

North East Scotland's Hydrogen Ambition & the Energy Transition Zone

Bavarian Delegation visit to Aberdeen

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14th June 2022



- North East Scotland's Energy Transition Opportunity
 - North East Scotland Hydrogen Ambition – a 1GW Low Carbon Hydrogen Opportunity
 - H₂ is here - Aberdeen Hydrogen Hub
- Energy Transition Zone
 - *Hydrogen Campus*
 - ERM Dolphyn Project & the Green Hydrogen Test & Demonstration Facilities

North East Scotland's Energy Transition Opportunity & Hydrogen Ambition

An overview of North East Scotland's strengths



**Oil & gas infrastructure
and expertise**



**Net Zero
Technology Centre**



**Integrated energy
supply chain**



ETZ Ltd



**Underwater engineering
and technology**



**Industry-focused
universities**



**Ongoing Energy
Transition projects**



**Port infrastructure
and capability**

A region with the right credentials and a strong track record of delivery to embrace a low carbon energy future

Energy Transition Projects Key

- ScotWind leasing areas
- Existing windfarm
- ETZ
- CO₂ Storage Sites
- Existing Pipeline
- Future Pipeline

North East Scotland current & future Energy Transition projects

Aberdeen City current & future hydrogen projects

Aberdeen Hydrogen Hub (Project) 2024



TECA Electrolyser
350kg H₂ / day



Kittybrewster HRS
360kg H₂ / day

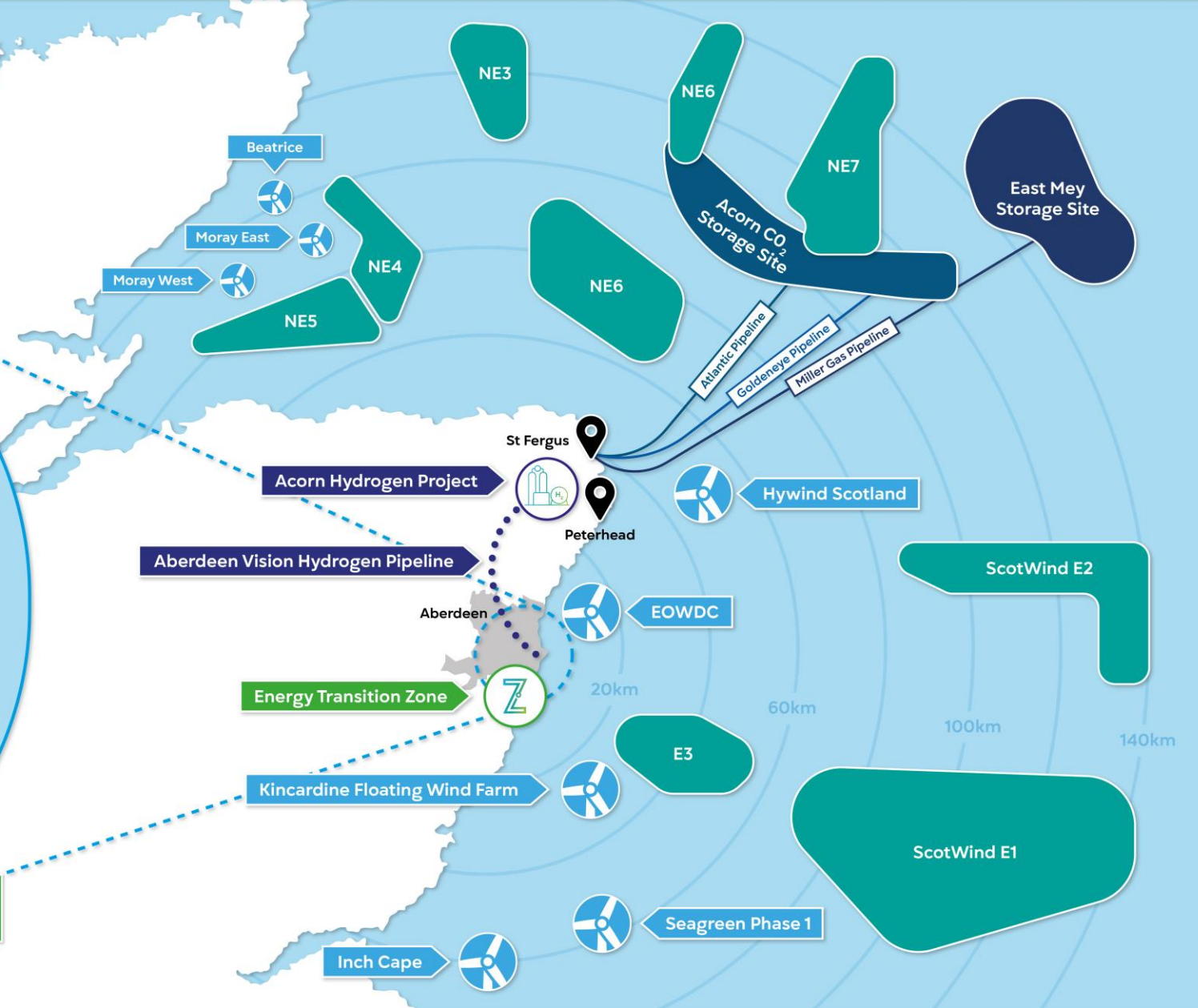


ACHES HRS
360kg H₂ / day

Energy Transition Zone
Hydrogen Campus



ERM Dolphyn
Project (2024)
2000kg H₂ / day initially





Hydrogen
is **here.**



A decade of pioneering hydrogen activity



TECA (2019)
350kg H₂ / day



Kittybrewster HRS (2014)
360kg H₂ / day



ACHES HRS (2017)
130kg H₂ / day

- ~85 hydrogen vehicles currently, one of the largest & most varied hydrogen fleets in Europe.
- >2 million passengers transported over 1½ million miles & over 250,000kg H₂ safely dispensed.



Aberdeen Hydrogen Hub

- bp Aberdeen Hydrogen Energy Limited – a JV between bp and Aberdeen City Council
- Phase 1 operational by 2Q 2024



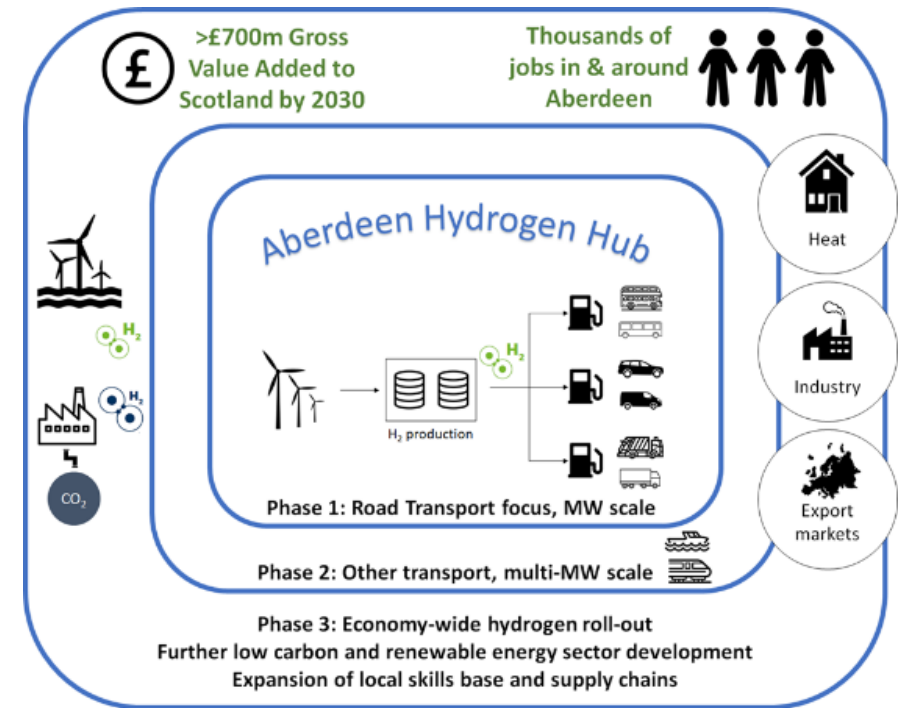
Phase 1 – provision of a resilient, cost-effective supply of green hydrogen on a commercial basis to the market to support the existing and proposed transport projects.



Phase 2 – Expansion in the short to medium term to connect to larger volume utilisation of hydrogen – trains, trucks and marine.

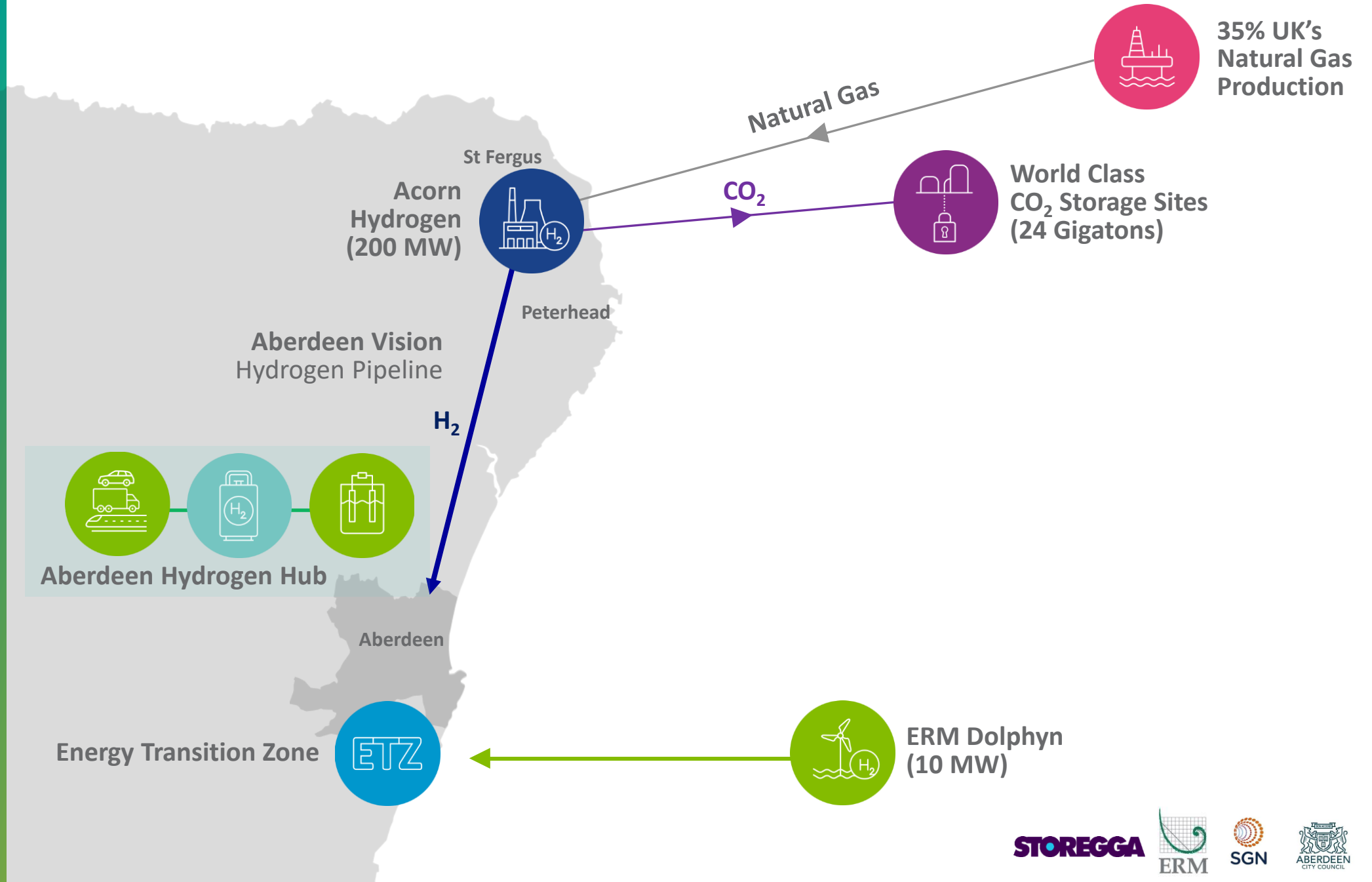


Phase 3 – Whole system approach to supply and demand. Innovation, skills and transition hub to support expansion of the local supply chain. Pursue the ambition for Aberdeen to be the centre of a brand new Energy production business, **exporting H₂ to the world.**



ETZ

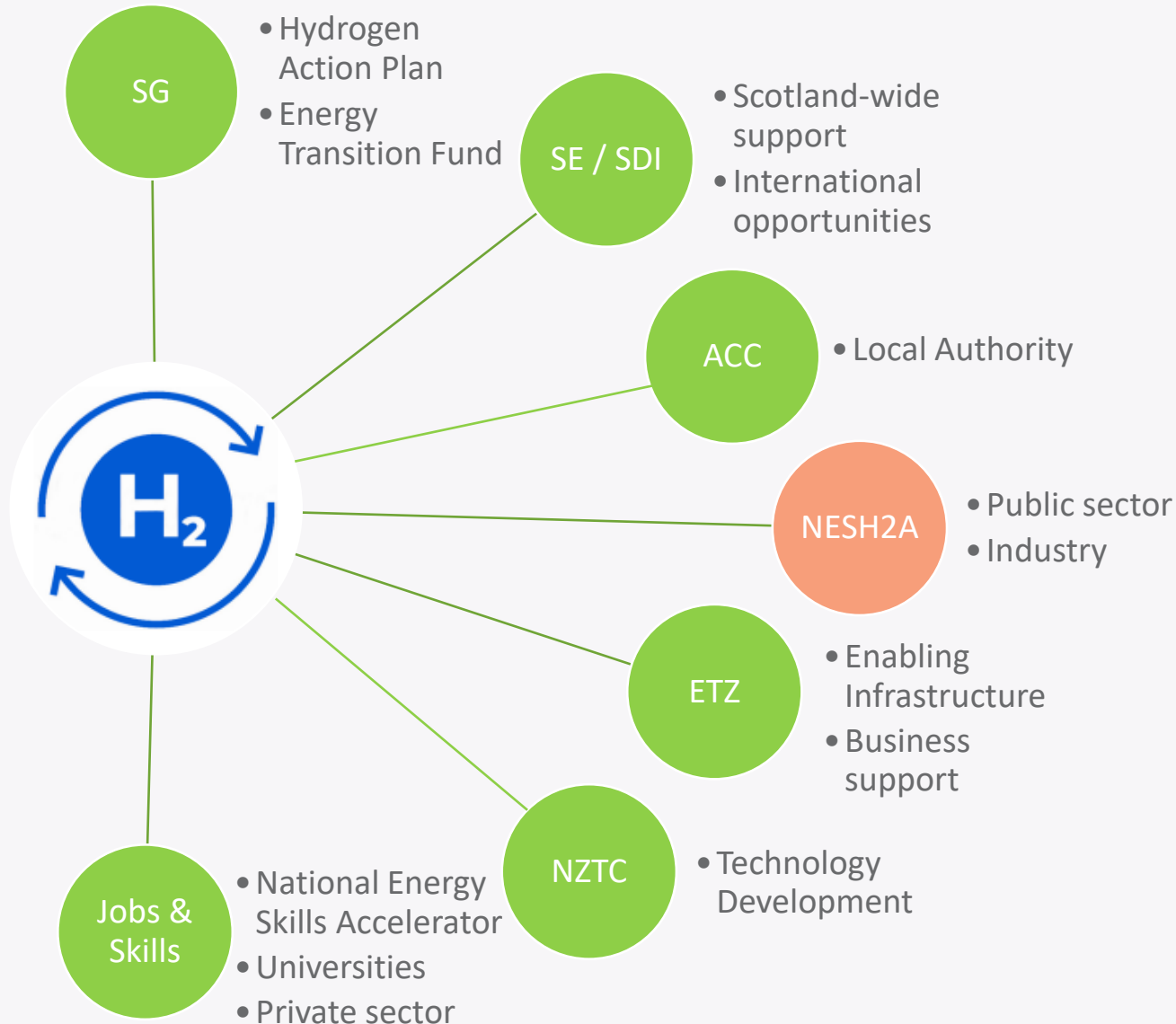
North East Scotland: Hydrogen Projects Operational by 2025-27



STOREGGA

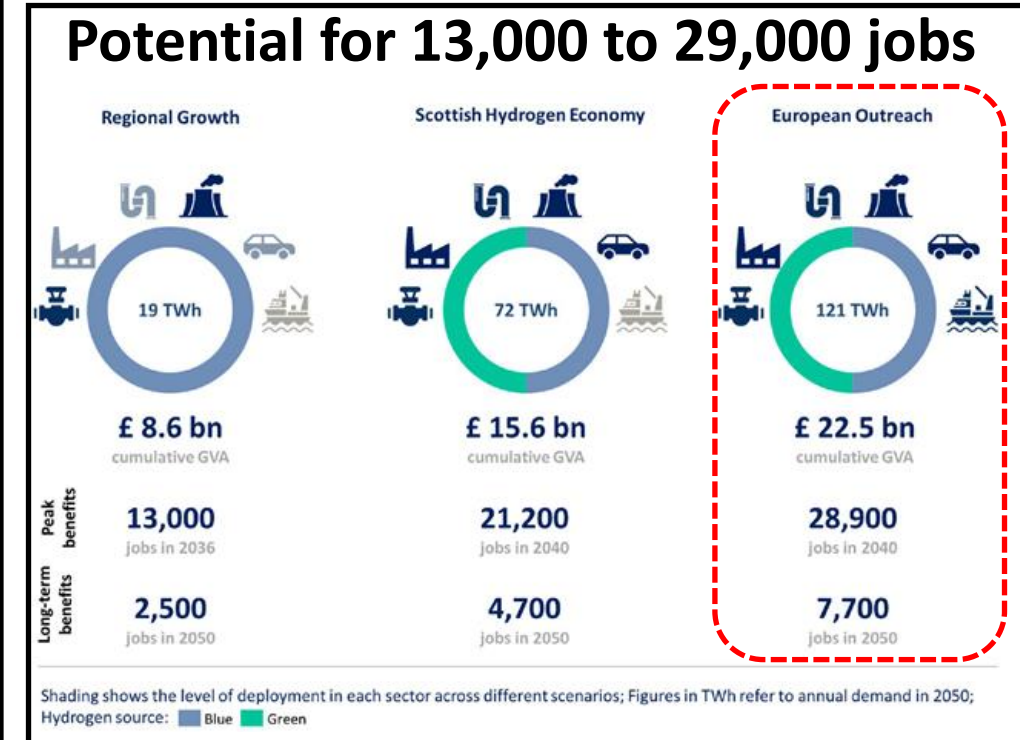
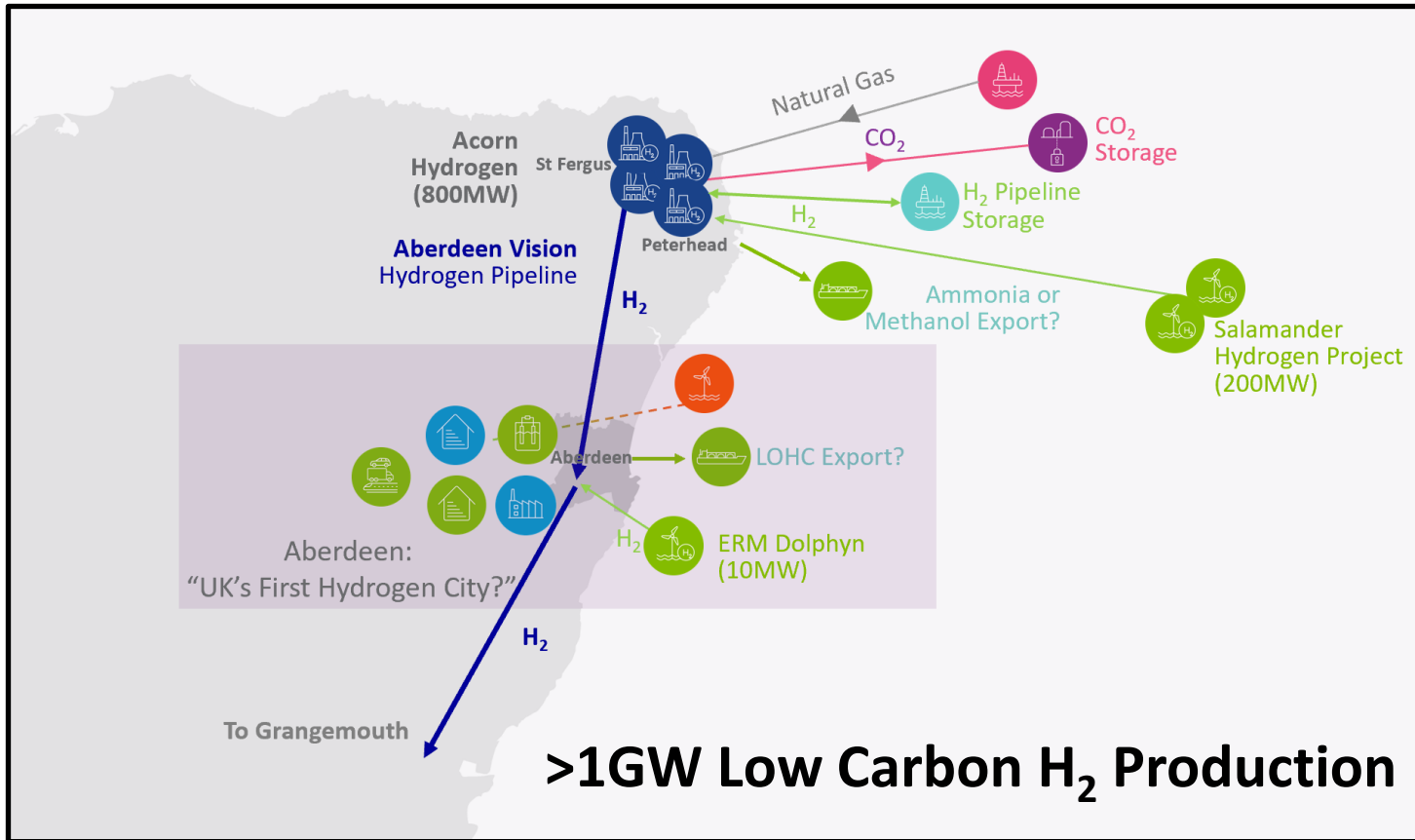


NE Scotland Hydrogen Economy Support Ecosystem



- Scottish Government providing strategic direction, support and key enabling funding
- Scottish Enterprise / SDI providing pan-Scotland connectivity / international opportunity building
- Building on Aberdeen City Council's decade of H_2 experience and future ambition
- **NESH2A Steering Committee providing key regional connectivity between active public sector and industry groups / projects**
- Complimenting activities of other enabling entities such as ETZ Ltd & NZTC Ltd
- Leveraging UK & Scottish Governments current investment of over £120M to support delivery of flagship energy transition projects
- Enabling high value energy transition-related jobs across the region

NE Scotland's Hydrogen Economy by 2032: Regional, National & International Impact

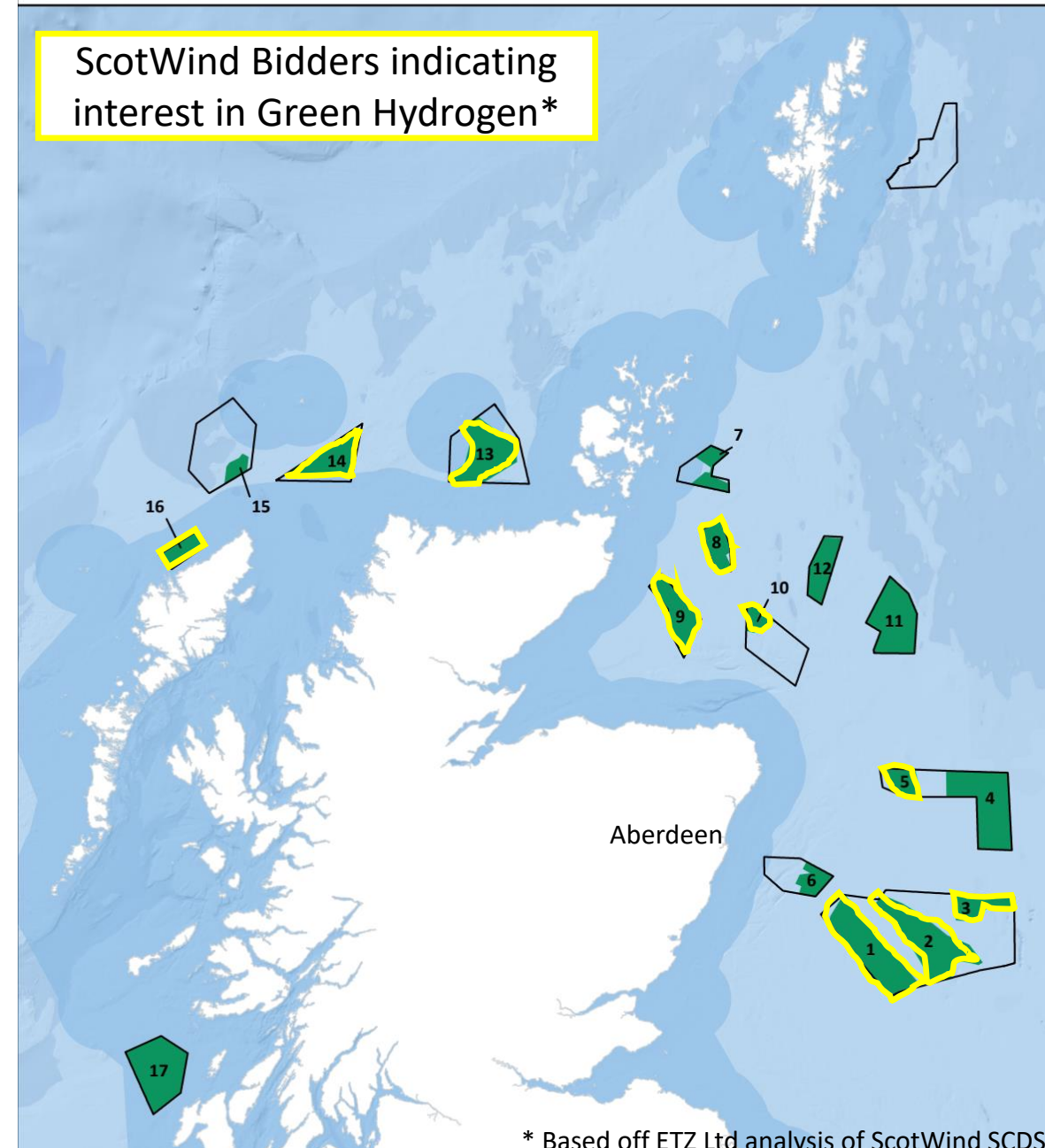


*"North East Scotland is well placed to deliver a substantial proportion of the UK's future low carbon hydrogen requirements as a result of a number of current and near future hydrogen projects, which combined are expected to generate in excess of **200MW by 2025-27**. These projects can be scaled up quickly to contribute **over 1GW (20%) of Scotland's low carbon hydrogen production target of 5GW by 2030-32**".*

- Ten of seventeen successful ScotWind leasing round bidders make reference to potential for green hydrogen, e.g.:
 - BP / EnBW: 400MW;
 - Offshore Wind Power consortium (including TotalEnergies).
- Some may select to progress Power-to-X options as part of their development plans to offset CfD funding and grid access timing challenges.

ScotWind Awarded Sites

ScotWind Bidders indicating interest in Green Hydrogen*



* Based off ETZ Ltd analysis of ScotWind SCDS

Energy Transition Zone & Aberdeen South Harbour

Port of Aberdeen's South Harbour



£400m investment

- Largest marine infrastructure project underway in the UK providing added capacity to existing North Harbour (UK's oldest business, established in 1136)
- Deep Water, non-tidal providing 24/7 access
- Extensive laydown (125,000m²) & quayside space (1,400m)
- Gearing up to benefit from proximity to ScotWind licensing areas
- Operational in 2022



Introducing the Energy Transition Zone (ETZ)



What is ETZ?

- Adjacent to the new **£400m Aberdeen South Harbour** and is a mix of greenfield sites and the brownfield industrial areas of East Tullos and Altens.
- ~70 ha (gross) of net zero space acting as the **commercial gateway for large scale offshore renewables and high value manufacturing.**
- An **exemplar low carbon development** and home to leading-edge innovation, including innovation centres **for floating offshore wind & hydrogen.**
- Supporting **green recovery** post COVID-19 & aligned to **Scotland's net zero targets.**
- Working with the community through its development, provides an opportunity to **advance equality of opportunities, deliver community benefits and support inclusive growth & just transition.**



Who is ETZ Ltd?

- ETZ Ltd was created in April 2021 with an established governance structure & experienced leadership team to help deliver the region's ambition to be a **globally recognised integrated low carbon energy cluster.**
- ETZ Ltd is a **not for profit, private sector led** company operating on the basis of no commercial gain.
- Founding members are Opportunity North East (ONE), Port of Aberdeen (POA) & Scottish Enterprise (SE).
- ETZ has **secured £53m in public funding from Scottish & UK Governments and £5.7 million funding from ONE.**
- ETZ will support **2,500 direct jobs**, with a further 10,000 energy transition-related jobs across the region and will create **£400 million of added value.**

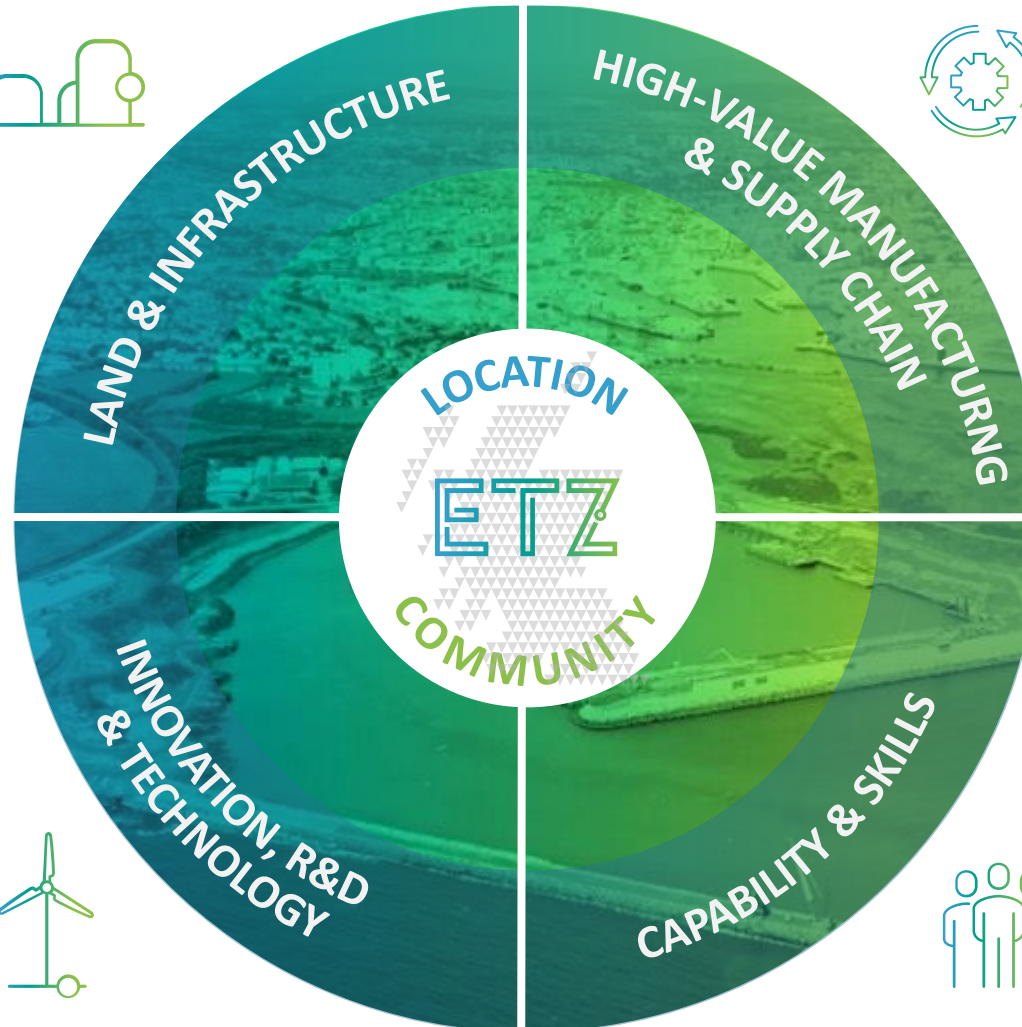
ETZ Focus areas



- Leverage the £400M Aberdeen South Harbour (ASH) Investment
- Enable offshore wind and hydrogen high value manufacturing
- Deliver green space enhancements and community facilities
- Facilitate gaining Green Freeport status



- Home of National Floating Offshore Wind Innovation Centre
- Site of proposed Green Hydrogen Test and Demonstration Facilities
- Energy Incubator & Scale-up Hub to support green start-ups and scale-ups
- Applied R&D linked to advanced manufacturing
- A centre for data and digital innovation



- Attract inward investment for high value manufacturing
- Supporting infrastructure for emerging hydrogen production, storage and distribution business
- Provide scale-up and mentoring support to capitalise on new energy transition opportunities
- Internationalisation & export of offshore engineering, manufactured products

- Build on existing energy skills and experience in the region
- Work with the local community to deliver inclusive job opportunities
- Establish the National Energy Skills Accelerator (NESA)
- Develop Energy Transition Pathway for supply chain & deliver other NEERSF re-skilling programmes





East Tullos

Altens

Skills Campus
NESCO

Innovation Campus
Energy Incubator &
Scale-up Hub

Offshore Wind Campus
FLOWIC

Road / Rail / Marine
H₂ Refuelling

Hydrogen Campus
GHTDF
ERM Dolphyn

High Value Manufacturing

Torry

Marine Gateway
Aberdeen South Harbour

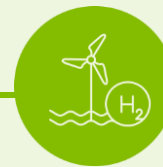
Energy Transition Zone

Indicative Conceptual Model
Subject to Planning Consent

ETZ

North East Scotland: ERM Dolphyn & ETZ Projects Synergy

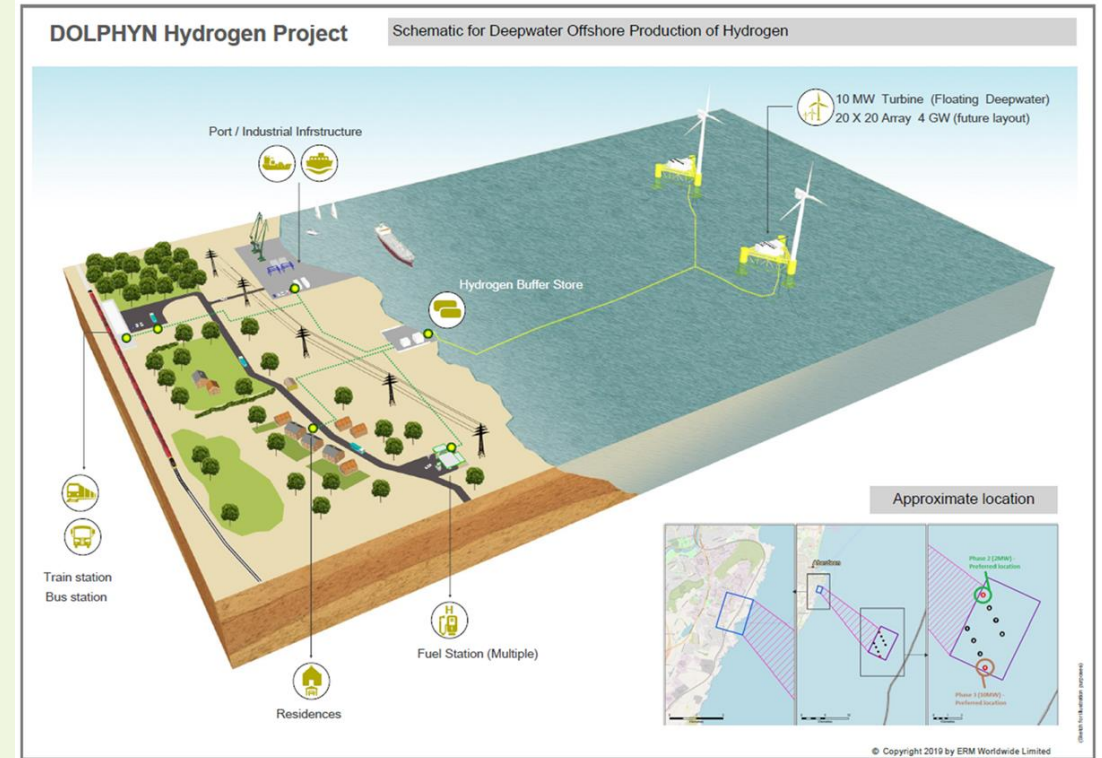
Energy Transition Zone



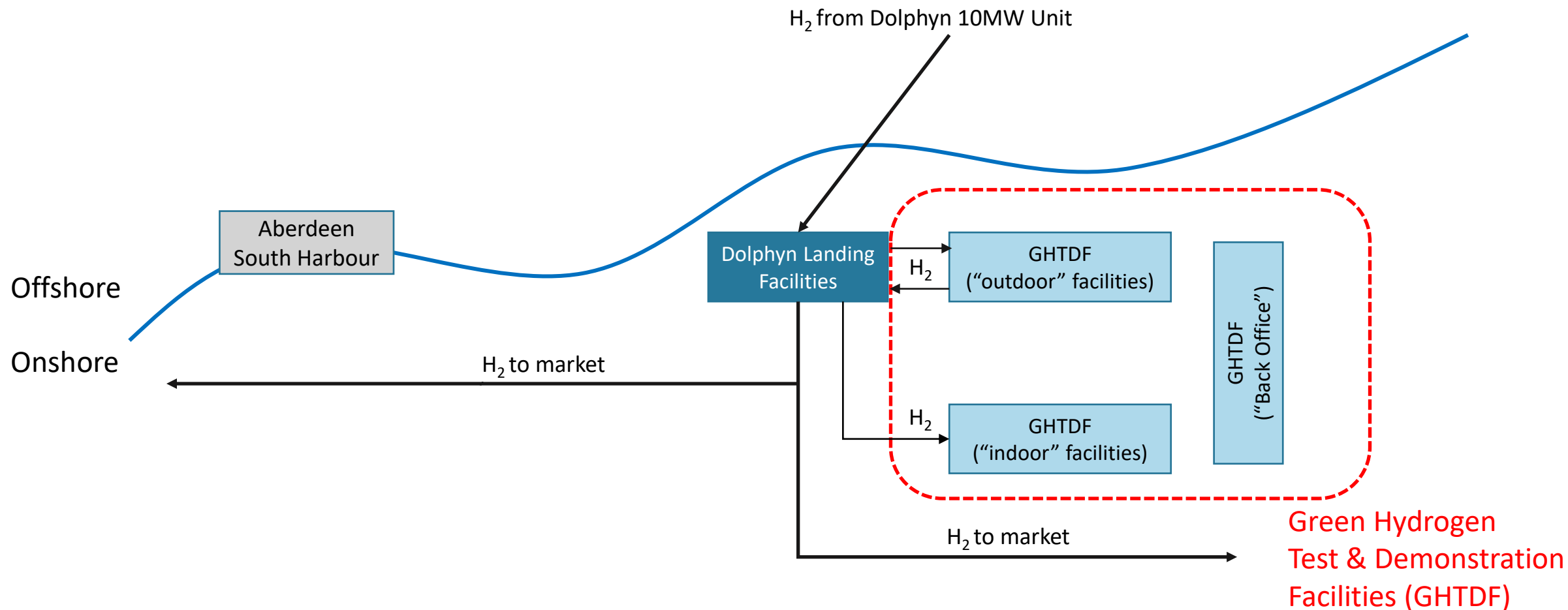
ERM Dolphyn Project



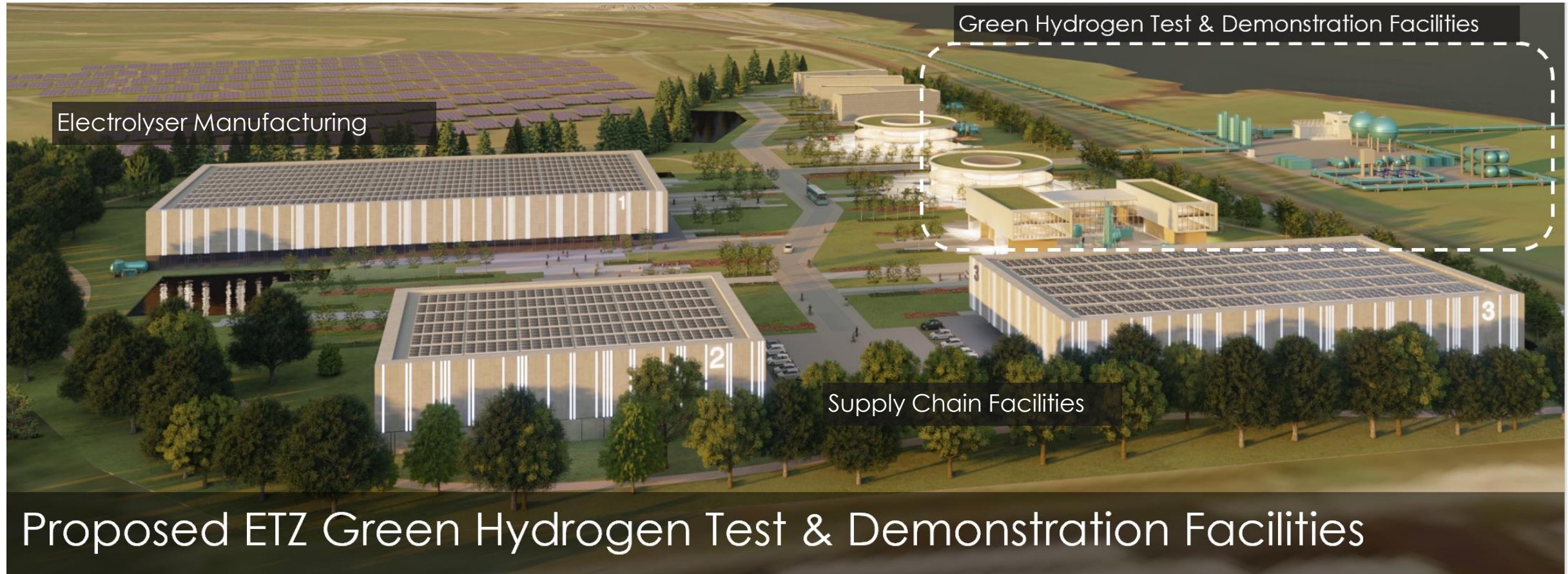
Dolphyn Project (2024)
2,000kg H₂ / day initially



GHTDF Concept & Interaction with ERM Dolphyn



Proposed ETZ Hydrogen Campus



Proposed ETZ Green Hydrogen Test & Demonstration Facilities

NETZ ZERO

ENERGY TRANSITION ZONE

For further information / feedback on the proposed Energy Transition Zone, contact:

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