

Hydr@gen East

Building a regional Hydrogen Economy
across the East Anglia

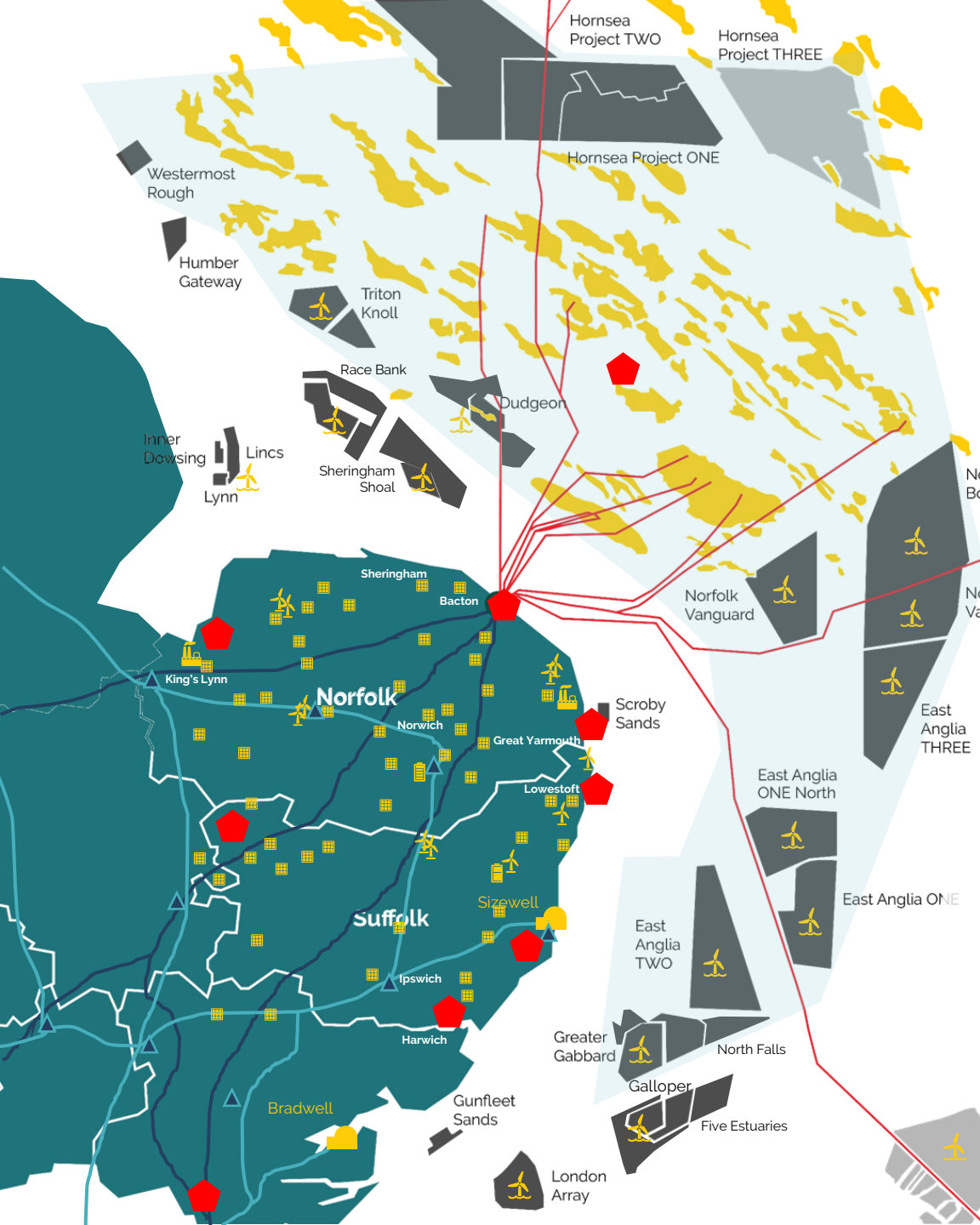
Hydrogen:
From Hype to Reality
30th March 2021

EAST ANGLIA

AN ENERGY POWERHOUSE



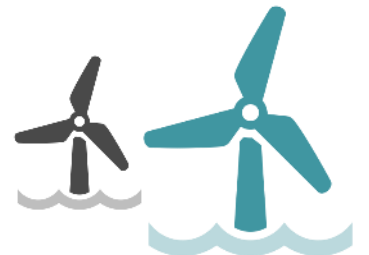
- at the heart of the world's largest market for offshore wind
- the Southern North Sea is the UK's gas capital, and prime to explore blue hydrogen with carbon capture and storage
- a hub for nuclear (new build, existing, and decommissioning) at Sizewell, Suffolk
- a future UK hub for low carbon hydrogen production and servicing



Key:

- Gas Fields
- Bacton Gas Terminal
- Gas Pipelines
- UK Offshore Wind Farms
- European Offshore Wind Farms
- UK Electricity Transmission Network
- UK Gas Transmission Network
- Electricity Substations (Transmission)
- Crown Estate Round 4 Offshore Wind License Areas (Zone 2 of 4)

- Nuclear Power Station
- Gas Power Station
- Solar Farm
- Onshore Wind Farm
- 50MW+ Battery Storage
- Potential Hydrogen Hub(s)



Britain's first H₂ terminal?



- Bacton Gas Terminal handles 1/3 of UK domestic natural gas needs.
- Major national gas grid injection point.
- Import / export links to Europe via two interconnectors.

Potentially a major hydrogen terminal, and the UK's primary connection to the proposed European Hydrogen Backbone.

Exploring opportunities for CCUS-enabled blue hydrogen, and green hydrogen from offshore wind.

Scoping study underway, jointly funded by OGTC, ORE Catapult, North Norfolk District Council, and New Anglia LEP.

Final report expected April 2021.



Sizewell Clean Energy Hub

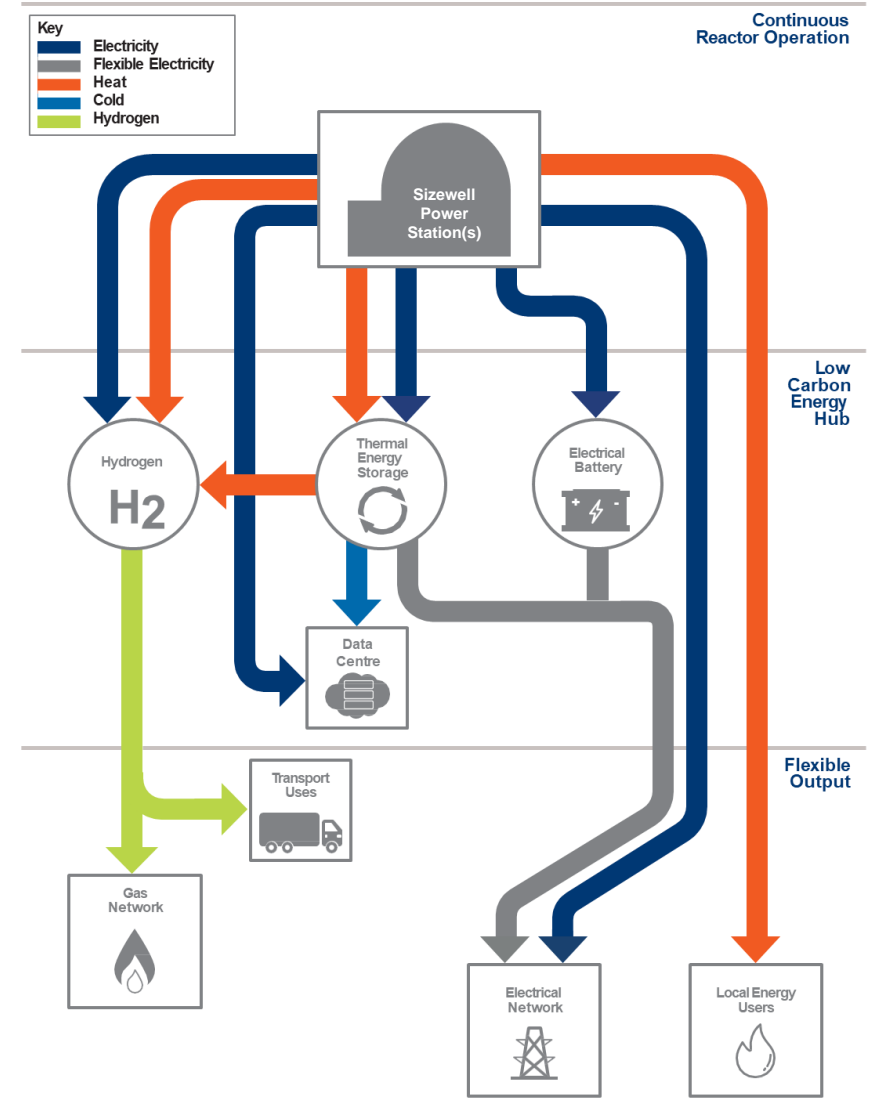


- EDF Energy are developing plans to create a **Sizewell Clean Energy Hub**.
- SZC's continuous reactor operation will produce **3.2GW of low-carbon electricity** and approximately **8GW of low-carbon heat**.
- The clean energy hub could translate this into 2-4GW of flexible electrical output, **green hydrogen** and power and heat for local uses.
- **2MW demonstration plant being scoped, powered by SZB**



Major opportunity to work with offshore wind projects on:

- hydrogen production
- battery storage
- thermal storage



Freeport East – Hydrogen Hub



5. ZERO EMISSION VEHICLES:

A cluster-based approach to hydrogen supply and demand will allow for a quick rollout of hydrogen buses, trucks, emergency vehicles, trains, construction and agriculture vehicles across the region, in London and beyond.

1. HYDROGEN:

At its peak 1GW of hydrogen could be produced - achieving 20% of the PM's 5GW target.

Equivalent size of a small shipping container

3. WIND:

Hydrogen will also be produced via renewable energy from nearby offshore windfarms, with the extra demand bolstering investment and accelerating progress to the 40GW target.

2. NUCLEAR:

Large parts of this hydrogen will be produced via nuclear energy at Sizewell B and then Sizewell C, when this comes online.

6. INNOVATION:

The hub will enable at-scale trials of multiple innovative low-carbon initiatives centred around hydrogen and nuclear technologies.

4. GREENER MARITIME:

Hydrogen applications will be developed at Felixstowe and Harwich ports to power port equipment and marine vessels.

FREEPORT EAST
Felixstowe
Harwich

HUTCHISON PORTS
PORT OF FELIXSTOWE



Onshore renewables and H₂ production



- Creating onshore hydrogen facilities using existing wind and solar assets, coupled with electrolyser plants.
- Potential to create local production and refuelling facilities, supplying low-carbon heat and/or transport fuels.
- Markets already emerging.

Opportunities to invest in local demonstrator projects.

Sites being explored include:

- PowerPark, Lowestoft (Wind/Gas Flexgen)
- Scottow Enterprise Park, Norfolk (Solar)
- Snetterton Business Park, Norfolk (Biomass)
- Mid-Suffolk Business Park (Biomass/Wind)



H₂ vehicle demonstrators



- Refuse trucks
- Buses
- Marine vessels
- Agricultural vehicles
- Trains
- Passenger cars/fleets
- Others?

Working collaboratively with Local Government, industry and business, we can **create demonstrators to aggregate demand** and create a local hydrogen market.





Hydrogen East

Questions?

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