Green Hydrogen Test & Demonstration Facilities

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ETZ
ENERGY TRANSITION ZONE

TÜV SÜD

Who are ETZ Ltd?

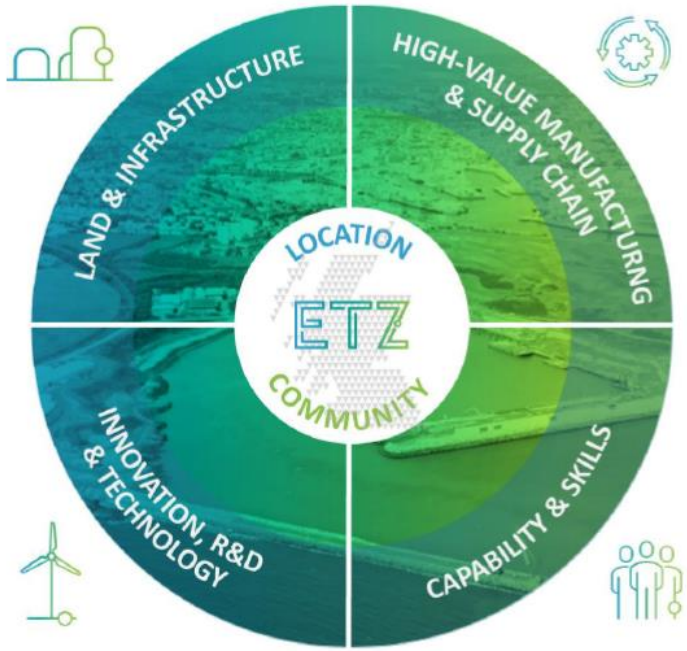
Introducing the Energy Transition Zone (ETZ)

Who is ETZ Ltd?

- ETZ Ltd is a **not for profit**, **private sector led** economic development organisation established to help deliver **North East Scotland's** ambition to be a **globally recognised integrated low carbon energy cluster**. 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** & £5.7 million funding from ONE to develop the **Energy Transition Zone** adjacent to Aberdeen South Harbour.
- 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**.

~250 ha (gross) of net zero space acting as the **commercial gateway** for **large scale offshore renewables & high value manufacturing.**

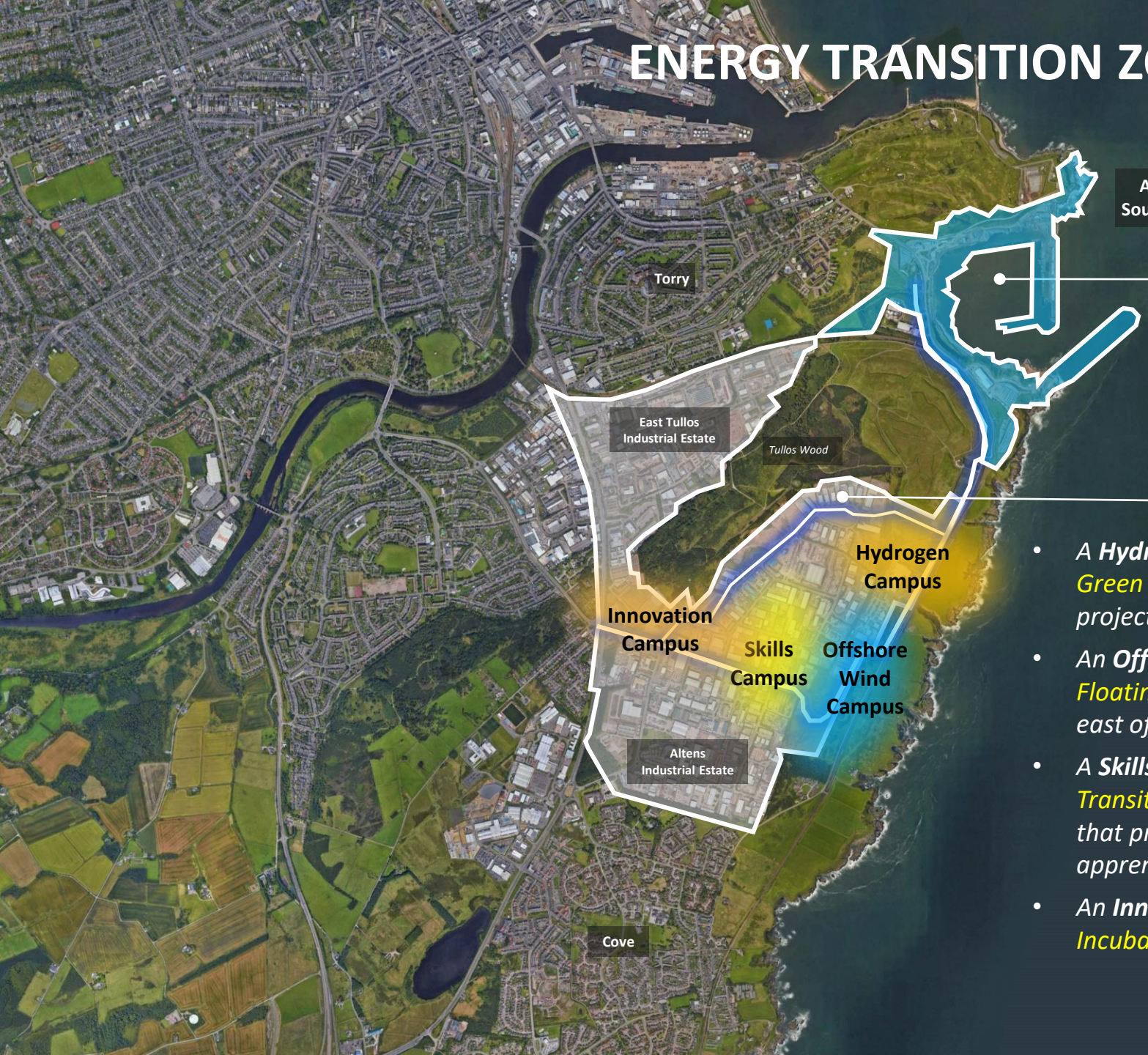
An **exemplar low carbon development** and home to leading-edge innovation, including **innovation centres for energy transition start-ups, floating offshore wind & hydrogen.**



Attract inward investment for **new high value manufacturing opportunities** & support the existing supply chain via programmes such as the **Energy Transition Challenge Fund.**

Working with the **local community & National Energy Skills Accelerator** to deliver inclusive job opportunities & developing Scotland's first **Energy Transition Skills Hub.**

ENERGY TRANSITION ZONE



Marine Gateway

A specialised cluster of activity centred around the £420 million Aberdeen South Harbour, primarily targeting high-value manufacturing opportunities.

Energy Transition Campuses

- *A **Hydrogen Campus**, to provide infrastructure that supports Green Hydrogen Test & Demonstration Facilities, production projects and high value manufacturing opportunities.*
- *An **Offshore Wind Campus**, centred around the National Floating Wind Innovation Centre and brownfield land to the east of Altens.*
- *A **Skills Campus**, centred around NESCol, including the Energy Transition Skills Academy, a Net-Zero Exemplar development that provides Energy Transition pathways for future apprentices.*
- *An **Innovation Campus**, centred around the new-build Energy Incubator & Scale-up Hub that supports green start-ups.*


HYDROGEN CAMPUS
ETZ
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HYDROGEN CAMPUS
1. Green Hydrogen Test and Demonstration Facility (1.5 ha)
2. Opportunity Sites (4.5 ha)
3. Brownfield Sites (10 ha)
TOTAL AREA – 16 ha

What are the Green Hydrogen Test & Demo Facilities?

GHTDF Concept Design

- Enabled by “coupling” test facilities with local green hydrogen production project (due to be operational early 2027)
- **“On demand” hydrogen** for testing industrial equipment
- Flexibility of design is key
- Organic growth led by industry need
- Wrap around support service providing operational expertise & advice on e.g. safety, planning, regulation, legislation.

Test facilities proposed for GHTDF

GHTDF Phase 1 Testing Priorities

- Electrolyser performance testing
- Hydrogen quality testing e.g. fuel cell applications
- Valve testing
- Flow meter calibration and testing

Timeline for Development

2024/25	2025/26	2026/27	2027/28

Operating Partner Selected

FEED Consultant Appointed

FEED

Stantec

Final Investment Decision

Detailed Design and Construction

Commissioning and Operation

The TÜV SÜD Value Proposition

- For over 150 years, TÜV SÜD has provided third party testing, inspection and certification to ensure:
  - Compliance with regulations
  - Safety
  - Reliable operation
- For ‘old’ technologies applied to the hydrogen sector, and for ‘new’ ones developed specifically for it, all three of these points are critical
  - There are various examples of performance / reliability issues from projects
  - There have been safety incidents – we need to ensure there are no more

The TÜV SÜD Experience

- Decades of experience in the testing and certification of equipment, in the UK and globally

- Our existing test and certification capability for hydrogen equipment is world leading → the GHTDF @ ETZ will keep us at the forefront
- **East Kilbride, Scotland**
  - Two small flow loops
  - General H_2 test lab
  - Mobile HRS test facility
- **Garching (Munich), Germany**
  - Extensive test capabilities for components (H_2 cycling, pressure, permeability, compatibility)

GHTDF Planned Capabilities

- Large scale flow loop
  - Flowrate 1 m^3/h to 1000 m^3/h
  - Pressure up to 100 bar
  - Temperature 10 °C to 30 °C
- Electrolyser testing (bays for up to 250kw and up to 1MW)
- Equipment leakage testing bay
- Flexible testing bay for integration and energy systems testing
- Additional space for future expansion

Facilities Planned

- ETZ and TÜV SÜD are conducting further use case validation, to build upon previous work by ETZ and partners, to determine:
  - **The types of testing that industry wants**
  - **The level and timing of demand for testing**
- We want to ensure the GHTDF serves the needs of industry
- **Scan the code and complete the short survey please**

Thank you

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