

Hydrasun + Hydrogen

Hydrogen Twin Cities - Hydrogen is Here

Stuart Gardiner Operations Director



For over 40 years Hydrasun have provided the global energy markets, offering specialist knowledge in the design, specification and installation of small-bore tubing and instrumentation systems in high hazards environments

1976

2016

Over the past 7 years, Hydrasun has diversified its business to include hydrogen-specific integrated products and services, delivering over 30 key projects across the mobility, power and industrial sectors.

Our Hydrogen Journey

>40

H₂ Projects



Power



Industry



Transport

- Project experience covers design, products supply, integration, installation and commissioning of piping systems, as well as design, build and integration of Hydrogen Refuelling Stations (HRS)
- Projects extend across Transport, Industrial and Power Sectors and include:
 - Hydrogen Mobility applications – Solutions for Automotive Fleet Services
 - Assembly, Commissioning and Maintenance of Hydrogen Refuelling Systems (HRS)
 - Fuel Switching in Industrial Gas Systems
 - Hydrogen Compression, Storage and Dispensing Systems



Specialist Turnkey HRS Solution Provider and H₂ System Integrator



Resources



Projects & Services Delivered

2016-17

SBT Installation Product Supply

7

5

2018-19

Field Services System Integration

10

10

2020-21

Field Services H₂ Sub-System Build

13

19

2022-23

Scalable HRS HRS Design & Build

72

Employees

42

H₂ Projects Delivered



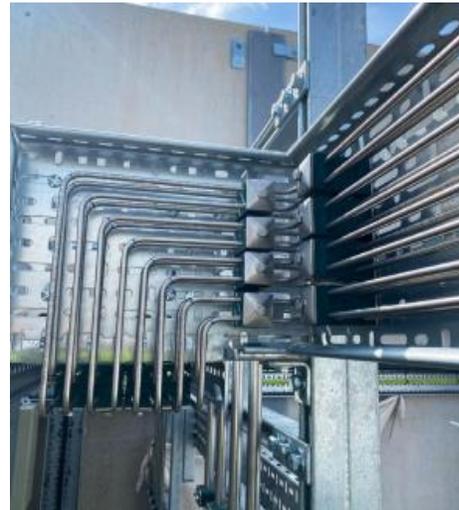
Growth in H₂ Capabilities

Facilities

- Aberdeen, UK –Hydrogen Skills Academy
- Aviemore, UK – Precision Manufacturing
- Glasgow, UK –Engineering & Sub-System Build
- Teesside, UK – Field Services & Sub-System Build
- Hungerford, UK, - Scalable HRS Technology OEM
- Ridderkerk, The Netherlands – Technical Services & Sub-System Build
- Bad Schönborn, Germany - Sales Office



Hydrasun Hydrogen Mobility Projects.



Multiple Solutions – One Company



H2 Refueling System



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HyQube & HyFlow

HyQube

- Automatic fill using touch screen interface
- Self contained system - up to 700 bar output
- Connections for up to three hydrogen sources
- 400 bar maximum input
- Ideal for semi-static refuelling system



HyFlow Hydrogen Dispensing

- Dual 350 and 700 bar filling - refuels a full range of hydrogen vehicles
- Chilled hydrogen flow - fill rates at upper end of SAE J2601 protocol
- Controlled cascade filling from up to 4 separate Hydrogen banks - decreases fill time
- Compact pressure equipment configuration with easy accessibility for maintenance

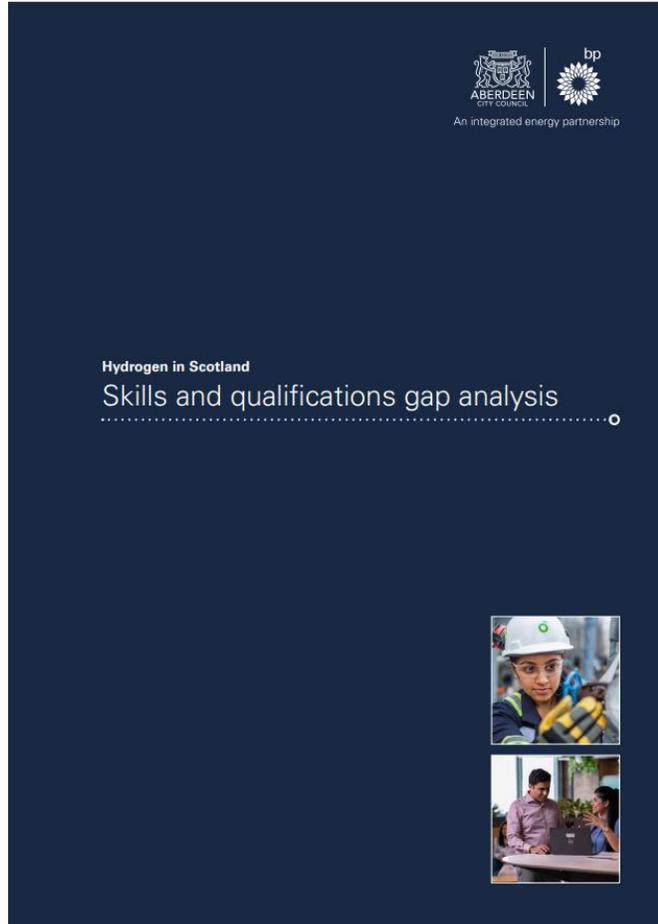
Hydrasun Hydrogen Skills Academy



Multiple Solutions – One Company



Skills Landscape



This report identifies five themes for the skills ecosystem to help meet demand:

1. Ensure interventions are truly data-led and respond to real demand for skills
2. Continue to invest in community and Science, Technology, Engineering and Mathematics (STEM) engagement to inspire people into the sector
3. Invest in new pathways that will upskill and reskill people for the hydrogen sector
4. Underscore inclusivity in the design of programmes and their outreach efforts
5. Harness the existing delivery landscape to create truly integrated responses

Hydrogen Skills Academy



Multiple Solutions – One Company



Skill Requirements

To Satisfy the Emerging Hydrogen Market & the Energy Transition

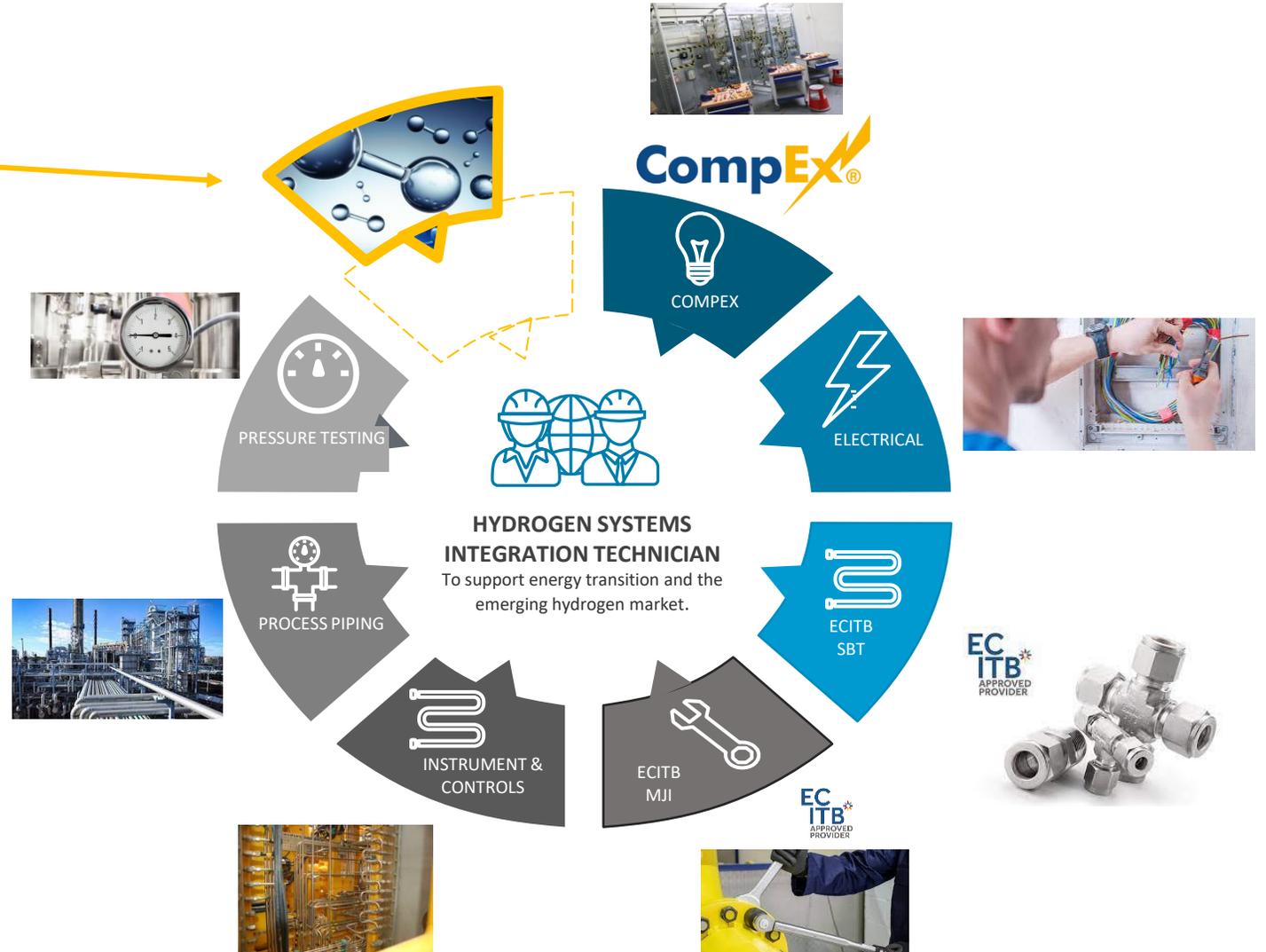
THE WHAT!

Recognising the unique requirements within the Renewables marketplace this capability has been expanded, initially with a focus on Hydrogen, with our personnel's skills being augmented with further competence-based training on Hydrogen specific equipment packages, the specific interfaces between these packages and most importantly the safety requirements for these systems.

- Hydrogen Safety Awareness Training
 - Stakeholder
 - Engineering
 - Technician
- Pressure testing competency – inc Pneumatic / Tracer gas leak detection
- Small Bore Tubing Integration in H2 Systems (Hydrasun/Parker)
- Small Bore Tubing Integrity in H2 Systems
- Hydrogen Systems Leak detection.

Additional:

- SBT Engineering design in Hydrogen systems.
- CCNSG Construction Safety Passport



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Skill Requirements

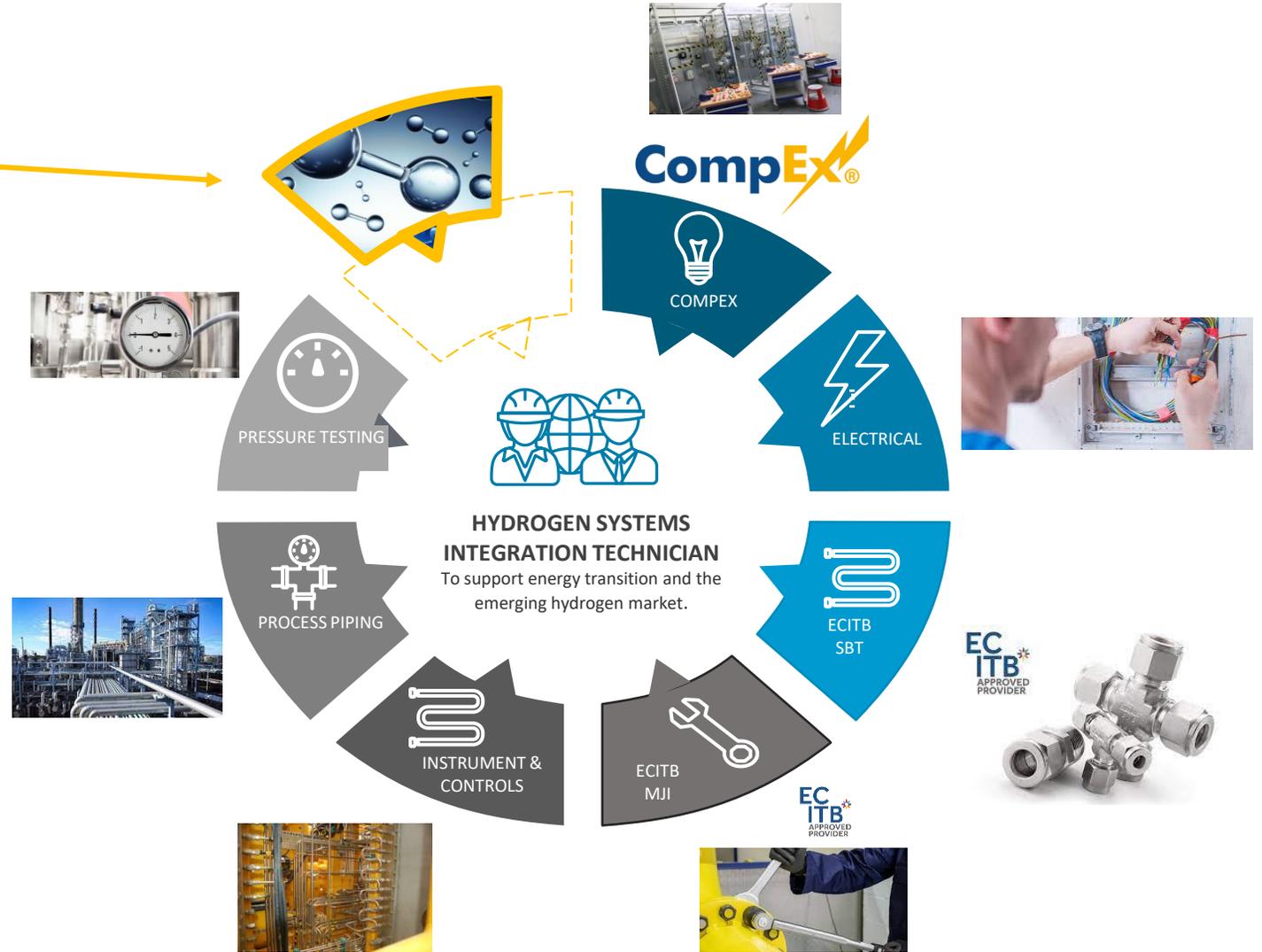
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Additional:

- Electrolyser Integration,
- Compression systems and Storage, servicing and maintenance
- Hydrogen Dispensing and Distribution Design, Integration, Commissioning, Operating, maintenance, and inspection
- Fuel Cell Integration
- Process Safety Training
- Electrical controls and instrumentation
- Process Control Operations / (de-)Commissioning
- HAZID, HAZOP



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Future Talent

- Committed to further developing and deepening Hydrasun's investment in graduate engineering and modern apprenticeship schemes.
- Hydrasun Hydrogen skills programme launched to ensure our workforce meets the needs of Hydrasun's and the wider industries future skills demand.
- Supporting the energy transition in Hydrogen specific technical competency upskilling



Apprenticeship opens up world of possibilities for former shelf stacker



Thankyou