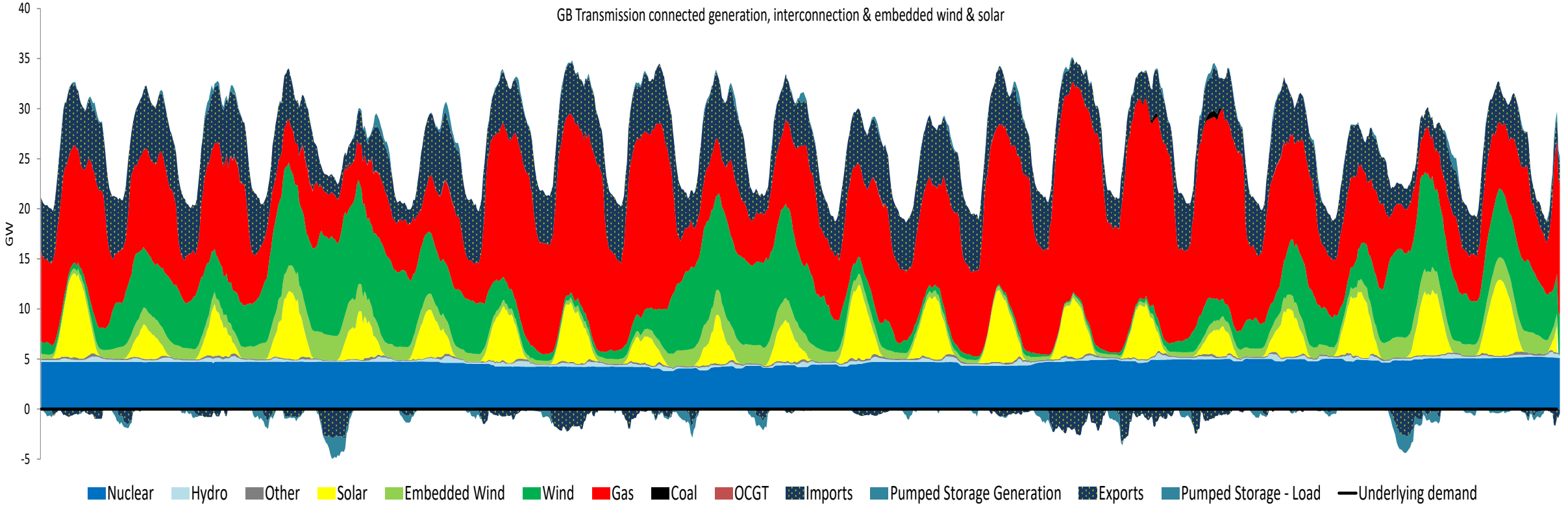
4x **amount of low carbon generation**

Based on Committee on Climate Change estimates

Energy Systems Catapult recently concluded:

10GW **of HPC-like design is a low regrets decision**

UK electricity demand and generation in June



Can you keep the lights on?

Can you create an energy mix that keeps the UK powered without producing any carbon emissions, using currently available, scalable technologies?

www.energymixer.uk


WHERE ARE WE?

Hinkley Point C has revived the UK's New Nuclear industry..

Hinkley Point C is providing economic growth, sustained employment and enhanced skills for the UK

£14bn

To be invested in the UK economy during construction

25,000

Job opportunities to be created during the construction phase

64%

The value of construction contracts that will go to UK-based companies

£1.7bn

Boost to the regional economy during construction so far

..Sizewell C and Moorside will build on this nuclear renaissance

Sizewell C: Where are we?

- Submitted our **Development Consent Order**, after 8 years of consultation.
- Applied for a **Nuclear Site Licence** and have applied for environmental consents as well.
- **Early works** on Sizewell C (e.g. road schemes) are ready to go - £300 million of work could be awarded this year.
- We look forward to the Government's conclusions on the funding model. **Financial investors (including British pension funds) want to invest** and are keen to help Government rebuild economy after Covid-19
- Many of the UK's nuclear suppliers are involved in HPC and have come together in a **Sizewell C consortium.** With the EDF team, they are looking at continuity issues for their own teams as HPC moves towards the end of its civils phase.

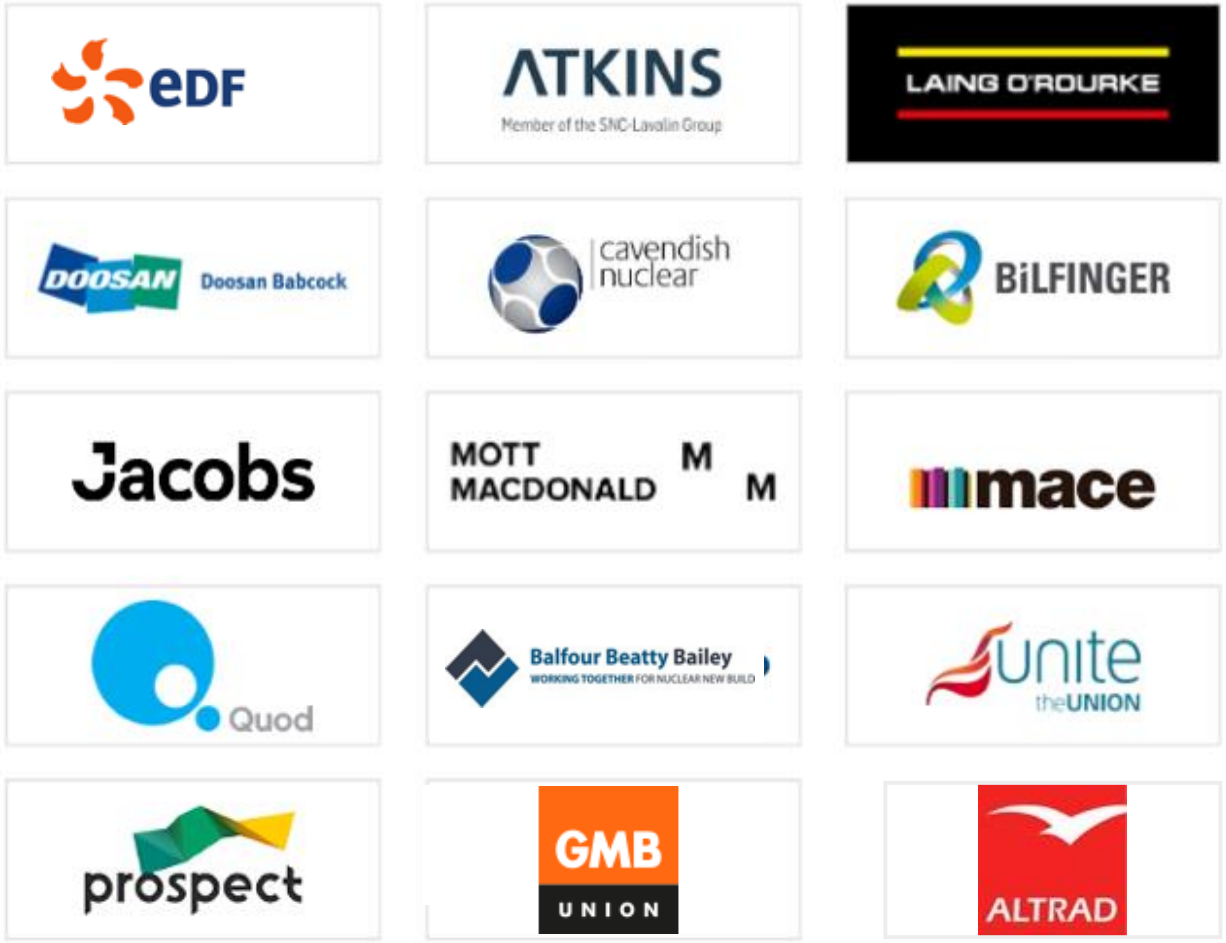
Moorside: Where are we?

The Moorside Consortium

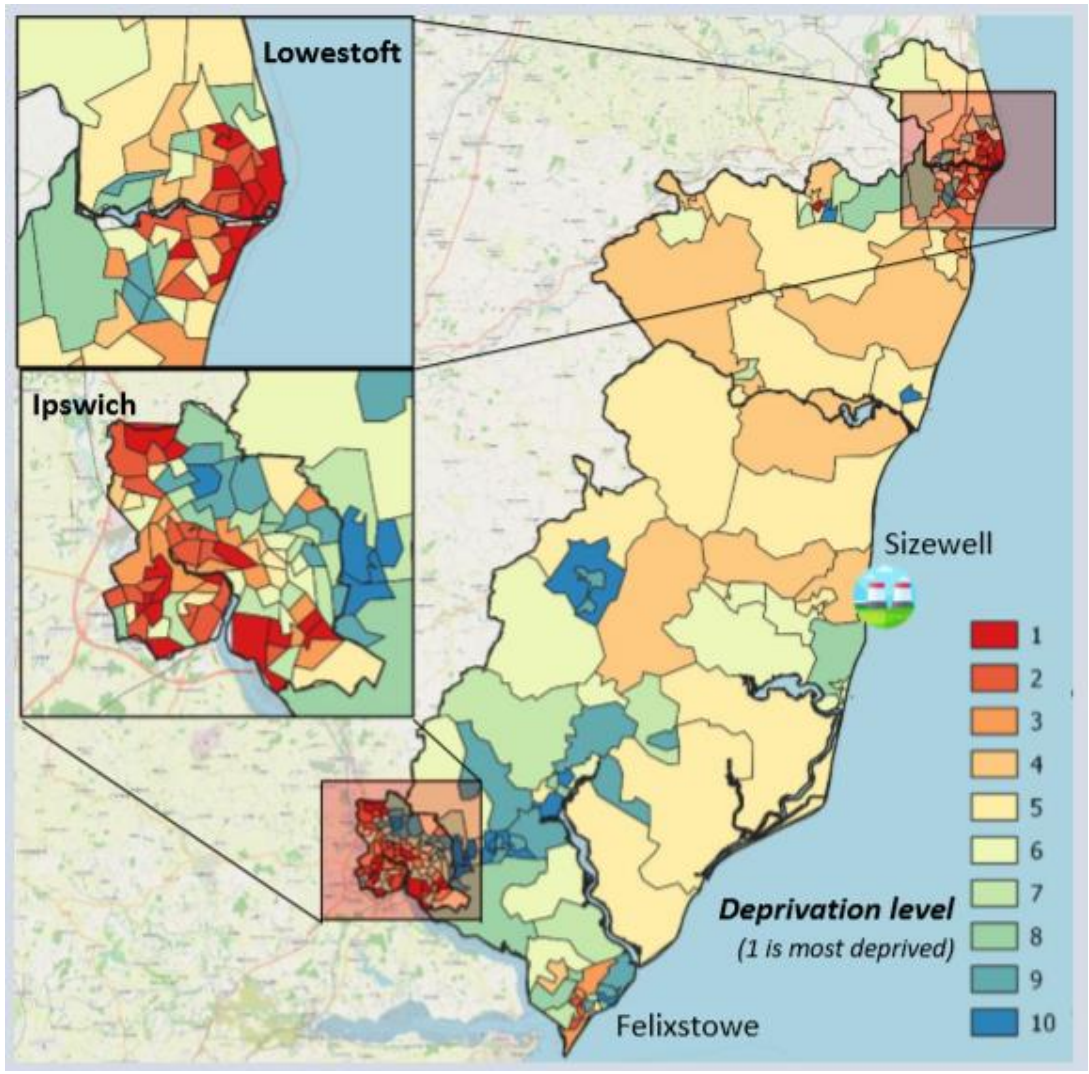
- A consortium of leading UK construction, engineering and nuclear specialists, along with unions, has **come together to promote a Clean Energy Hub in the North West**

- The consortium will explore: developing a new nuclear project with **twin UK EPRs and hosting small modular reactors (SMRs) and advanced modular reactors (AMRs), alongside an energy hub.**

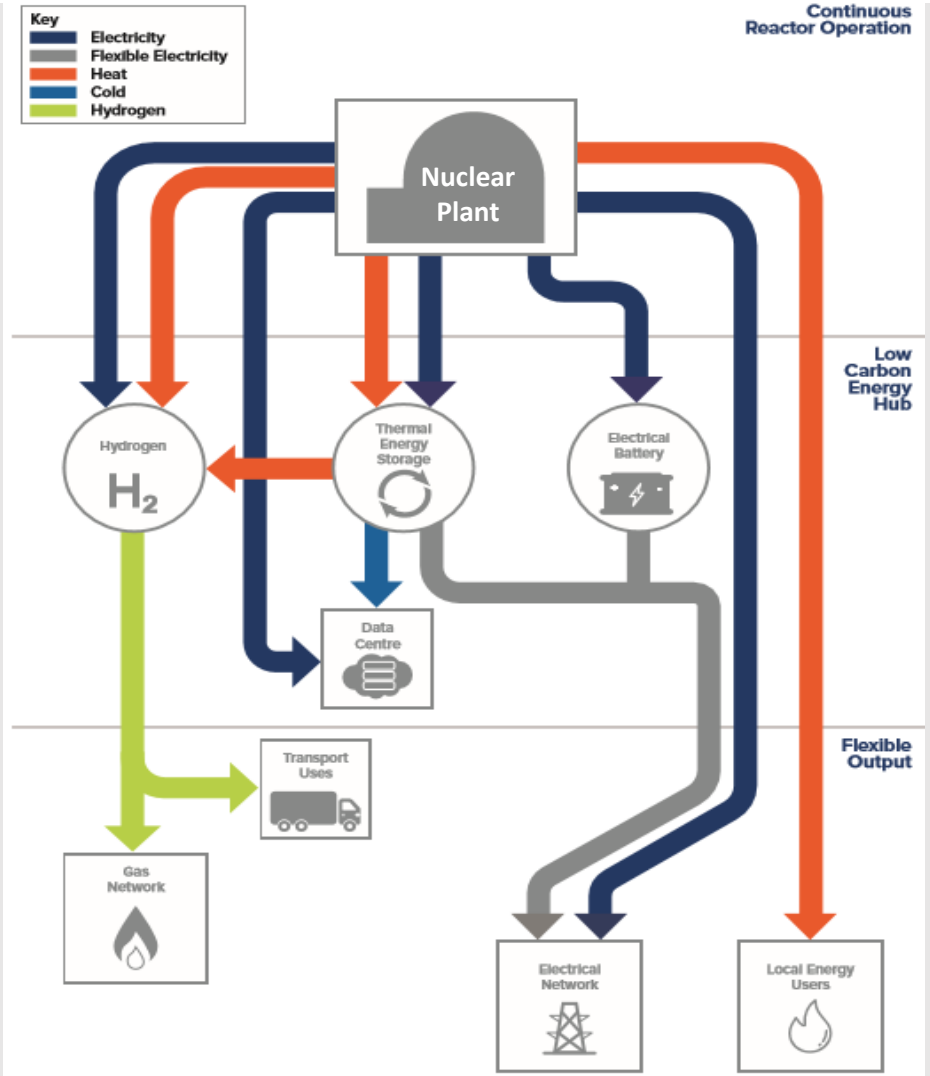
The consortium has been seeking advice from the Cumbria Local Enterprise Partnership, Copeland Borough Council, North West Nuclear Arc and BECBC to develop its plans / identify supply chain linkages.



WHAT CAN WE OFFER THE UK?

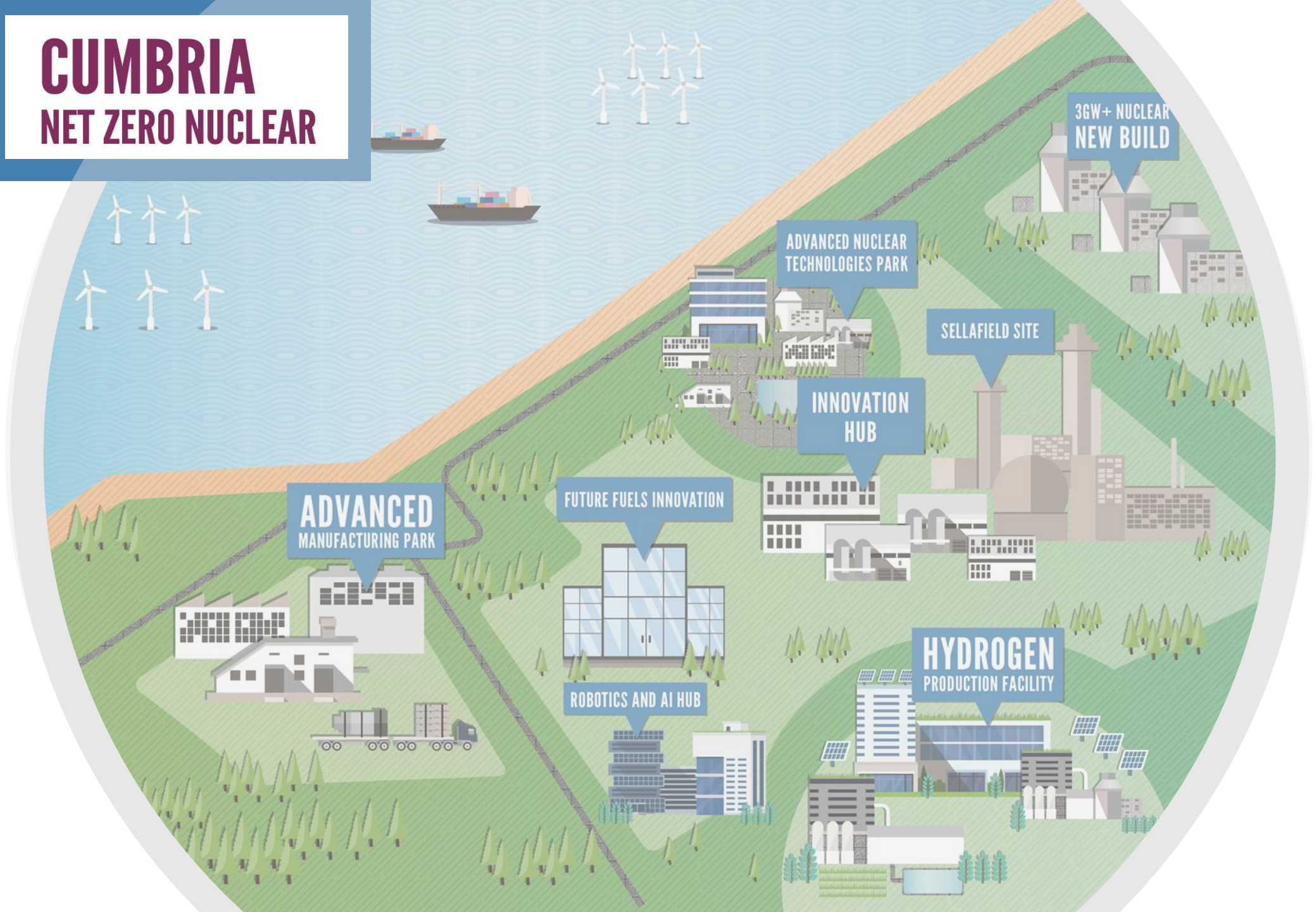


Nuclear power can be an energy hub..

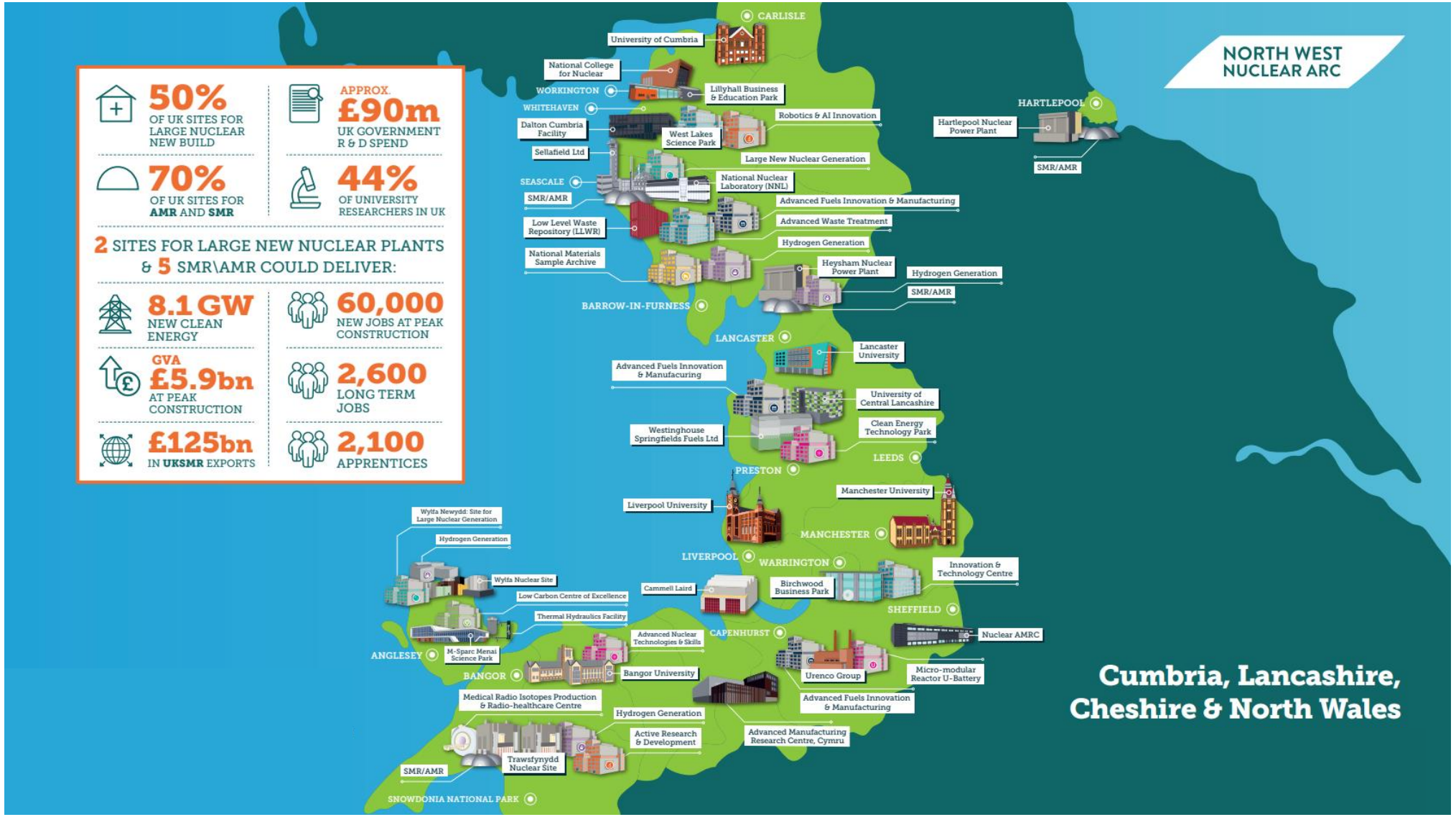


..providing more to the economy than electricity alone

CUMBRIA
NET ZERO NUCLEAR



We are a member of North West Nuclear Arc..



..working with them to deliver future capabilities across the North West

Sizewell C is exploring the even greater role nuclear can play..

- **Kick starting the Hydrogen economy,** by powering a demo electrolyser at SZB, which could be scaled up at SZC once the power plant is operational and the hydrogen market has developed.

- Removing CO_2 in our atmosphere through the **development of Direct Air Capture**, allowing nuclear to make and even great contribution to net zero.

- **Aligning with Freeports** to create a 'test bed' with regulatory flexibility to deliver innovation low carbon technologies and support the decarbonisation of sectors such as shipping.

..in achieving the UK's net zero ambitions

Hydrogen – What are we exploring?

Sizewell B demo project

- A 2 MW demo electrolyser at SZB would produce 800 kg H2 / day. It is scaleable.

- 2MW would power:
  - 533 forklift trucks for one day;
  - 160 cars for one day;
  - 16 buses for one day;
  - 4 trains for one day; or
  - 541 homes with hydrogen boilers for one day (19% homes in Leiston).

- Using clean, carbon-free electricity to kick start the hydrogen economy.

Sizewell C and Moorside

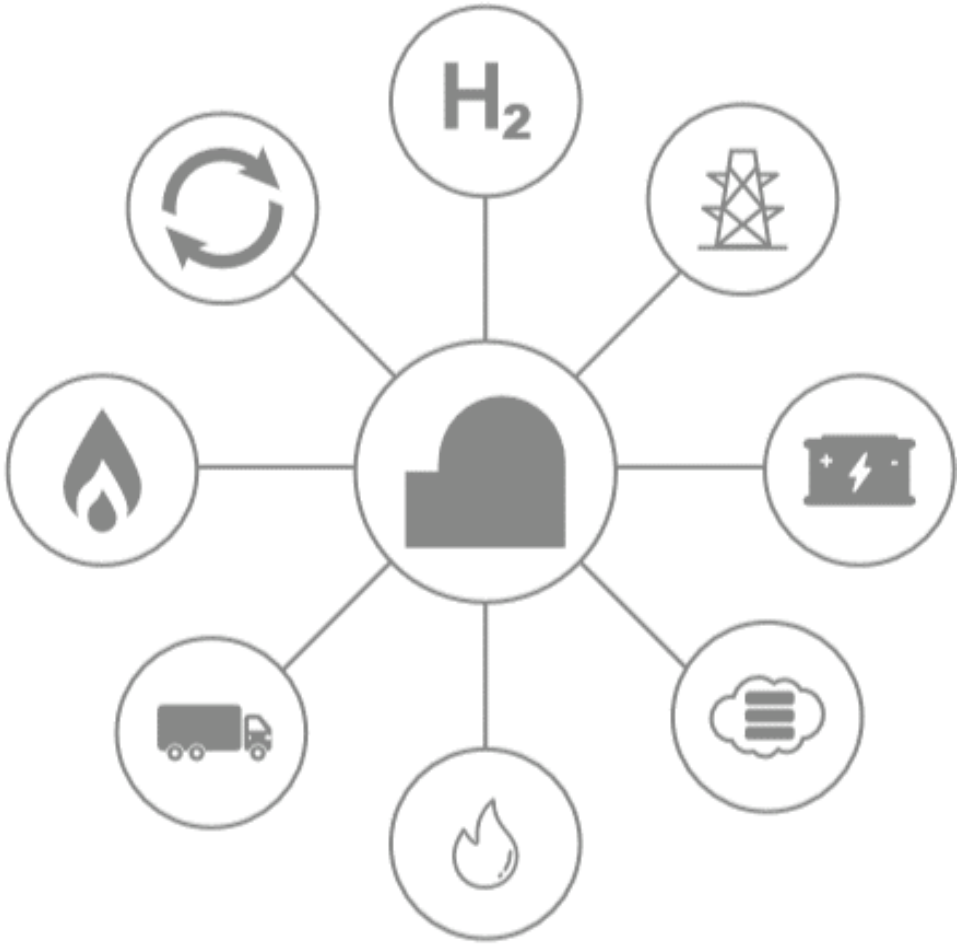
Hydrogen electrolysis could be powered and given heat assistance once Sizewell C and Moorside are operational. Ideally we would see collaboration with OFW.

Benefits

Opportunities to make construction more sustainable by using hydrogen powered buses, HGVs and plant.

Huge opportunity to contribute to the green hydrogen economy, make clean fuel for shipping and other transport, and heating if hydrogen is part of the UK's solution to low carbon heat.

Freeports – How can freeports and nuclear work together?



- Freeports are generally defined by: (i) light taxation; (ii) customs advantages; and (iii) legislative / regulatory adaptation. In February 2020, Boris Johnson announced plans for **10 new freeports in the UK.**

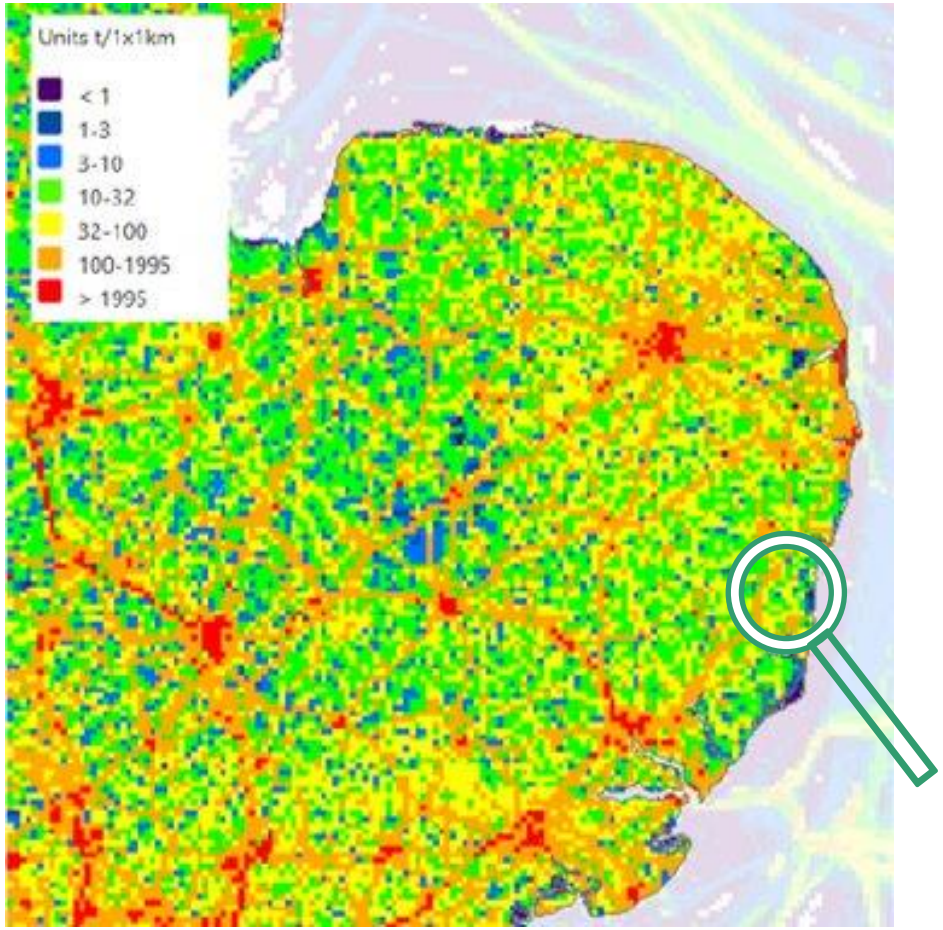
- If linked to a freeport, nuclear could provide:
  - Baseload low carbon heat and electricity
  - Low carbon fuels (e.g. hydrogen and ammonia for shipping)
  - A highly skilled workforce

- The elements of the Energy Hub which could be located within the freeport include:
  - Clean shipping options
  - Decarbonising the offshore wind industry
  - Hydrogen production
  - Direct air capture; and
  - A data hub

NET ZERO TOWN(S)

Proud to be collaborating on a community led project to take Leiston net zero..

..creating a replicable blueprint for communities in all four corners of our country



CO2 heat map for East Anglia
[Source: NAEI 2017]

The community of Leiston has a rich industrial past.

However, the town of around 2,500 homes has recently struggled with its identity.

Leiston is significantly above the county average in the number of households in vulnerable circumstances and children in low income families.

The aim is to generate a first-of-a-kind solution
to make Leiston a “net-zero” town.

Our aims…

1. Creating a replicable routemap for other towns to reach net zero
2. Pitching ideas to the community, together identifying a socially acceptable transition, and aiming to upskill and employ people in Leiston
3. Finding sustainable, bankable funding solutions

Helping Leiston **revitalise a green, clean, industrial identity**!

This project will...

1. be community led
2. take a thorough, robust engineering approach
3. have sustainable and affordable business models
4. provide social mobility by training local people
5. be open source and collaborative
6. combine thinking and funding

Nuclear power provides a real opportunity for a **green recovery**..

..controlling our path to a **net zero future**