

# Hydrogen Initiatives

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# Why CleanTech, Hydrogen Economy and Net Zero?

Mid and East Antrim ambition: To be the **cleantech hub for Northern Ireland**, supporting the **transition to net carbon zero** and a more **sustainable circular economy**.



Unique Proposition for Mid and East Antrim

£24m+



£15m+



£800k



Investment in CleanTech and Hydrogen



Council's CleanTech Ambition



Underpinning networks and supports

# The Pilot Hydrogen Training Academy



- A Mid and East Antrim Borough Council led **award winning innovative public and private sector partnership** project.
- Objective: To develop a **continuous learning pathway**, create a **state of the art learning environment** and deliver **essential hydrogen skill training** to support a **greener future** for Northern Ireland.
- £800,000+ pilot project - Supported by a range of **funders** and private sector **sponsors**, including the **NI Government, UK Government's Community Renewal Fund** and **EP UK Investments Ltd.**
- **Innovative** public and private sector approach, **first-of-its-kind** hydrogen skills development project.



## Hydrogen Training Academy **Delivery Partners:**



UNIVERSITY OF  
BIRMINGHAM

# What is the Hydrogen Training Academy?

- Development and accreditation of new training courses in hydrogen from Level 2 (entry) to Level 7 (post-graduate) and everything in between.
- Course content at Level 3 includes:
  1. Hydrogen generation, storage and distribution
  2. Hydrogen safety
  3. Principles of a hydrogen facility (H2 Gas Safe)
  4. Fuel cells for transport

## Hydrogen Training Academy Funders:



Led by  
**Mid & East  
Antrim**  
Borough Council



**UK Government**



MID AND EAST ANTRIM  
**Labour Market Partnership**  
Working Together



Department for  
**Infrastructure**  
An Roinn  
**Bonneagair**  
[www.infrastructure-ni.gov.uk](http://www.infrastructure-ni.gov.uk)



Department for  
**Communities**

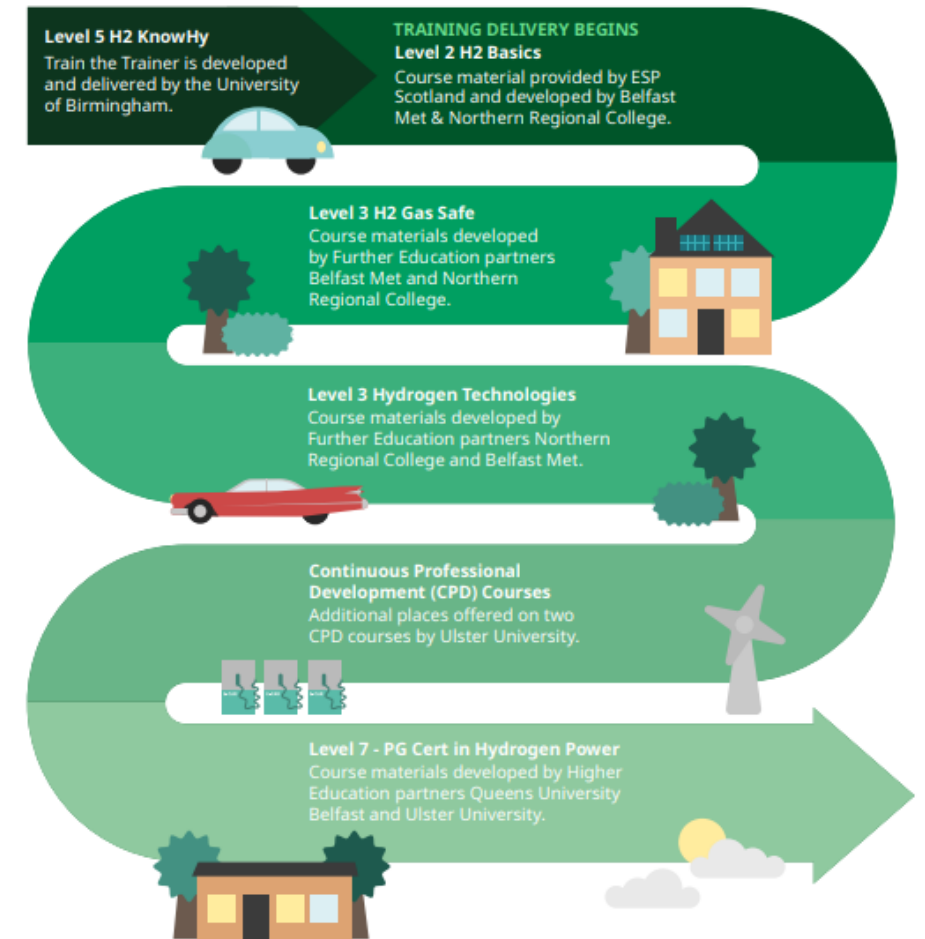


An Roinn  
**Pobal**



Department for  
**Communities**

**EP UK Investments**



# Two bespoke, innovative H2 training labs

## H2 Gas Safe Lab at Silverwood, Ballymena

- Mobile ATEX practical training lab for work on gas blending.
- **First of its kind** in UK and Ireland.
- **Competence testing space** for work with commercial H2 and CH4/H2 blend.



EP UK Investments

## H2 Fuel Cell Skills Lab, NRC, Ballymena

- **Desktop** and classroom based **equipment**.
- 50 watt **fuel cell trainers**, **fuel cell automotive trainers** and **unitrain fuel cell trainer interfaces**.
- Equipment provides a **hands on, educational hub** for hydrogen applications.

# Pilot HTA Achievements



200+  
trained



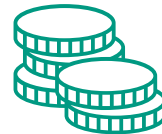
500+ people  
engaged



200+ orgs  
engaged



37 H2 Gas Lab  
Demos



£800k+  
support



Five  
Awards

# Hydrogen Training Academy – Since March 2023

- **OCN L3s in H2 Technologies and Applications** led by Northern Regional College **delivered to 50+ trainees**
- Level 2 and Level 3 courses **adapted for online delivery**
- **New online supplementary courses** developed including:
  - Level 2 in **Renewable Energies**
  - Level 3 in **Sustainable Practices in Plastics**
  - Level 5 in **Hydrogen Applications and Emerging Technologies**
- HTA enquiries from **UK and Ireland, Canada, Australia and Nigeria**
- **Skills Partnership** in place between **NRC** and **two universities in Ghana** focusing on **green skills**
- **Principal Lecturer role** created at **Northern Regional College** to develop sustainability offering



# i4C Innovation & CleanTech Centre, Ballymena

- A driver for an enhanced **enterprise & innovation support ecosystem** in the Mid & East Antrim Borough.
- A key NI support hub for **CleanTech sector** aligned to the global transition to **NET ZERO**.
- A flagship building for the **St Patrick's Barracks regeneration site** in the heart of Ballymena comprising:

- 
- **Grade A office** space e.g. for corporates
  - **Co-working office spaces** e.g. for entrepreneurs/SMEs
  - **SME Workspace/Labs** i.e. incubation & accelerators
  - **iLAB Makerspace** to support to entrepreneurs/SMEs.

- 
- MEABC to appoint **design team** for building summer 2024
  - Council to procure a **specialist operator** to run i4C and deliver innovation & cleantech programming
  - MEABC to appoint **design team** for building





# HyTech NI Update

## Connor O'Dornan

Net Zero Innovation and Delivery Manager  
Mid and East Antrim Borough Council

## Mark Kearns

PPRC Moulding Manager  
Advanced Manufacturing Innovation Centre



**QUEEN'S  
UNIVERSITY  
BELFAST**

**ADVANCED  
MANUFACTURING  
INNOVATION  
CENTRE**

# HyTech NI Project Collaboration

Project developed under the **NI Complementary Fund** (£15m award) that includes for:

1. Development of a **Hydrogen Technology Accelerator** led by the Universities,
2. A series of hydrogen economy **testbed trials** in Ballymena as follows:



**Hydrogen Mobility Trial**



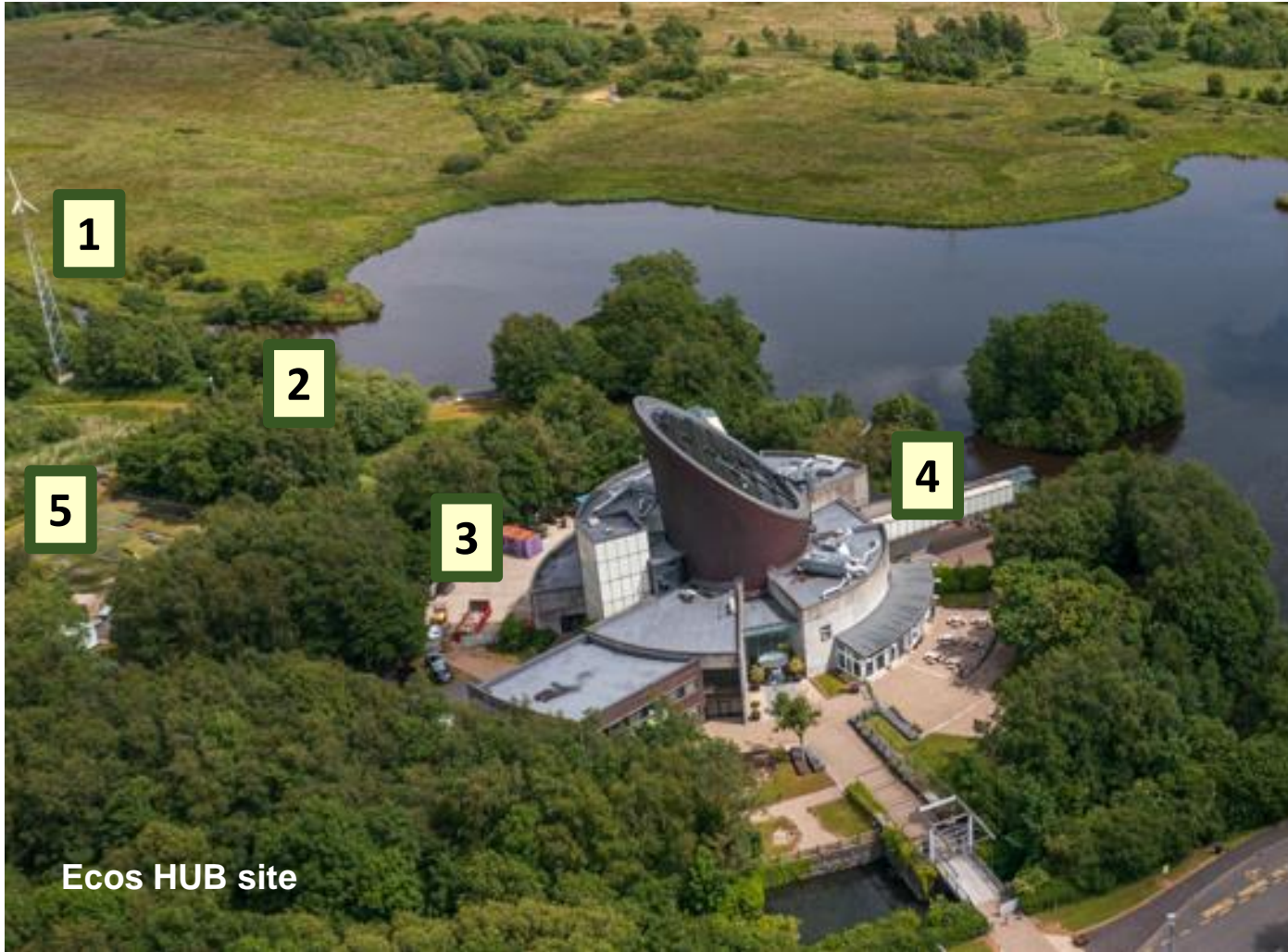
**Hydrogen Blending Trial**



**Green Hydrogen Demo & Skills Training**



# HyTech NI – Ballymena Hydrogen Skills Demonstrator at Ecos Hub



Use existing Ecos HUB building infrastructure plus:

1. Replacement '25 kw' **wind turbine**
2. New **PV array** (50kw)
3. New **hydrogen generation and storage compound** to include '**gas safe lab**' facility
4. New modular building - **energy lab/classroom**
5. **Reedbed oxygenation trial**



# HyTech NI – Ballymena Hydrogen Mobility Demonstrator Trial



WRIGHT



RYZE  
HYDROGEN

HYGEN

FUZE



- Demonstrator trial includes:
- **New hydrogen refuelling station** at Wrightbus Facility in Galgorm
- First of its kind, '**public facing**' facility
- Starting point for a **future HRS network**
- Wrightbus have significant requirement for **H<sub>2</sub> fuel for new H<sub>2</sub> buses**

- Proposal also includes:
- **Uptake of hydrogen fuel cell vehicles** by Council and other local industry users for a **specified trial period**
- **Contract arrangement** with Ryze Hydrogen helps off-takers **decarbonise their fleets**
- Trial suits **HGV type vehicles** less suitable for electrification



*Aberdeen City Council are pioneers in hydrogen economy*

# HyTech NI – Ballymena Hydrogen Blending Trial

(20% H2 blend into a closed loop section of town gas network)

## Initial off-takers



# HyTech NI Project Advanced Manufacturing Innovation Centre (AMIC)



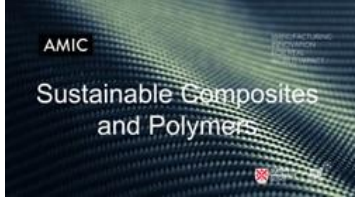
## TURBOCHARGING MANUFACTURING

- AMIC is already working with industry – amalgamating existing business units (NITC, PPRC, NIACE) and building new capability
- Construction of £98m Factory of the Future at Global Point Newtownabbey from March 2024 (opening 2026)
- Using the latest Industry 4.0 technology, smart automation, design and materials to solve business challenges

Northern Ireland  
Technology  
Centre

Polymer  
Processing  
Research Centre

Northern Ireland  
Advanced  
Composites and  
Engineering



- ▶ To accelerate and support the industrialisation, design, manufacturing and verification of products
- ▶ Support the translation of low TRL H2-based research at Universities to the industrial end-user group
- ▶ Building on existing capability

### Storage / Distribution

Manufacturing process R&D&I:  
Robotic roto-moulding, Filament winding, prototype development  
Polymers/composite testing & verification

### Generation

Electrochemistry cell, gas analysis, separation systems

### Powertrain/ Utilisation

Dynamometer control system, emissions analyser, combustion analyser

Belfast, FOF,  
NIACE

*Industrialisation, materials development, energy systems, design, prototyping/verification, safety & certification*

Links with  
MEA

*Generation & conversion, transport, heat, powertrains, H2 safety engineering, decarbonising industry*

- OBC being reviewed at present by funders, anticipating a decision by end Q3 2024
- Delivery phase begins April 2025
- Hydrogen Technology Accelerator up and running by end Q3 2025
- Project completion and evaluation Q3 2029

HyTech NI...Powering Hydrogen Innovation



**Invest  
MEA**



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