



NEWS RELEASE

10 October 2011

For immediate distribution

Creating the UK's first renewable hydrogen energy 'supply chain'

The move to a hydrogen economy has taken a significant step forward with the announcement of a new government-funded project that brings together three of the top names in the field of renewable energy.

The project - known as rabh2 - is a collaboration between Arcola Energy, RE Hydrogen and industrial gases company BOC, a member of The Linde Group, who recently launched the UK's first open-access hydrogen vehicle refuelling station at Swindon. Backed by the Technology Strategy Board, the project aims to create a manufacturing and distribution network for low-carbon hydrogen and a suite of fuel cell systems that use the hydrogen to power a wide range of products. When fully operational, it will create the UK's first renewable hydrogen energy end-to-end 'supply chain'.

The process will use a groundbreaking 5kW electrolyser - developed by RE Hydrogen - that reduces the capital cost of set up by a remarkable 90 percent. The plan is to carry out a technical and commercial feasibility study which is intended to lead to installation of an electrolyser at a BOC production facility in the UK. Because the capital cost is so much lower, the team will be able to afford to power the electrolyser with 'green' – but more expensive – electricity. The hydrogen produced will be used in a wide range of fuel cells built by Arcola Energy at their factory in East London.

Dr Ben Todd, Managing Director of Arcola Energy said: "Arcola Energy is developing a wide range of end-user customisable fuel cell solutions which give significant cost and carbon savings through efficient use of energy. The rabh2 project completes the package through the supply of convenient, cost-effective hydrogen fuel generated from renewable sources".

Dr Amitava Roy, RE Hydrogen CEO said: "As 80 percent of the cost of producing hydrogen with RE Hydrogen electrolysers is affected by current electricity prices compared to only 25-35 percent for other electrolyser companies, we can reduce the cost of green hydrogen by using the surplus renewable electricity as a means of grid balancing services. RE Hydrogen is pleased to work with BOC and Arcola Energy in the rabh2 project.

Steve Thompson, BOC Business Manager said: "As a member of The Linde Group, BOC is committed to investing in hydrogen as an energy carrier for the future, as the recent

launch of our hydrogen filling station at Swindon demonstrates. Electrolytically-generated hydrogen will be an important part of the future clean energy mix and the rabh2 project could play a key role in taking this to the next stage.”

The project will be launched at the Technology Strategy Board’s *Innovate11* conference and exhibition at the Business Design Centre in London on 11th October 2011.

ENDS

Notes to editors

1. For rabh2, Arcola Energy will continue its groundbreaking work as a multi-disciplinary agent for sustainable innovation. Integrating expertise in hydrogen and fuel cells, low energy lighting and efficient power electronics, Arcola Energy’s radical approach will overcome the cost and knowledge barriers to deployment of low carbon technologies in a wide range of markets. End-users will be able to customise and place orders online and the products will be manufactured in Arcola’s East London factory.
2. RE Hydrogen will develop an automatic 5kW electrolyser using breakthrough technology to reduce the capital cost of the stack by 90 percent. This electrolyser will offer unique advantages in its capability for unlimited on-off switching cycles – vital for renewable energy powered intermittent and variable operation – coupled with in-situ regeneration of the electrode-catalyst for long life, high gas purity, high efficiency and an extended operating range to capture energy from a very low power. RE Hydrogen aims to set up an in-house manufacturing capability for up to 10MW electrolyser capacity per year.
3. As a member of The Linde Group, BOC can draw on world-leading technologies and global best practice in clean energy innovation, including hydrogen. It recently launched the Hymera hydrogen fuel cell generator, supporting a wide range of applications including lighting, security, remote monitoring, infrastructure and power tools.

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Project updates will be posted at www.rabh2.co.uk

Arcola Energy is a multi-disciplinary agent for sustainable innovation. It operates in two modes: 1) commercially, developing and retailing cutting-edge low carbon products especially fuel cells; and 2) as an award-winning not-for-profit project of Arcola Theatre, driving sustainability in the arts. www.arcolaenergy.com

RE Hydrogen, having won 7 grants and awards, developed an extremely low cost electrolyser technology to produce green hydrogen and oxygen gas from water, by using surplus electricity from renewable energy sources for the multi-billion pound world markets in various sectors such as delivery of industrial gas, mixing hydrogen with natural gas for gas turbines, energy storage, grid balancing, H-CNG transport fuel and using hydrogen as heating and cooking fuel. RE Hydrogen differentiates itself by its low cost, patented and proven technology for producing green hydrogen on-site. RE Hydrogen has also developed a novel, highly efficient hydrogen compressor at one third of the market price to aid hydrogen storage and the marketability of their electrolysers. RE Hydrogen has established collaboration with several industrial, commercial and end-use partners as route to market of their products. Thanks to the support from the Technology Strategy Board and Finance South East for the prototype development and field trial of the 5kW electrolyser.

www.rehydrogen.com

BOC is a member of The Linde Group. An industrial, medical and special gases provider, the company supplies compressed and bulk gases, chemicals and equipment. For more than a century the company's gases and expertise have contributed to advances in many areas of everyday life, and industries including steelmaking, refining, chemical processing, environmental protection, wastewater treatment, welding and cutting, food processing and distribution, glass production, electronics and health care. For more information visit: www.BOCOnline.co.uk

The Linde Group is a world-leading gases and engineering company with around 49,100 employees working in more than 100 countries worldwide. In the 2010 financial year it achieved sales of EUR 12.868 billion. The strategy of The Linde Group is geared towards long-term profitable growth and focuses on the expansion of its international business with forward-looking products and services. Linde acts responsibly towards its shareholders, business partners, employees, society and the environment – in every one of its business areas, regions and locations across the globe. Linde is committed to technologies and products that unite the goals of customer value and sustainable development. For more information, see The Linde Group online at www.linde.com.

The Technology Strategy Board is a business-led government body which works to create economic growth by ensuring that the UK is a global leader in innovation. Sponsored by the Department for Business, Innovation and Skills (BIS), the Technology Strategy Board brings together business, research and the public sector, supporting and accelerating the development of innovative products and services to meet market needs, tackle major societal challenges and help build the future economy. For more information please visit: www.innovateuk.org