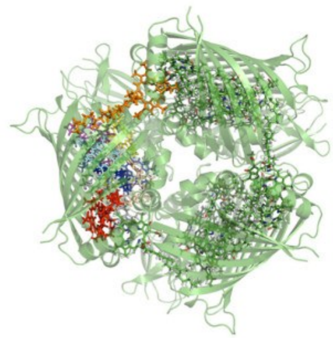
Today, a vast amount of energy is consumed, with demand continuing to skyrocket at an alarming rate. Producing this energy has significant environmental impacts and emitting quantities of carbon dioxide into the atmosphere could cause catastrophic climate change.

A recent short film produced by Cambridge captures the views of three academics, Professor Andy Woods, Dr Julian Allwood and Dr Richard McMahon who discuss the future of wind power, carbon capture and storage (CCS) and material

efficiency as examples of how our $C0_2$ emissions could be cut. They suggest that action should be taken now in order to avoid the serious risks of man-made global warming, one of our greatest challenges in the 21st century.

To watch the film please visit: www.energy.cam.ac.uk

For Information on the Energy@Cambridge Strategic Research Initiative please contact the Initiative Co-ordinator by email at: energy@admin.cam.ac.uk.



Structure of the Fenna-Matthews-Olson complex
Credit: Dr Daniel Cole.

Quantum scale photosynthesis in biological systems which inhabit extreme environments could hold the key to new designs for solar energy and nanoscale devices.

Energy@Cambridge
University of Cambridge
Email: energy@admin.cam.ac.uk
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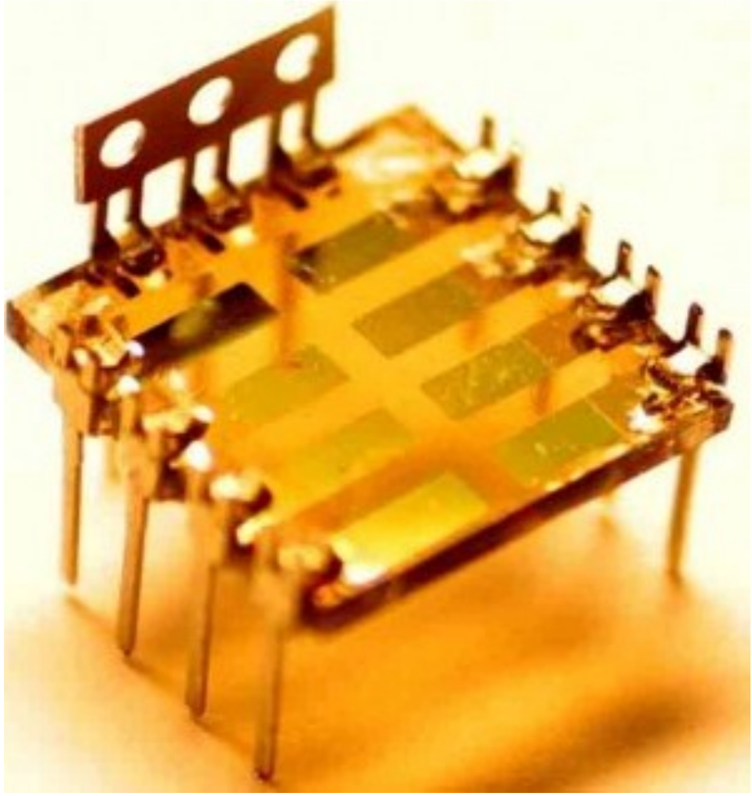

Energy@ Cambridge

New Solar Cell. *Image credit: Optoelectronics Group, Cavendish Laboratory*

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Technology Focus Areas

Supply	Conversion	Demand
Bioenergy	Engines and Turbines	Buildings and Cities
Fossil Fuels, Carbon Capture and Storage	Energy Storage	Manufacturing
Nuclear Power	Networks and Distribution	Transport
Photovoltaics	Sustainable Reaction Engineering	

Cross-Cutting Themes

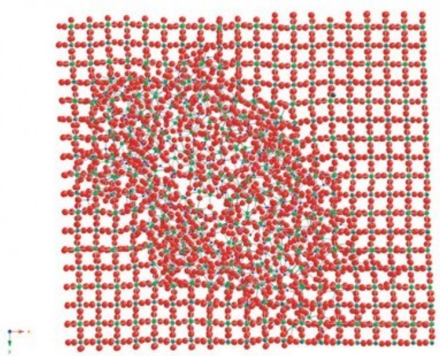
- Materials and Chemistry
- Smart Systems and Device Design
- Energy Efficiency
- Resource Dynamics
- Users, Consumers and Social Frameworks
- Policy, Economics and Risk

The **Energy@Cambridge** initiative was established in 2010 as a University-wide initiative and is chaired by Professor Lynn Gladden, CBE, FRS, FREng.

It brings together the activities of over 250 academics working in energy-related research across variety of disciplines and representing 27 different Centres, Institutes, Departments and Faculties.

With a funding portfolio of over £170 million, the initiative builds on the breadth of research in Cambridge and core competence and capabilities in science, technology and the social sciences.

Energy@Cambridge is supported by an Advisory Board and a designated Energy Champion for each Technology Focus Area and Cross-cutting Theme.



Nuclear damage. Credit: Ian Farnan.

Understanding how to keep nuclear waste safe is clearly a considerable challenge, one that new research led by the University of Cambridge aims to help solve through fundamental studies of how nuclear materials behave, and are likely to behave, over massive timescales.

Energy is at the centre of many of the most challenging policy questions facing government and industry today – particularly in the areas of energy security, supply-side regulation, and global sustainability.

Cambridge academics work collaboratively with other researchers nationally and internationally, policy makers and industry to tackle grand technical and intellectual challenges in energy.

Electrodes in a test cell to produce hydrogen with light Credit: Dr Erwin Reisner

Mimicking a natural process perfected over billions of years to capture solar energy, researchers are creating artificial photosynthetic systems that will turn air and water into transport fuel. The technology uses solar energy to separate the elements that make up water and carbon dioxide (CO2). The reaction creates synthetic gas, or syngas – comprising energy-rich hydrogen (H2, which can itself be used as a fuel) and carbon monoxide (CO) – and this mixture of gases can be converted into liquid hydrocarbons such as petroleum through an established industrial process.

www.energy.cam.ac.uk