

UK Hydrogen and Fuel Cell Association's
Member Showcase



Representing the UK Hydrogen and Fuel Cell Industry

Contents

The UK Hydrogen & Fuel Cell Association is the oldest and largest pan UK association, dedicated to supporting stakeholders across the entire value chain of both the Hydrogen sector and the Fuel Cell industry. Our members represent over 200,000 employees globally, with combined revenues over £400 billion, and cover the entire value chain from raw material sourcing, to supply chain and components, financing, professional services, B2B and consumer facing solutions. With over 15 years of experience, the UKHFCA is a leader in advocating for and accelerating the transition to Net Zero in the UK through the deployment of hydrogen & fuel cell solutions.

Our Members' Showcase will give you an overview of our members, as well as highlighting the products and services they offer, their notable achievements, and any key contacts.

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Products and Services Matrix



Representing the UK Hydrogen and Fuel Cell Industry

Additional Notes

Air Products	All services associated with the design, engineering, production, and supply of industrial gases.
Ames Goldsmith Ceimig	Raw material/Component for PEM electrolyser & Fuel Cell
Baker Botts	Please note we can help all marked with an X with regards to legal services only.
Kiwa	Feasibility and FEED studies; analysis of supply and demand matching; optimisation of green electricity use for electrolysis; optimisation of storage capacity for demand / supply.
Low Dee	PEM fuel cell membranes
Northern Valve & Fitting Company Ltd	NVFCL can supply the infrastructure to assist wherever hydrogen is stored and transported; valves, fittings, tube, filters, check valves, PRV's etc. Please ask for details.
Swagelok Manchester	<p>Our services include:</p> <ul style="list-style-type: none">• Custom built assemblies, panels and frameworks - unique fabrications such as filling, distribution, priority, control panels, tubing manifolds, enclosures and components specific to your fluid system needs• Equipment and orbital welding services• On site evaluation and advisory services• Application engineering design support• Training and education <p>Our products include:</p> <ul style="list-style-type: none">• Swagelok tube fittings and tubing up to 400bar• Flange adapters• FK series medium-pressure fittings and tubing up to 700 bar• FKB series medium-pressure ball valves up to 700 bar• All metal hoses• Pipe fittings• Assembly-by-torque (AbT) fittings• VCO® O-ring face seal fittings• VCR® metal gasket face seal fittings• AFS & SK Ball Valves• Pressure gauges and transducers
Technical Fibre Products Ltd	Technical Fibre Products produce wet-laid nonwoven fabrics from advanced fibres. Fabrics made from carbon fibre are widely used as the base material for gas diffusion layers used in fuel cells and electrolysers.

UK HFCA Member Profiles



Representing the UK Hydrogen and Fuel Cell Industry



Air Products

Website: www.airproducts.co.uk

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Social media handles:

- Twitter – @airproductsuki
- LinkedIn – [linkedin.com/company/air-products](https://www.linkedin.com/company/air-products)
- Facebook – [facebook.com/airproductsuki](https://www.facebook.com/airproductsuki)
- Instagram – @airproductsglobal

Description: Air Products is the world’s largest supplier of merchant hydrogen and a leader in hydrogen fuel infrastructure, encompassing all aspects of the hydrogen for mobility value chain. Leveraging over 60 years’ experience in hydrogen production, including more than 25 years designing fuelling, Air Products delivers a complete service – in a complex industry – for our customers, offering a dependable supply of hydrogen, quality equipment, reliable stations, time savings and cost efficiencies.

Working in partnership with customers, select industry partners and Governments, the company uses its technical expertise, proven technology, strong local knowledge, and established safety practices to innovate, constantly improve and expand hydrogen’s role in the energy transition.

Products and/or services: From production to distribution to stations – Air Products offers a dependable supply of hydrogen, quality equipment, reliable stations, time savings and cost efficiencies.

Notable achievements to date:

- Air Products is the world’s leading hydrogen supplier.
- The company has over 60 years’ experience in hydrogen production, including more than 25 years’ experience in designing fuelling.
- Air Products refuelling technology is used in over 1,500,000 hydrogen fills per year.
- Air Products is involved in over 250, innovative hydrogen infrastructure and fuelling projects around the world, supporting a wide variety of transportation applications. Projects include:
 - [NEOM](#) – The world’s largest carbon-free and truly transformative renewable hydrogen project (650 Metric tons per day of green H₂, \$7 billion capex investment)
 - Delivering a hydrogen filling station and fuel to Alstom for the world’s first hydrogen-powered trains.
 - Bringing hydrogen technology to the roads of London in partnership with Transport for London.

For more information, please contact:

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Ames Goldsmith Ceimig

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- LinkedIn – linkedin.com/company/ceimig-limited

Description: Ames Goldsmith Ceimig manufacture platinum group metal (PGM) based electrocatalysts which are used in PEM Fuel Cells and Electrolysers. PEM technology uses platinum group metal catalysts to convert water into hydrogen (electrolyser) and hydrogen into water & electricity (fuel cell).

Ames Goldsmith Ceimig is part of Ames Goldsmith Corporation. Ames Goldsmith is a leading manufacturer of chemicals based on precious metals with sites in North America, UK, and Asia. Our knowledge of the precious metal markets and the use of PGM chemicals helps our customers in the hydrogen economy which is a key area of focus for the company.

Products and/or services:

- Products for PEM electrolysers include Iridium Black, Iridium Oxide, Iridium Ruthenium Oxide, Platinum Black & Platinum on Carbon support.
- Products for PEM Fuel Cells include Platinum Black, Platinum Ruthenium & Platinum on Carbon support.

Notable achievements to date:

- Development of Iridium Ruthenium Oxide as a true, intimate alloy giving improved performance and stability.
- Electrolysers catalysts used in the field in MW scale projects by end users.
- Development of internal ink/paste formulation capabilities
- Achieving ISO 9001, 140001 & 45001

For more information, please contact: Wayne Thornhill - Sales Manager - wayne.thornhill@amesgoldsmith.co.uk

Baker Botts (UK) LLP

Website: www.bakerbotts.com

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Social media handles:

- Twitter – @bakerbotts
- LinkedIn – [linkedin.com/ company/baker-botts-llp/](https://www.linkedin.com/company/baker-botts-llp/)
- Facebook – [facebook.com/BakerBottsLLP/](https://www.facebook.com/BakerBottsLLP/)
- Instagram – @bakerbotts

Description: Baker Botts is an international law firm with around 750 lawyers and offices in 14 locations (including London). Our practice is heavily focused on the energy and technology sectors, and we have deep experience advising clients in the upstream, midstream, and downstream markets across virtually all forms of energy, including oil and gas, LNG, conventional power, renewables, and hydrogen. Our hydrogen experience is equally broad and varied, and includes advising on the development of a green hydrogen project in the Middle East, advising an automotive client on a joint venture to further develop hydrogen fuel cell technology, advising on the development of hydrogen fuelling infrastructure, and assisting clients in obtaining IP protection for new hydrogen-related technologies and applications.

Products and/or services: Baker Botts is an international law firm providing legal services in the following practices areas, predominately in the energy and technology sectors: Antitrust/Competition Law; Banking and Finance; Construction; Corporate; Cross-Border Transactions; Emerging Companies and Venture Capital; Enforcement and Investigations; Environmental Law; Financial Restructuring; Intellectual Property; International Arbitration and Dispute Resolution; Litigation; Mergers and Acquisitions; Private Equity; Project Development; Project Finance; Real Estate; Regulatory; and Tax.

Notable achievements to date:

- We are currently advising a major US headquartered international corporation in connection with the proposed development and financing of a multibillion-dollar green hydrogen project in the Middle East.
- We are currently advising AME E-nnovations, a subsidiary of Andes Mining and Energy, on fuel offtake arrangements for their Highly Innovative Fuels (HIF) hydrogen projects. Each HIF project will use renewable power to create green hydrogen, which will be combined with carbon dioxide to produce e-fuels like e-gasoline.
- We advised on the negotiation and drafting of contracts for Toyota Motor North America to facilitate development of hydrogen fuelling stations.
- Our lawyers advised a joint venture on the development and financing of a hydrogen power project in the Middle East, together with related carbon capture and storage and pipeline infrastructure.

For more information, please contact:

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BayoTech

Website: www.bayotech.us or www.bayotech.co.uk

Address: N/A

Social media handles:

- Twitter – @H2Bayo
- LinkedIn – [linkedin.com/company/bayotech](https://www.linkedin.com/company/bayotech)
- Instagram – @H2Bayo

Description: BayoTech is an energy technology company offering hydrogen production solutions through sales, rentals, leases, and gas-as-a-service to customers worldwide. Headquartered and produced in New Mexico, USA, BayoTech's on-site hydrogen generators are more efficient than legacy steam methane reformers, leading to lower carbon emissions and low-cost hydrogen. Learn more at BayoTech.us!

Products and/or services: BayoTech's on-site hydrogen generators leverage high heat recuperation to achieve greater energy efficiency. BayoTech generators can produce from 200 kg to 1 metric ton of hydrogen per day, making it easy to scale production. Compact in size, our modular units tap into existing natural gas pipelines or co-located biogas resources, to site hydrogen production at the point of use, eliminating the cost and emissions of liquification and transportation. Higher efficiency and avoided transport translate into a lower carbon footprint. Carbon intensity can be further reduced or go negative by using biomethane or adding carbon capture.

Notable achievements to date:

- BayoTech and DLL Establish Revolutionary Hydrogen Generator Leasing Program ([press release](#))
- BayoTech and Cross River Infrastructure Partners Announce Hydrogen Gas-as-a-Service ([press release](#))
- BayoTech Partners with Ariel Re to Provide Hydrogen Industry's Strongest Performance Guarantee ([press release](#))
- BayoTech Announces Deal with Nutrien ([press release](#))

For more information, please contact:

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Media: Jeff Mitchell, Director of Sales Operations, Jeff.Mitchell@Bayotech.us

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Social media handles:

- Twitter – @boconline
- LinkedIn – linkedin.com/company/boc-uk-ireland/
- Facebook – facebook.com/BOConline

Description: BOC has been at the forefront of hydrogen mobility development in the UK. In 2011, we opened the first open access hydrogen refuelling station in Swindon, the result of a public/private partnership with Honda UK and Forward Swindon. In 2014 the site was further developed to become the first commercial scale production and refuelling station with the installation of an onsite electrolysis unit producing green hydrogen powered by solar.

In 2015, we opened the UK's largest hydrogen production and refuelling station for Europe's largest hydrogen bus project with Aberdeen City Council. This station has recently completed over 3,000 refuelling events and shown that hydrogen refuelling can meet the high demands of a busy urban bus operation.

Through the provision of our innovative refuelling technology we are also playing a part in the development of a UK hydrogen public refuelling network. In 2016, BOC signed a supply agreement for refuelling infrastructure with ITM Power, a UK based company rolling out an electrolyser based public refuelling network. Linde technology, supplied by BOC, will feature on six stations in the UK to begin with, including the first UK hydrogen station on a public fuel forecourt at Shell's Cobham service station on the M25.

Products and/or services: With support from BOC's parent company, Linde, hydrogen infrastructure projects can be implemented in an efficient, sustainable and professional manner: We can provide complete hydrogen solutions – offering everything you need, from reliable H₂ supply and cutting-edge fuelling station systems to customised services.

Together, we plan, design and build high-performance plants, help you with commissioning, supply gaseous (CGH₂) or liquid hydrogen (LH₂) or produce it on site. And thanks to our vast network of maintenance and service technicians, we also ensure the highest levels of safety and reliability.

Notable achievements to date:

- In 2011, we opened the first open access hydrogen refuelling station at Honda, in Swindon.
- In 2015 we opened the UK's largest hydrogen production and refuelling station for Europe's largest bus project with Aberdeen City Council.
- In 2019 we made an investment into ITM Power to enable us to offer green hydrogen turnkey solutions
- In 2020, we formed an MOU with Scottish Power Renewables and ITM Power for the development of a 20MW Green Hydrogen production facility in Glasgow.

For more information, please contact: Mark Griffin, Market Development Manager, Clean Fuels, mark.griffin@boc.com



Clean Power Hydrogen Group Ltd

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Social media handles:

- Twitter – @CleanPowerH2
- LinkedIn – linkedin.com/company/clean-power-hydrogen-group-limited/
- Facebook – facebook.com/CPHtwo
- Instagram – @cleanpowerh2

Description: Clean Power Hydrogen (CPH2) has advanced the development of hydrogen as a green energy by demonstrating a new form of hydrogen production. Established in 2016 by Dr. Nigel Williamson and Joe Scott, CPH2 has conceived, patented, developed, and validated the Membrane-Free Electrolyser™, an efficient, cost-effective, and reliable means of producing green hydrogen, lowering the barriers to wide-scale adoption. This game-changing clean technology will drive decarbonisation of the transportation, power, and gas sectors accelerating the progress towards a zero-carbon future.

Products and/or services: CPH2 has developed a hydrogen (and oxygen) production system as a clean alternative to complement battery-power for electric vehicles, off-grid, and grid-based electricity storage. At the heart of our clean technology is a **Membrane-Free Electrolyser™ (MFE)** which in combination with cryogenic separation delivers pure hydrogen and pure oxygen as separate gases. The system is **simple, safe, and sustainable**, made of non-exotic materials, providing a cost-effective alternative to both alkaline and PEM electrolysis and when supplied by renewable electricity, the technology delivers pure green hydrogen. The technology may be deployed at any scale from 0.5kW to 20MW and beyond.

Notable achievements to date:

- Joint Venture with B9 Energy to manufacture and distribute the Membrane-Free Electrolyser to the UK and worldwide from a base in Northern Ireland
- Awarded a Smart Grant of £338k by Innovate UK
- Winner of the 'Hydrogen & Fuel Cells' category at the Rushlight Awards
- Built the MFE03 Technology Demonstrator as proof of concept, to produce 20kW, 6kg H2/day

For more information, please contact:

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Diffusion Alloys

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Social media handles:

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Description: Diffusion Alloys is a leading independent protective surface coatings provider for metal alloys operating under harsh conditions. Our proprietary diffusion coatings and processing methods are developed in parallel with our customer's requirements enabling our coatings to be at the forefront of metal degradation protection.

Our diffusion coatings protect against metal degradation from high temperature oxidation, sulfidation, coking, carburisation, metal dusting, hydrogen permeation and the leaching of chromium, and are deployed across a range of industries.

The company's diffusion aluminide coating has been a critical and cost-effective solution to degradation issues in a number of clean technology applications, notably in specific steam reformer, SOFC, SOE designs and renewable energy storage.

Products and/or services:

- Diffusion coatings
 - Aluminising
 - Chromising
 - Boronising
 - Thermal spray – MCrAlY
- Full technical capabilities and support including SEM
- Unrivalled component dimension coating capability: from mm up to 18m in length

Notable achievements to date:

- Seven hydrogen generation reformer units aluminised in the last five years
- Long term supplier to major SOFC manufacturer
- In development with key European clean technology companies, including SOE and other forms of renewable energy storage.
- R&D in progress to sustainably improve our product offering

For more information, please contact: Lisa Randall, Managing Director, lrandall@diffusion-alloys.com



HiiROC

Website: www.hiiroc.com

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Social media handles:

- LinkedIn – <https://www.linkedin.com/company/34678567>

Description: HiiROC's technology produces zero-emission, low-cost hydrogen by decarbonising hydrocarbon gasses, enabling Hydrogen generation in locations where grid electricity is not sufficient for water electrolysis solutions. The company's unique plasma process produces zero-emission Hydrogen at a price comparable with the current cheapest methods, whilst also creating a valuable solid carbon by-product. The HiiROC solution is compact, modular and scalable; from a single generation unit on a fuelling station forecourt, to large centralised Hydrogen production.

Products and/or services: Modular Hydrogen Generation Units, in development

For more information, please contact: Simon Morris, Founder and Director – s.morris@hiiroc.com

ITM Power

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- Facebook – <https://www.facebook.com/ITM-Power-113334372043763/>
- Instagram – @ITMPowerPlc

Description: ITM Power Plc designs and manufactures products which generate hydrogen gas, based on Proton Exchange Membrane (PEM) technology. This technology only uses electricity (renewable) and tap water to generate hydrogen gas on-site and has a product offering capable of being scaled to 100MW+ in size. In establishing the existing customer base, particular importance has been placed on the ability (i) to provide a fully integrated system, (ii) of the system to respond rapidly to varying power profiles, and (iii) to generate hydrogen at a pressure, flow rate and purity appropriate to its application.

ITM Power Plc is a globally recognised expert in hydrogen technologies with the overarching principle to take excess energy from the power network, convert it into hydrogen and use it in one of three broad market areas – Mobility, Power-to-X and Industry. There are multiple application areas within each area, all of which are acknowledged to be growing rapidly and requiring systems of ever larger capacities. This is led by the drive for improved air quality worldwide, the growth of renewable power generators in the energy mix and a need to decarbonise industrial processes.

Products and/or services: Our electrolyser products include a PEM electrolyser stack alongside all the necessary sub-systems required to produce high-purity, self-pressurised hydrogen gas. The products range from ~0.7MW – 2MW modules, that are a modular design. The products are able to produce between ~270kg- ~800kg of hydrogen per day. The fully integrated turn-key system is packaged in ISO containers or on a skid. The Electrolyser container includes the electrolyser stack, process equipment (including water clean-up), hydrogen purification and a PLC control system. The Power Supply container includes power distribution within the equipment and rectifiers for the electrolyser stacks.

Notable achievements to date:

- [Collaboration with SNAM](#)
- [First project to deliver a 10MW electrolyser to Glasgow facility](#)
- [Deploying Hydrogen Fuel Cell Bus Fleets for Public Transport across Australia](#)
- [Establishment of ITM Motive](#)
- [ITM Power and Ørsted: Wind Turbine Electrolyser Integration](#)

For more information, please contact: Hayden Francis, Marketing Executive, hf@itm-power.com



Kiwa Ltd

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Social media handles:

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- LinkedIn – [linkedin.com/company/kiwa-uk](https://www.linkedin.com/company/kiwa-uk)
- Facebook – [facebook.com/KiwaUK](https://www.facebook.com/KiwaUK)
- Instagram – @kiwauk

Description: Kiwa is leading the facilitation of the international acceptance of hydrogen as an energy vector. We understand the wide range of challenges set by the different contexts and scales of technology across the whole hydrogen supply chain landscape.

Working with Governments, Local Authorities and leading commercial organisations we help to develop strategies and roadmaps to realise hydrogen-based Net Zero commitments. Through understanding opportunities for hydrogen production (e.g. through electrolysis or methane reforming) and matching it to sources of demand (e.g. hydrogen fuel cell trains and buses, domestic and industrial/commercial heating and hot water) we are able to identify and assess the feasibility of real hydrogen conversion projects, helping you take the first step towards Net Zero.

A Notified Body under the Gas Appliance Regulation and an Accredited Body under UKCA GB, Kiwa has extensive experience of hydrogen appliance inspection, field trials, consultancy and thought leadership in the practical and safe application of hydrogen.

Products and/or services:

- Certification and consultancy for hydrogen heating and cooking appliances/fittings
- Identification of hydrogen decarbonisation solutions, concept design and safety assurance
- Technical and financial feasibility studies for a range of hydrogen conversion projects
- An extensive hydrogen test laboratory (the only one of its kind in Europe)
- Fuel cell power, mCHP and vehicle refuelling systems, tanks and vehicle components
- Delivering hydrogen training courses (detailed technical and non-technical familiarisation)

Notable achievements to date:

- Advising all UK GDNs on the potential demand for hydrogen in the ten largest UK cities
- End to end management of the first study into the dispersion of flammable gases in a house
- Technical lead for Hy4Heat project
- Principal Technical Contractor for SGN's H100 Fife project
- Project lead for Cadent Foundation-sponsored Hydrogen Hubs project

For more information, please contact: Iain Summerfield 07831 670692 iain.summerfield@kiwa.com



Logan Energy

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Social media handles:

- Twitter – @LoganEnergy
- LinkedIn – [linkedin.com/company/logan-energy-limited](https://www.linkedin.com/company/logan-energy-limited)
- YouTube - [youtube.com/channel/UCh54gupFKpmz1bzDvi6CsUA](https://www.youtube.com/channel/UCh54gupFKpmz1bzDvi6CsUA)

Description: Logan Energy has extensive experience and a proven track record in delivering projects and solutions in the low carbon, renewable energy, and hydrogen sectors.

We are manufacturer independent and able to analyse and select any appropriate equipment based on our proven experience in delivering hydrogen energy and technology projects. Operating from our Wallyford base, we have a growing team of qualified engineers and experienced commercial professionals who are used to delivering optimally sized hydrogen systems to maximise future return on investment. We can rely on a trusted network of suppliers of proven equipment, which allows us to design, procure, and offer reliable integrated systems.

Products and/or services: We specialise in the delivery of integrated engineering solutions incorporating hydrogen technologies, including hydrogen production, refuelling, storage, distribution, and stationary, mobile, and on-vehicle fuel cell electricity and heat generation. We offer a full turnkey service from project inception & feasibility, design development, manufacturing, installation, and operation and maintenance. We have not only undertaken options appraisals and feasibility studies to identify viable solutions for both cost-effective hydrogen production and use but have then deployed these proposals which has provided invaluable feedback into the design and feasibility process.

Notable achievements to date:

- Hydrogen installation at the Levenmouth Community Energy Project.
- Awarded contract for two public HRS in Tees Valley.
- Provided bus HRS for Belfast buses.
- Hydrogen generation & refuelling from seawater in SEAFUEL Project.
- Hydrogen generation & refuelling unit for Storengy's Project Vanguard, Cheshire.

For more information, please contact:

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Low Dee

Address: 15 Carnarvon Street, Manchester, England, M3 1HJ

Description: Low Dee is commercialising novel applications of two-dimensional materials. Some of our most promising IP is focused on using two-dimensional materials to improve proton exchange membranes and drastically increase the efficiency of fuel cells. This work began shortly after Sir Andre Geim won the Nobel Prize in physics for the discovery of graphene. He quickly realised that graphene was a proton conductor and together we created Low Dee with the expressed mission of using this technology to improve fuel cells. By incorporating a two-dimensional material such as graphene into a fuel cell ionomer membrane, the thickness and impedance can be greatly reduced, leading to a higher power output of the fuel cell. We have extensive global IP in this area which makes us uniquely placed to usher in a large step change in industry fuel cell performance.

Products and/or services: We are developing a novel membrane for PEMFCs which incorporates single-layer graphene with the ionomer. The membrane offers lower thickness and lower impedance while maintaining lower crossover as compared with industry standard membranes.

We offer licensing agreements to develop and use these membranes in fuel cells.

Notable achievements to date:

- Patents granted in all major territories; numbers WO2017017433A3 and WO2016042309A1.
- Significant reduction in the thickness and impedance of membranes compared with industry standards

For more information, please contact:

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James Devine-Stoneman, Project Manager, james@lowdee.com



Luxfer Gas Cylinders

Website: <https://www.luxfercylinders.com/>

Address: Colwick Industrial Estate Nottingham NG4 2BH UK

Social media handles:

- Twitter – @luxfercylinders
- LinkedIn – linkedin.com/company/Luxfer

Description: The world's largest manufacturer of lightweight high-pressure cylinders, are a leading designer and manufacturer of hydrogen fuel storage systems across a full spectrum of industries globally. At Luxfer, we are dedicated to creating a greener world for future generations. We are working with a number of commercial vehicle manufacturers around the world to supply industry leading hydrogen cylinders and in many cases to design hydrogen fuel system to meet the highest technological and safety requirements. With over 150,000 alternative fuel cylinders in use and over 18,000 vehicles running with Luxfer alternative fuel cylinders, Luxfer are established as the go to supplier for cylinders and systems for alternative fuel solutions.

Products and/or services: We offer a complete design and certification of alternative fuel systems & Luxfer expertise in Cylinders. Assembly on ready to mount frames. Pressure and leak testing of every Hydrogen system before delivery. Our products are:

- G-Stor H2 (Type3): The leading line of lightweight high-pressure hydrogen-storage cylinders.
- Luxfer's G-Stor Pro (Type 3): Available in an extensive range of sizes, G-Stor Pro cylinders consist of a Luxfer-manufactured aluminum liner fully over-wrapped with aerospace-grade carbon fiber. The high thermal conductivity of the aluminum liner helps remove heat from the gas generated during a fast fill, providing a more complete fill every time.
- G-Stor Go (Type 4): Lightweight and Improved DGE though roto molded liner and all carbon laminate. 2.25 times factor of safety on burst. Up to 25-year life.

Notable achievements to date: We have Produced the Hydrogen Fuelling System for various world's first vehicles i.e. World's first Hydrogen Powered Tractor , World's first Hydrogen double decker Bus , UK first Hydrogen Powered Train, Hydroflex, World's first fuel cell heavy-duty truck, XCIENT, World's first Self Sufficient Hydrogen Powered Boat.

For more information, please contact:

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Mark Lawday, Global Sales Director, Mark.lawday@luxfer.com

Keith Croysdale, Business Development Manager, Keith.croysdale@luxfer.com

Marubeni Europower

Website: <https://marubeni-europower.com/>

Address: 95 Gresham Street, London, EC2V 7AB

Social media handles:

- LinkedIn – [linkedin.com/company/marubeni-europower-limited/](https://www.linkedin.com/company/marubeni-europower-limited/)

Description: Marubeni Europower is a subsidiary of the Marubeni Corporation. Operating for over 50 years in Europe, Marubeni are a leading investor in renewable energy who develops and operates, Independent Power Producer (IPP) Projects across Europe, the Middle East and Africa. Its expertise ranges from developing new generation and transmission assets through to operation and maintenance activities.

Products and/or services: Marubeni has extensive experience in delivering renewable energy for our clients either as an Independent Power Producer (IPP) or delivering to Industrial, Commercial and Public Sector clients through Corporate Power Purchase Agreements (PPA).

- Top Class Global IPP Portfolio with worldwide strongholds for project development & asset management
- Proactively Promoting and Increasing renewable energy projects to contribute to a low-carbon society
- A Robust Track Record of Overseas Power EPC Projects & Unique EPC Contract Knowledge and Experience
- Promoting Community-Based Power & Power Servicing Businesses to Support the Resolution of Regional Social Subjects

Notable achievements to date:

- Founded in 1858 in Japan
- Top Fortune Global 500 company
- 14 business domains
- 136 offices in 67 countries
- Over \$65 billion in revenue
- Global net generation capacity c. 12,000MW
- Leading IPP/IWPP asset-portfolio consisting of renewables such as solar, wind

For more information, please contact:

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Net Zero Energy Developments Ltd

Website: N/A – still in development

Address: Gables Lodge, 62 Kenilworth Road, Leamington Spa, CV32 6JX

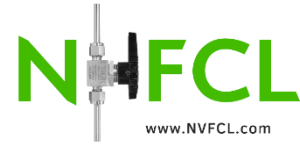
Description: We are primarily a power generation company providing ancillary services to National Grid Electricity System Operator in the UK. We are increasingly looking at the ability to supply such services using hydrogen as the base fuel. Whilst this can be done by fuel cells, the competitive market for these services makes this solution look uneconomic in the short and medium term. We are therefore looking at ways to burn hydrogen as a replacement fuel in existing and new conventional engines. The learning from this and success will translate readily into large engines used in other applications, obvious examples being marine, rail, and HGVs.

Products and/or services: We build own and operate power plants and grid scale battery systems to supply energy grid support services. In this sector we are looking to provide such services using hydrogen and therefore will be looking to develop, design and potentially supply the required conversion technologies.

Notable achievements to date:

- Joint development project with Cranfield University to look at the ability to burn a high percentage of hydrogen in a conventional diesel engine
- Good relationship with several large engine manufacturers who are very interested in the potential outcomes of this work and supporting us in the next stage
- BEIS are aware of our proposed work in this area and will be kept informed of progress to enable broader engagement and support in follow on stages

For more information, please contact: Mark Draper, mdraper@peakgen.com



Northern Valve & Fitting Company Ltd

Website: www.nvfcl.com

Address: Unit D13 Rivington Court, Moss industrial Estate, Leigh, Lancashire, WN7 3PT

Social media handles:

- Twitter – @NVFCL_FITOK_UK
- LinkedIn – [linkedin.com/company/northern-valve-&-fitting-company-limited/](https://www.linkedin.com/company/northern-valve-&-fitting-company-limited/)
- Facebook – [facebook.com/Northern-Valve-Fitting-Company-Ltd-102356318275875/](https://www.facebook.com/Northern-Valve-Fitting-Company-Ltd-102356318275875/)
- Instagram – @nvfcl_uk

Description: Northern Valve & Fitting Company are the only authorised distributor in the UK & Ireland for the complete range of products manufactured by FITOK. FITOK are generally recognised as the leading (price competitive and service orientated) alternative to all established manufacturers of Fluid system Components. FITOK (founded in 1998) manufacture and distribute its range of products in 6 continents. With a product portfolio covering Instrumentation (6,000psi, TWIN FERRULE), Medium & High Pressure (20K & 60K, CONE & THREAD), Ultra High Purity (VCR, VCO), Rigid Tubing & Sample Systems they have established themselves as a global brand associated with quality and value! NVFCL have already established FITOK in the UK & Ireland as a credible supplier for products used in H2 applications. We have EC-79 and ECE-R110 certification on certain product groups used for the safe transportation of hydrogen.

NVFCL have a total of over 50 years' experience in the supply of gas & fluid system components, working across most industries. NVFCL is dedicated in supporting our customers' needs by increasing local stock holdings, responsive internal and external sales teams, superior product and application knowledge coupled with the ability to add real value to any supply chain team or process!

Products and/or services: FITOK Stainless Steel Twin Ferrule Valves, Fittings and tube are separated into two different pressure ranges for the Hydrogen market. Our FITOK 6 series range of products is suitable in certain applications up to 10,000 psi and the FITOK 20D twin Ferrule range of products is suitable in certain applications up to 20,000 psi. We have ECE-R110 and EC-79 certification on most products within these two different product groups.

FITOK are also able to offer design and engineering support for new applications and product designs.

For more information, please contact: Pat Drury, Director, pat.drury@nvfcl.com



Protium Green Solutions Ltd

Website: www.protium.co.uk

Address: 34-35 Hatton Garden, Holborn, London EC1N 8DX

Social media handles:

- Twitter – @Protium18
- LinkedIn – [linkedin.com/company/protium_green_solutions](https://www.linkedin.com/company/protium_green_solutions)

Description: Protium is a UK focused green hydrogen and fuel cell project developer, that works with industrial companies and local authorities to support their transition to Net Zero emissions. Our model is to build, own, operate and finance green hydrogen and renewable energy infrastructure assets, and from those provide hydrogen as an energy service (HESCO) to our customers. The company's mission is to power British businesses with sun, wind and water.

The company was established in July 2019 and founded by Christopher Jackson, who led the World Bank's research into Hydrogen and fuel cells from August 2018 until April 2020, and by Marco Dell'Aquila who founded Power Capital, IJ Global and Inspiratia after sitting on the Board of GE Capital Europe.

Products and/or services: Protium works with clients to identify hard to decarbonise sectors of industrial energy demand and mobility demand, and develop commercially viable projects that provide those clients with a pathway to Net Zero emissions. We focus exclusively on producing green hydrogen. Predominantly from electrolysis via dedicated renewable energy assets which we also co-develop, including Solar PV and Onshore Wind. We do also work on projects to reform biogas into green hydrogen.

Our service proposition is to finance the capital expenditure of hydrogen production and renewable generation assets, and end use technologies e.g. boilers, burners and fuel cells, to provide energy services from these assets under a multi-year fixed offtake structure. We also work with providers of fuel cell commercial vehicles to provide hydrogen mobility solutions, with an integrated fuel supply and vehicle lease included.

Notable achievements to date:

- Largest UK green hydrogen for industrial fuel switching feasibility study signed with client,
- Heads of Terms signed with ZeroAvia to develop green hydrogen infrastructure for UK aviation,
- Developed a UK leading pipeline of green hydrogen for industrial fuel switching projects.
- Led the "Hydrogen policy anomalies" campaign, resulting in a meeting with Minister Kwarteng.

For more information, please contact:

Christopher Jackson, CEO and Founder, chris@protium.co.uk

Petrofac Facilities Management Ltd

Website: www.petrofac.com

Address: Bridge View, 1 North Esplanade West, Aberdeen, AB11 5QF

Social media handles:

- Twitter – @Petrofacgroup
- LinkedIn – [linkedin.com/company/Petrofac_3](https://www.linkedin.com/company/Petrofac_3)
- Instagram – @Petrofacgroup

Description: Petrofac is a leading international service provider to the Energy Sector, with a diverse client portfolio including many of the world's leading integrated Energy Producers across Oil & Gas, Wind and other Renewable Sectors. We have 39 years of international experience. Our track record spans several hundred projects across our key markets of the Middle East, Far East, Africa, CIS and Russia, Americas, Europe and the UK.

Our EPS (Engineering and Production Services) Business Unit has a strong focus on Operations Services, including O&M services, Operated Assets, and Technical Consultancy Services. With a team of expert consultants, we are able to support project developments in the New Energy Sector such as Hydrogen (Blue and Green), Carbon Capture, Waste-to-Value plants (i.e. Producing renewable fuels and sustainable aviation fuels) solar and other emission reduction projects.

As an EPC company, our consultancy and engineering services help our customers to design and cost their projects in a realistic and constructable manner, helping the projects to reach financial close. We prefer to then follow these projects through to EPC phase and onto the Operations and Maintenance phase also. Providing value throughout the full asset lifecycle. Our capabilities span the full value chain: life of field services from concept to EPC, commissioning, start-up, operations, maintenance, and decommissioning, underpinned by training, competence and workforce development capabilities.

We have a strong track record of supporting asset operations to help unlock the value of our clients' plants. Our growing experience in Green and blue hydrogen projects helps to ensure projects are designed effectively, safely and within set financial parameters.

Notable achievements to date:

- Arrowsmith Green Hydrogen Plant - In October 2020 Petrofac was awarded the FEED for the Arrowsmith Hydrogen Plant Stage I. It is designed to produce 25 tonne/day of green hydrogen from raw water using electrolysis and renewable energy sourced from an onsite solar and wind farm with green grid connection back-up
- Feasibility study: large scale hydrogen production by electrolysis - Development and costing of process designs for the production of 120,000 Nm³/h of Hydrogen using electrolyser technology
- US certification for atmospheric electrolysers - Provisions of knowledge and expertise on the certification of the atmospheric electrolyser equipment and components in order to meet U.S requirements for ultimate sale in the U.S.A
- Pale Blue Dot - EPS will provide Project Management systems and technical support during the Front End Engineering Design for Acorn Carbon Capture and Storage (CCS), and the Concept Select for Acorn Hydrogen.

For more information, please contact: Jill Barclay, Proposals Engineering,
eps.proposals@petrofac.com

Powerhouse Energy Group, PLC

Website: www.powerhouseenergy.net

Address: R&D Office: TEC 107, The Energy Centre, Thornton, Chester, CH2 4NU, UK

Social media handles:

- Twitter – @PowerHouseEG
- LinkedIn – [linkedin.com/company/powerhouse-energy-group-plc](https://www.linkedin.com/company/powerhouse-energy-group-plc)

Description: Powerhouse has developed a proprietary process technology - DMG[®] - which can utilise waste plastic, end-of-life-tyres, and other waste streams to efficiently and economically convert them into syngas from which valuable products such as chemical precursors, hydrogen, electricity and other industrial products may be derived. Powerhouse's technology is one of the world's first proven, distributed, modular, hydrogen from waste (HfW) process. This technology importantly produces low cost hydrogen whilst helping tackle the problem of unrecyclable plastic. Aimed to be used at a local level, the technology can help improve air quality for communities. Powerhouse is quoted on the London Stock Exchange's AIM Market under the ticker: PHE and is incorporated in the United Kingdom.

Products and/or services: DMG[®] is a new type of chemical recycling, a form of Advanced Conversion Technology that takes waste plastics and recovers the maximum amount of calorific value (energy) through its innovative approach.

The Powerhouse DMG[®] process can generate up to 2 tonnes of road-fuel quality low cost hydrogen and more than 58MWh of exportable electricity per day. Powerhouse's process produces low levels of safe residues and requires a small operating footprint, making it suitable for deployment at enterprise and community level.

Notable achievements to date:

- DNV-GL Statement of Feasibility achieved to regenerate waste plastic into 99.999% pure hydrogen through DMG[®] Technology
- Planning permission for first full scale commercial plant achieved by customer Peel Environmental (part of Peel L&P) at Protos Energy Park in Cheshire
- FEED (Front End Engineering Design) for Protos site completed
- UK Exclusivity Option Agreement with Peel: if Peel exercises the option, they are committed to lead the engagement with all potential end customers for UK based DMG[®] plants
- Signed non-binding Heads of Terms with Hydrogen Utopia International Limited (HUI) with a view to granting HUI an exclusive non-transferable licence for the application of its DMG[®] Technology in Poland

For more information, please contact:

Tim Yeo, Executive Chairman - timyeo@powerhouseenergy.co.uk

Siemens Financial Services

Website: <https://new.siemens.com/uk/en/products/financing/about-us.html>

Address: Siemens Financial Service, Commercial Finance, UK Head Office. Sefton Park Bells Hill, Stoke Poges, Buckinghamshire, SL2 4JS

Social media handles:

- Twitter – twitter.com/Siemens_SFS
- LinkedIn – [linkedin.com/showcase/siemens-financial-services/](https://www.linkedin.com/showcase/siemens-financial-services/)

Description: Siemens Financial Services (SFS) works with customers and partners to provide flexible financing, including cash flow solutions and leasing options for businesses of all sizes.

Providing specialist support across a broad range of sectors, SFS works with Siemens businesses, channel partners, 3rd party vendors and direct customers to enable continued investment in new technologies and improved cash flow.

With a dedicated Clean Technology Finance channel that capitalises on sector experience and parent company knowledge, SFS is keen to extend activities in the hydrogen sector.

Products and/or services: Siemens Financial Services works with customers and partners to provide a wide range of flexible finance solutions including cash flow solutions and leasing options to suit a variety of business sizes. We also operate across a broad number of sectors to support businesses with specialist support, enabling you to find the right financial solution to fit your business.

For more information, please contact: Oliver Finkill, Business Development Manager - Clean Technology Finance, oliver.finkill@siemens.com

Swagelok Manchester



Swagelok Manchester

Website: manchester.swagelok.com

Address: 205 Cavendish Place, Birchwood Park, Warrington, WA3 6WU

Social media handles:

- Twitter – @swagelokmcr
- LinkedIn – [linkedin.com/company/swagelok-manchester](https://www.linkedin.com/company/swagelok-manchester)
- Facebook – [facebook.com/SwagelokMCR/](https://www.facebook.com/SwagelokMCR/)
- Instagram – @swagelokmanchester

Description: Here at Swagelok Manchester we pride ourselves on how we deliver our products and services to our customers. Our business is underpinned by core values that ensure continued customer focus, teamwork, and innovation which we believe results in service standards that are the benchmark in our industry. Let us become your fluid system management partner helping you with all your fluid system responsibilities - from application engineering design support and high-quality product provision, to unique problem resolution through our fabrication team.

Swagelok offers a wide range of fluid system components for use in many types of hydrogen-related applications including:

- Infrastructure that produces, transports, compresses, and stores hydrogen
- Hydrogen FCEV
- PEM electrolyser systems
- MF electrolyser systems
- Compressor systems
- Dispensers
- Tube trailers
- Compressed hydrogen storage cylinders
- Research and development
- Hydrogen blending with methane

Notable achievements to date:

- Swagelok products used on the UK's first hydrogen train, aeroplane, double decker bus and hydrogen into natural gas blending project
- Collaboration with a major gas cylinder manufacturer to deliver numerous high-profile hydrogen storage systems on FCEV projects
- EC-79 Approved products for on-vehicle hydrogen applications up to 700bar
- All Swagelok 316SS products have a minimum of 12% nickel content to prevent hydrogen embrittlement
- All Swagelok products are backed by the Swagelok Limited Lifetime Warranty

For more information, please contact: Mitch Brunt, Projects Sales Manager – Gas Networks and Hydrogen. mitch.brunt@swagelokmanchester.co.uk, 07720 463248



Technical Fibre Products Ltd

Website: www.tfpglobal.com

Address: Technical Fibre Products Ltd, Burneside Mills, Kendal, Cumbria, LA9 6PZ

Social media handles:

- LinkedIn – [linkedin.com/company/technical-fibre-products-ltd](https://www.linkedin.com/company/technical-fibre-products-ltd)

Description: Technical Fibre Products Ltd (TFP) is a leading global manufacturer of technical nonwovens. Our advanced materials provide solutions for challenging applications in fuel cells, aerospace, defence, composites and wind energy, to name but a few.

TFP has been developing and optimising material for fuel cell gas diffusion layers (GDLs) since 1988, working alongside some of the leading companies in the industry. This long-term commitment to fuel cell development and growth has facilitated a comprehensive understanding of the necessary material characteristics to achieve a high performance GDL substrate.

Products and/or services: TFP manufacture a range of carbon nonwovens specifically developed for use as a substrate for a fuel cell Gas Diffusion Layer (GDL). This forms the basis of both the anode and cathode, and is responsible for water management, the transport of reactants, electricity and heat, as well as providing structural support to the fuel cell assembly.

Notable achievements to date:

- TFP have developed and supplied substrates for phosphoric acid fuel cells since 1988.
- TFP were part of a joint development programme in developing GDL for PEM fuel cells from 1990-2007.
- A pilot plant dedicated to the development of fuel cell substrates was installed in 2004.
- TFP have the widest nonwoven machine dedicated to carbon fibre, this was commissioned in 2016.
- In 2019 more than 50% of the world's GDL supply was based on TFP materials.

For more information, please contact: Adam Black, Business Development Director, adam.black@tfpglobal.com

TP Group plc

Website: www.tpgroupglobal.com

Address: Apex Building, Forbury Road, Reading, Berkshire, RG1 1AX

Social media handles:

- Twitter – @tpgroupUK
- LinkedIn – [linkedin.com/company/tpgroup-plc](https://www.linkedin.com/company/tpgroup-plc)
- Facebook – [facebook.com/tpgroupUK/](https://www.facebook.com/tpgroupUK/)

Description: tpgroup is a technology services business, working to make the world a safer place, employing more than 400 highly skilled individuals across six European countries. Our people deliver mission, business and safety-critical services and equipment across three high growth sectors – space, defence and energy.

Our heritage goes back over 50-years in successfully manufacturing and supporting bespoke engineered electrolyser system solutions – with ultra-high reliability and safety.

Our expertise coupled with broader programme management and digital capabilities are key to supporting organisations within highly regulated industries looking to meet 2050 targets – from transport through to energy and public sector organisations.

Our three-way partnership agreement with Vanguard Sustainable Transport Solutions Ltd. and Fuel Cell Systems Ltd explores opportunities for a range of services, including on-site hydrogen generation, storage and dispensation, and fuel cell integration into rail rolling stock such as the HydroFLEX train.

Our alliance with Cullum Detuners enables us to develop end-to-end solutions to capture CO₂ from power generation facilities in order to control their emissions and contribute to decarbonisation goals, with an added option to turn captured CO₂ into a secondary fuel rather than storing it.

Products and/or services:

- Advanced carbon capture in enclosed environments – CO₂RE product
- Renewable Energy Systems – building modular systems for hydrogen generation and decarbonisation
- Hydrogen fuelling solutions into the rail industry.

Notable achievements to date:

- Awarded the London Stock Exchange Green Economy - 2020
- MAKE UK - Manufacturing Awards 2020 – Regional Shortlisted
- Hydrogen System contract – providing management control equipment for enhanced safety management of hydrogen gas.

For more information, please contact:

Lorraine Pullen, Head of Marketing & Communications, Lorraine.Pullen@tpgroup.uk.com

Jon Constable, Group Technology & Engineering Director, Jon.Constable@tpgroup.uk.com

James Thomas, Chief Engineer, Technology & Engineering, James.Thomas@tpgroup.uk.com

ULEMCo Ltd

Website: <http://www.ulemco.com/>

Address: Unit 7F, Aintree Racecourse Retail and Business Park, Topham Drive, Aintree, Liverpool L9 5AL

Social media handles:

- Twitter – @Ulemco
- LinkedIn – [linkedin.com/company/UlemcoLtd](https://www.linkedin.com/company/UlemcoLtd)

Description: ULEMCo is THE world's first hydrogen commercial vehicle conversion company, enabling fleet, commercial & niche vehicle owners to use zero emission hydrogen fuel, as part of their strategies to reduce transport related carbon emissions, with practical solutions, today.

ULEMCo's initial product, it's globally unique hydrogen dual-fuel approach, mixes hydrogen with diesel in the engine, from on board stored gas tanks, at volumes that displace between 30-70% of the energy from diesel, giving a direct 1 kg for 1 gallon CO2 saving.

Dual fuel addresses concerns from the risk of hydrogen availability, and range anxiety (the vehicle will still work in diesel if no hydrogen is available) and by using the existing engine technology the cost of conversion is minimal in comparison to other low emission solutions.

Products and/or services: ULEMCo sells to customers who use specialist vehicles like refuse trucks and road sweepers and LGV's like large vans, and want to use hydrogen to save many thousands of tonnes of emission, daily, without loss of productivity and flexibility.

Because commercial vehicles are heavy duty, the volumes of back to base hydrogen can make hydrogen competitive to diesel, helping to provide scaled volume now for the development of renewable ("green") hydrogen at scale for mobility. Conversions are either sold direct or as kits to authorised partners, installed locally to the customers.

Applying their experience of the wider hydrogen supply chain the company helps customers from the start in their hydrogen transformation journey, from consultancy services to understand the options and engineered solutions for back to base refuelling

Notable achievements to date:

- On-going supply of conversions for refuse trucks, sweepers and specialist vehicles to Aberdeen City Council
- Supply of a fleet of 20 multi-purpose gritters for Glasgow City Council
- License and supply of kits for the conversion of Class 8 logging trucks in Canada
- Best in class emission data reported for refuse collection vehicles (between 40-70% reduction in NOx) deployed under OLEV's Low Emission Fright Trial

For more information, please contact: Amanda Lyne, Managing Director, alyne@ulemco.com or Nicola Smith, Business Development Manager, nsmith@ulemco.com