Opportunities to transform business operations in support of a North Sea Transition

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Exacerbated by the energy crises, the journey to net zero is further complicated by the current energy trilemma

UK Energy Security Strategy

- **7+ UK clusters** being formed by 2050
- **Two Track-1 cluster live by 2025** with 2.7MTPA CCS and 3GW by 2025
- 100 new O&G licences issued in North Sea to increase local supply

Rest of the world

- Formation of $8bn USA Hydrogen Hubs
- Plan to have 100+ industrial clusters by 2024 convened by WEF, ACN and EPRI
- 62% of **companies bringing suppliers closer** to operations for supply chain resilience

Legacy vs. New Energies Cost

- TTF **Natural gas price volatility** averaged 124% during Q1 2022
- **Green H_2 LCOH needs to drop 60%**
- UK CCS at £114/tCO2. Higher than ROW.
- **£3.18/kg → £1.68/kg Blue LCOH reduction required** be competitive by 2030
- Multiple decarbonisation support schemes such as the **£1bn CCUS infrastructure fund** and **UK Hydrogen Model** put in place to guarantee revenue

Rest of the world

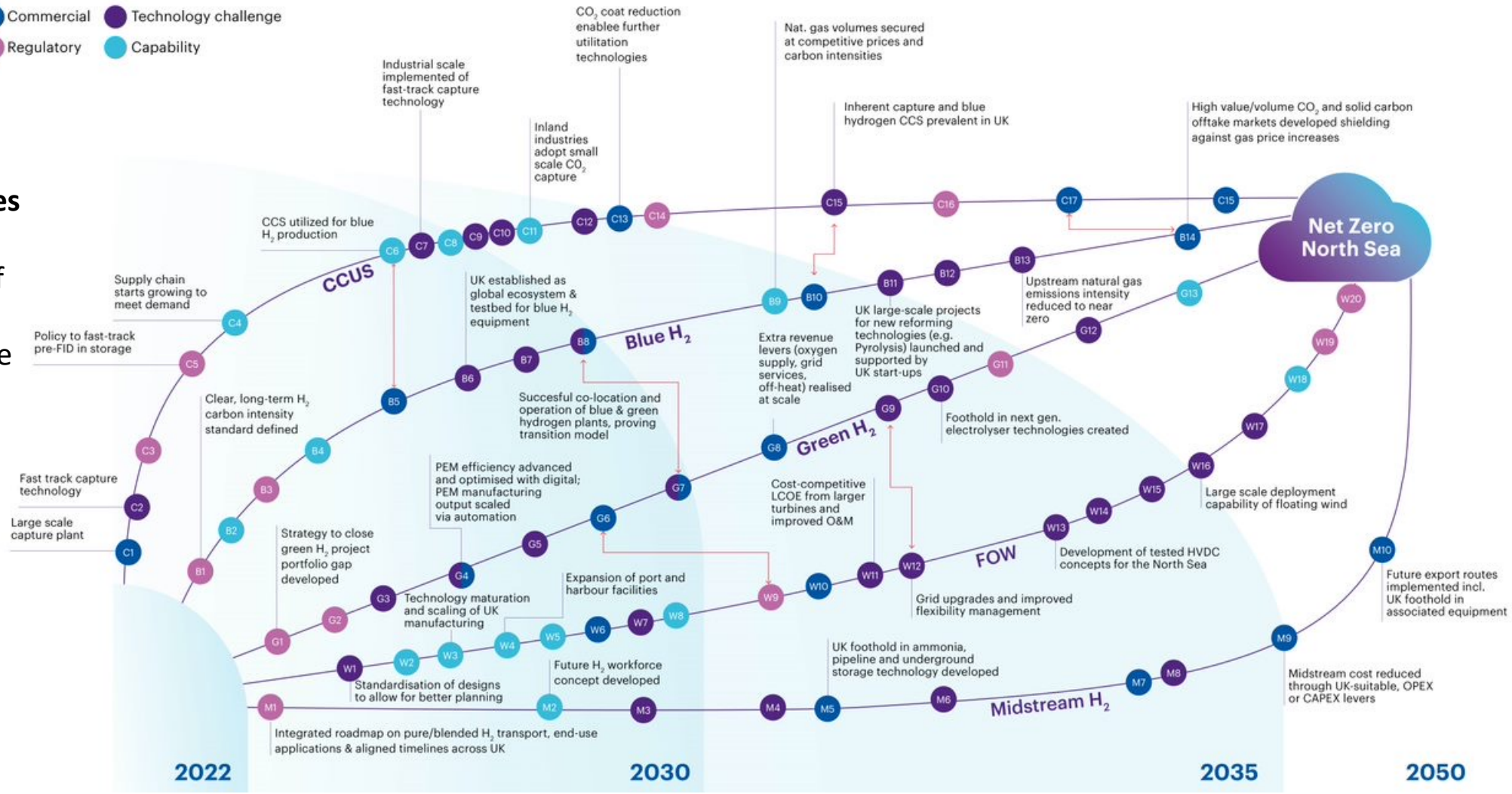
- USA inflation reduction act: Rise of the 45Q tax credit to $85 and $3/kg incentive for zero-carbon hydrogen

North Sea Transition Deal

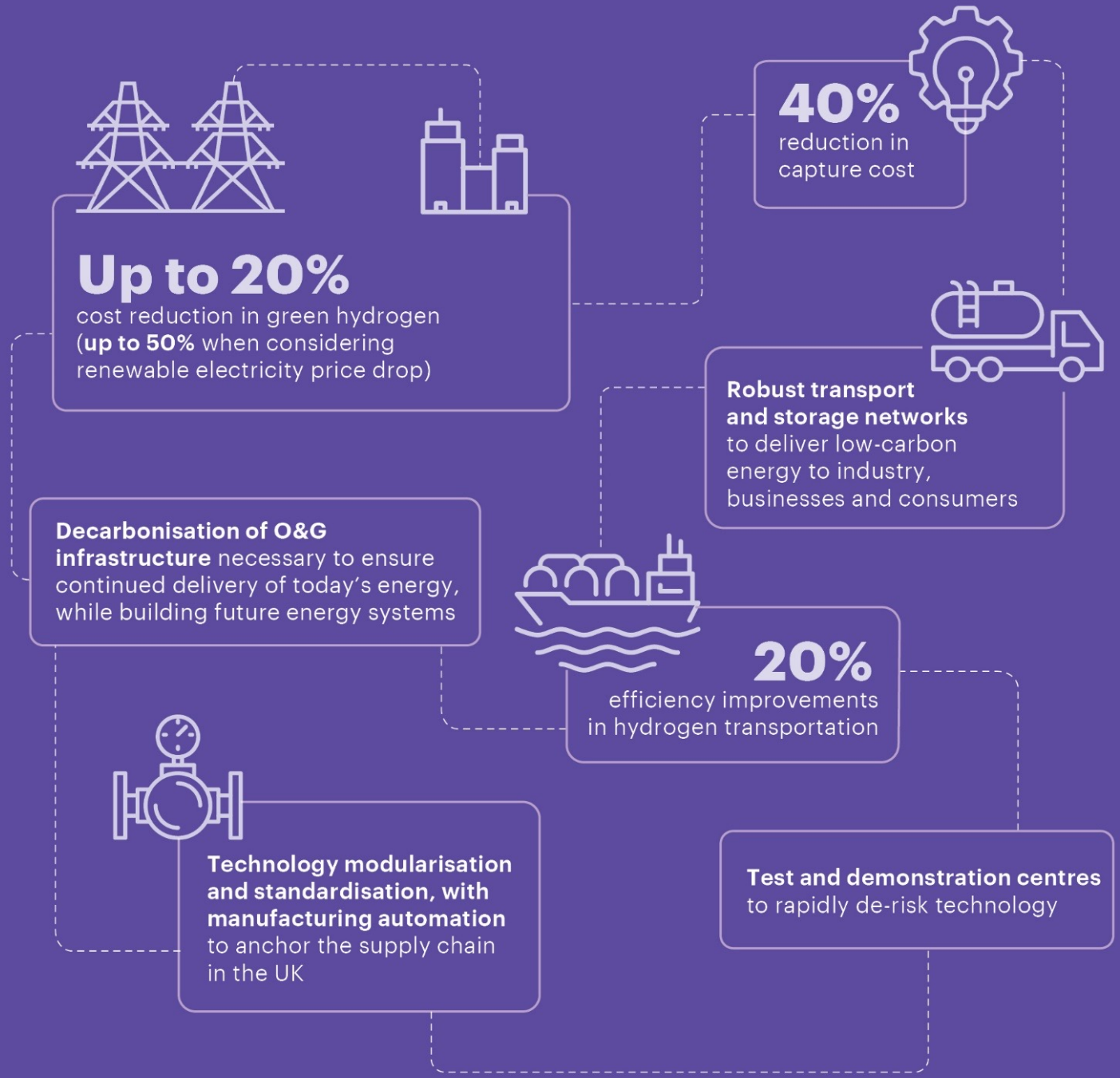
- **10 GW of low carbon H_2** by 2030. At least 5GW of which is green H_2
- **20-30 MTPA of CCUS** by 2030
- **50GW of offshore wind** power generation by 2030
- 95% net zero electricity generation by 2030

The journey requires all parts of wind, hydrogen and CCS to advance together and cannot be done in silos

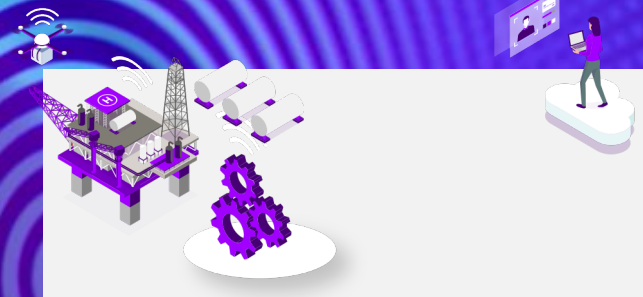
1. A **blue H_2 x CCS future proceeds green**.
2. **Integration opportunities** in CO_2 capture & utilisation, colocation of wind + green and the utilization of green waste products in blue.
3. The future state holds **import and export opportunities** for CCS and hydrogen



Technology will help unlock the affordable, low carbon future, but must be at the right pace



CCS projects must be delivered now to decarbonise industries and kickstart the hydrogen economy



PACE

By developing modular capture units and standardising components to reduce cost and speed up delivery.

COST

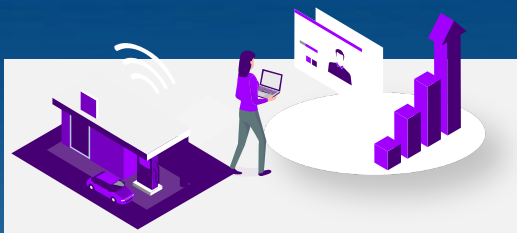
By testing & developing cheaper non-amine capture technology with lower energy demands

Potential 40% cost reduction in capture stage

NSTD CCS goals

- 4 CCS sites by 2030
- 20 – 30 MTPA CO_2 captured

To achieve the required 50% reduction in blue hydrogen LCOH by 2030, disruption is needed



EFFICIENCY

Raise existing Autothermal Reforming (ATR) efficiencies through heat recovery and new auxiliary component designs.
Integration with CCS technology.

COVERAGE

By advancing disruptive technologies such as pyrolysis to provide blue hydrogen in the future in remote locations.

NSTD Blue H_2 goals

- Up to 5GW

COLLABORATION

+

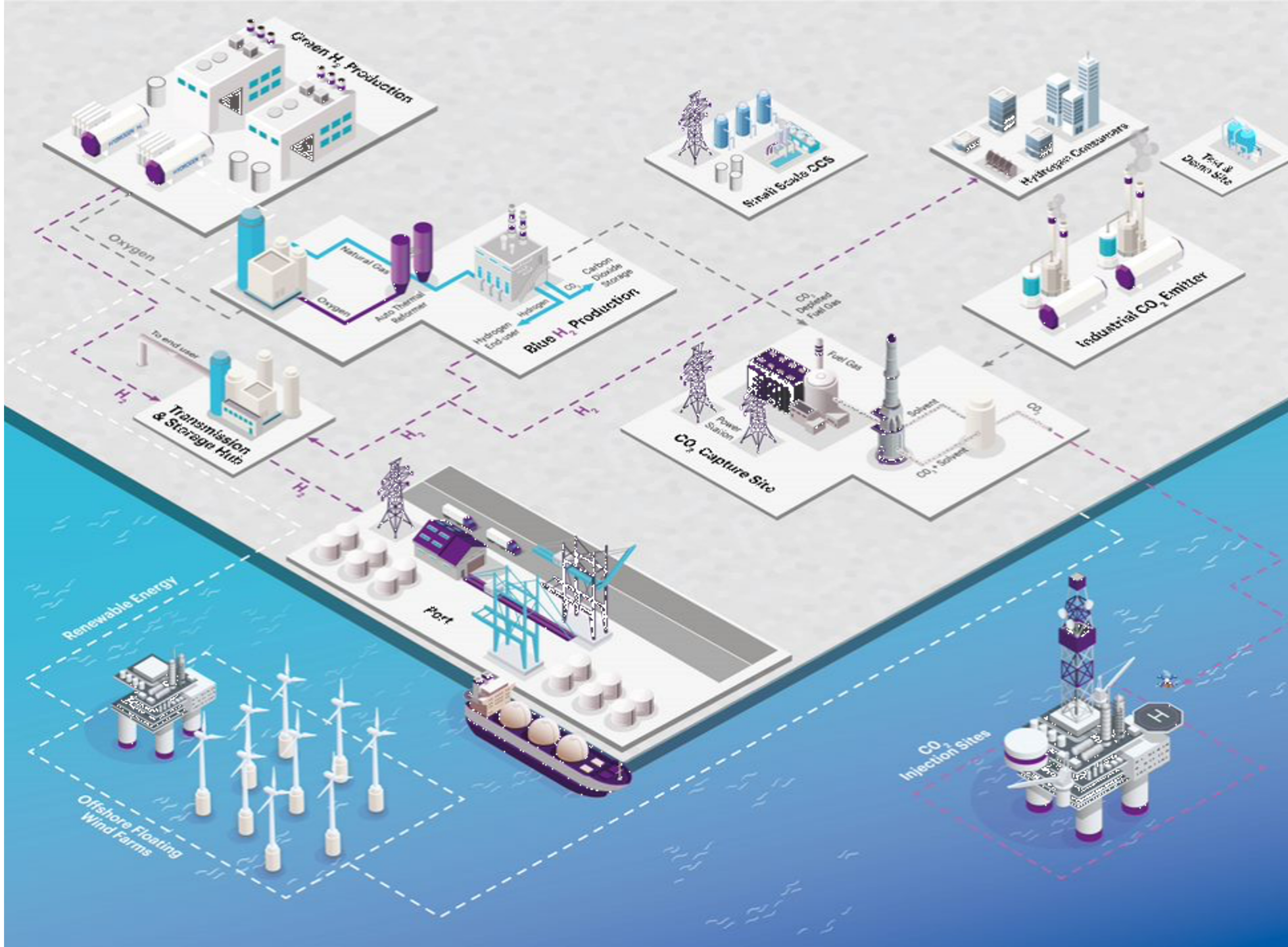
INTEGRATION

+

ACCELERATED PACE

=

THE SUCCESS OF THE NET ZERO ENERGY FUTURE



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This integrated future energy system holds a £20B - £30B opportunity in the UK alone

PHYSICAL INTEGRATION

1 Better access to entire UK market

- £6 B Hydrogen Profit opp. By 2030
- £72M Reduction of emission fees via CCS by 2030

2 Unlock circularity

- Reduce energy costs by utilising green H_2's waste oxygen & water in blue H_2 plants to raise steam or reduce ASU load
- Future opportunities for CO2 captured at cement sites to be utilised for mineralisation for building materials

DIGITAL INTEGRATION

1 Entry to the growing Digital Environmental Commodities market

- £5-8 B Hydrogen EACs opp. By 2030
- £10-15 B voluntary carbon credits market opportunity in the UK by 2030
- 30% y-o-y VCM market growth thus far
- Blockchain based platform

2 Build a Connected Cluster

- Visibility over the multiple suppliers and offtakes on shared infrastructure Blockchain multiparty systems ensure trust and data-sharing
- Digital cluster comms systems will aid fluid communication
- Digital tools can optimise when you should be supplying and at the best flowrates to minimise costs

Enabled by a robust supply chain network, favourable regulations and the right digital capabilities

Questions or want to learn more?

Reach out to Accenture Net Zero Team led by Ekaterina Kozinchenko

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