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Oxsensis wins major 2009 Carbon Trust Award. Second time winner in Carbon Trust Innovation Awards

Oxsensis, the UK Pioneer in high temperature instrumentation has scooped a major award at this year's national Carbon Trust Innovation Awards.

Oxsensis, which has developed the world's highest temperature sensors, won the award for innovative new technologies which will cut carbon emissions in power generation, industry and later in air transport. Its sapphire based sensors can be used in gas turbines, for example in power stations or planes, and are capable of measuring pressure and temperature in the harshest conditions – hundreds of degrees hotter than traditional sensors can stand. The sensors can survive temperature up to 1000°C in customer trials and the company is now developing products for even more challenging conditions – up to 1500°C. With more accurate readings comes the possibility of running turbines at higher combustion temperatures, thereby increasing efficiency and reducing carbon emissions.

David Gahan, CEO Oxsensis said:

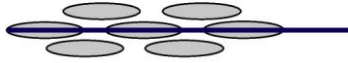
"Oxsensis is delighted at winning the 2009 Carbon Trust Innovation Award. The citation given at the Awards event mentioned the strong progress the WavePhire 1000°C pressure sensor has made moving from prototype to fully engineered product with the world's biggest manufacturers of gas turbines and the first trial of our instrumentation in a public grid power station at RWE NPower's Didcot facility."

Martin Jay CBE, Chairman of Oxsensis said:

"Oxsensis has been recognised for the second time by the Carbon Trust following its win in the 2007 Awards. The judges concentrated on evidence of the company's commercial progress and continued innovation which could take combustion efficiency improvements to a new level."

Commenting on this year's Awards, Tom Delay, Chief Executive, the Carbon Trust said:

"As the UK looks to develop and deploy new low carbon solutions to tackle climate change, the breadth and depth of innovation here is deeply encouraging. Whilst many of the organisations that we looked displayed innovative approaches to cutting carbon emissions, the winning entries stood out for their industry leadership and potential to be replicated more widely. This shows the fantastic opportunity for organisations to thrive as Britain moves to a low carbon economy."



The awards were judged by a panel of experts including David MacKay, Chief Scientific Advisor of the Department of Energy and Climate Change; Tim Smit, co-founder and Chief Executive of the Eden Project; Damian Carrington, Head of Environment at the Guardian; Chris Mottershead, Vice Principal of Research and Innovations at Kings College London; Dick Strawbridge, 'eco king'; Jeremy Webb, Editor of The New Scientist; and Tom Delay, Chief Executive of the Carbon Trust.

Dick Strawbridge, Eco-King commented, "Engineering and innovation are passions of mine, but reading through the submissions was a humbling experience. One of the special things about these awards is that you get to see how British companies, institutions and individuals are pushing technology to its limits to try and reduce our impact on the planet whilst allowing us to maintain our privileged lifestyle. The entries were extremely high quality, and inspiring, so it would be great to see them all succeeding in the global market place."

Chris Mottershead, Vice Principal Research and Innovation, King's College London commented, "Innovation is a wonderfully complex and intriguing process, but at its core is an individual or small group of individuals, who bring the energy, insight and commitment to make something different happen. They stand in the future, reaching back into the present, to show what can be achieved. It is important that we celebrate these people and their ideas as they start to illuminate a lower carbon future."

Jeremy Webb, Editor of New Scientist, "If we are going to seriously curtail carbon emissions, we need to rethink the way we carry out pretty much everything we do in our private and professional lives. If we are going to succeed, we need some amazing ideas. The diversity of ideas proposed by the entrants of this year's innovation awards shows there's real hope that we can succeed, and the winners display superb creative thinking."

This year's nationwide hunt attracted submissions from around 250 of the UK's most inspiring innovators in the development, deployment and use of low carbon technology solutions, across a range of areas from power generation to buildings to transport. The judges rigorously assessed each application against a range of strict criteria including genuine innovation, carbon saving potential, novel application and commercial potential.

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Editor's Notes

For more information please call the Carbon Trust press office on 0207 544 3100. Finalist and winner interviews and pictures are available.

About the awards

Finalists and winners were announced at an awards ceremony on 26 November 2009 in London.

There were six categories this year; the first four awards categories were for technology innovators – the developers and providers of low carbon technologies.

- **Category 1: Power** - This category recognises innovative technologies that will help replace existing electricity supplies with new energy sources, such as wind, tidal, wave, carbon capture and storage, geothermal or hydroelectric generation.
- **Category 2: Buildings** - This category includes solutions that help reduce demand for energy in buildings and technologies for on-site generation of power and/or heat.
- **Category 3: Transport** - This category includes new technologies that can reduce carbon emissions for transport, such as renewable bio-fuels, improved road vehicles and hydrogen for road transport, as well as fuel cell technologies, electric/hybrid vehicles, and hydrogen storage devices
- **Category 4: Industry** - This category covers development of technologies which can be used to reduce carbon emissions across a wide range of industrial applications. This could include novel motors, compressed air systems, refrigeration, control systems and much more.

The final two categories recognised the important role that early adopters can play in stimulating the market for emerging low carbon technologies. Organisations needed to demonstrate innovation in the use of low carbon technologies, going well beyond standard industry practice. The technology or solution implemented should be something with the potential to be very widely used by other organisations in future and therefore deliver very significant carbon savings. There were two awards, as follows:

- **Category 5: Private Sector** – innovation in the use of low carbon technologies by a private sector business
- **Category 6: Public Sector** – innovation in the use of low carbon technologies by a public sector organisation

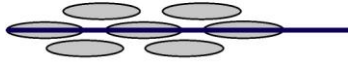
Judging Criteria

In the four award categories for technology developers and providers, the judges were looking for:

- **Potential.** Will your idea or technology produce significant, cost-effective carbon savings over the coming years?
- **Evidence.** Can you show that your idea or technology works (or has the potential to work) in a commercial application?
- **Innovation.** Can you demonstrate a genuine 'innovative' element, a step change in technology design or a novel application of an existing technology or process?

In the two award categories for innovative use of low carbon technologies, our judges want to see:

- **Early adoption.** Is your use of innovative carbon-reducing technology or technologies well ahead of conventional practice?
- **Evidence.** Can you demonstrate significant carbon savings?



- **Scalability.** Is there potential for the technology or technologies be widely used in future to deliver significant carbon savings for other organisations?

The Carbon Trust

- The Carbon Trust is an independent company set up in 2001 by Government in response to the threat of climate change, to accelerate the move to a low carbon economy by working with organisations to reduce carbon emissions and develop commercial low carbon technologies.
- We cut carbon emissions now by giving business and the public sector expert advice, finance and certification to help them reduce their carbon footprint and to stimulate demand for low carbon products and services. Through our work, we've already helped save over 23 million tonnes of carbon, delivering costs savings of around £1.4 billion. We aim to help our customers cut a further 17MtCO₂ and save another £1 billion in the next three years.
- We cut future carbon emissions by developing new low carbon technologies. We are helping the UK become a global hub for low carbon innovation. We do this through funding and managing projects, investing and collaborating on low carbon technologies and by identifying market barriers and practical ways to overcome them. Our work on commercialising new technologies will deliver savings of up to 23 million tonnes of carbon a year by 2050.
- The Carbon Trust is also undertaking world leading projects on offshore wind, algae and advanced solar power.

Further Information

Oxsensis' sensor technology is based on the micromachining of super resistant materials such as single-crystal sapphire (melting point >2000°C) together with innovative fibre optic interrogation techniques which give high sensitivity and immunity from electro-magnetic interference (EMI) effects common in turbo-machinery such as gas turbines.

As part of their close ties working in the gas turbine industry, Oxsensis is one of 17 European organisations working together on HEATTOP, a gas turbine programme. Other collaborators in the three year programme include Siemens AG, Rolls-Royce Plc. and Oxford and Cambridge Universities. The €8.8M (\$11M) programme, backed by the Commission of the European Communities under the FP6 programme, aims to advance technologies available for gas turbine life optimisation, performance and condition monitoring through accurate high temperature engine measurements. As a result, European gas turbine manufacturers will be able to reduce emissions and increase engine efficiency; reduce product development time and cost of ownership; and improve the competitiveness of their products in global markets.

About Oxsensis Ltd.

Oxsensis is a spin-out from STFC Rutherford Appleton Laboratory in Oxfordshire formed in 2003. The company is backed by Venture Capital from Albion Ventures, Seven Spires Investments Ltd., Frog Capital, Rainbow Seed Fund and Strathdon Plc., together with prominent individual investors.

Science and Technology Facilities Council

The Science and Technology Facilities Council ensures the UK retains its leading place on the world stage by delivering world-class science; accessing and hosting international facilities; developing innovative technologies; and increasing the socio-economic impact of its research through effective knowledge exchange partnerships.

The Council has a broad science portfolio including Astronomy, Particle Physics, Particle Astrophysics, Nuclear Physics, Space Science, Synchrotron Radiation, Neutron Sources and High Power Lasers. In addition the Council manages and operates three internationally renowned laboratories:

- The Rutherford Appleton Laboratory, Oxfordshire
- The Daresbury Laboratory, Cheshire
- The UK Astronomy Technology Centre, Edinburgh

The Council gives researchers access to world-class facilities and funds the UK membership of international bodies such as the European Laboratory for Particle Physics (CERN), the Institute Laue Langevin (ILL), European Synchrotron Radiation Facility (ESRF), the European organisation for Astronomical Research in the Southern Hemisphere (ESO) and the European Space Agency (ESA). It also contributes money for the UK telescopes overseas on La Palma, Hawaii, Australia and in Chile, and the MERLIN/VLBI National Facility, which includes the Lovell Telescope at Jodrell Bank Observatory.

www.stfc.ac.uk