We are Edinburgh Innovations, the innovation management service for the University of Edinburgh.

With partners, we will explore opportunities, build ideas and deliver results for industry and the University of Edinburgh. We do this by promoting the research, technology and facilities at the University and use our expertise to manage and develop industry partnerships.

We are committed to delivering a service that drives benefit for industry and society in line with the strategic goals and ambitions of the University of Edinburgh.

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The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC005336.
Explore opportunities, build ideas and deliver results with the University of Edinburgh

Low-carbon solutions are crucial to the world’s future energy mix. The University of Edinburgh is home to world-class expertise in low carbon research areas, including renewable energy, hydrogen, biomass and nuclear.

With a range of commercial partners, our researchers are:

- creating novel technologies for low carbon energy
- applying and developing these technologies commercially
- enhancing the growth of existing companies and powering the creation of new spin-outs
- delivering advanced multidisciplinary training in the field of low carbon energy

Examples of our research strengths and our impact on businesses are highlighted in this brochure. Contact us to find out how our work can benefit your business.

Key areas of research

**Wind, wave, tidal and solar**

- Design, evaluation and testing of wave and tidal devices
- Home to Flowave TT, the world’s most sophisticated combined current and wave test tank
- Design and analysis of offshore infrastructure and coastal defence
- Computational Fluid Dynamics
- Solar power: innovation in dye-sensitised solar cells and thin-film photovoltaics.

**Power systems, power electronics**

- Control and power take-off for marine energy systems
- Power systems: distributed networks, network expansion, load modelling, demand-side management, power quality and reliability, power system dynamics and stability.
- Smart grids
- Clean combustion
- Novel generator designs for renewable power generation.

**Renewable resource assessment**

- Wind, marine and hydropower resource modelling
- Impact of climate change on renewable resources
- Life cycle assessment
- Environmental impacts of marine renewable energy devices
- Techno-economic analysis, governance and policy around renewable energy
- Energy policy and economics.

**Hydrogen as an energy source**

- Development of advanced fuel cells and materials for hydrogen storage
- Understanding phases and properties of hydrogen under extreme conditions.

**Biomass as an energy source including biochar**

**Nuclear**

- Electrochemical sensing for selective detection
- Radioactive waste disposal and geo-reservoir management

**Disruptive Technologies**

**COLLABORATIVE WORKING IN MARINE ENERGY**

The University’s Institute for Energy Systems is leading the FP7-funded project Optimal Design Tools for Ocean Arrays, which consists of 18 international partners including Vattenfall, Iberdrola and DEME. The project will provide design tools for the development of ocean energy arrays, enabling open sea demonstration of tidal stream and wave energy technologies.

**IMPROVED HEAT STORAGE TECHNOLOGY**

Prof Colin Pulham is working with a local start-up company, Sunamp, to develop technology for efficient, low-cost heat storage. This approach reduces CO2 emissions and fuel bills. The team has developed phase-change materials based on salt hydrates, and the research has had a major impact on the design of Sunamp’s prototype heat-storage batteries.

**TESTING OFFSHORE WIND INFRASTRUCTURE**

Concrete Marine Solutions, a Scottish SME, used the smaller of the University’s wave tanks to test a prototype of its novel installation platform for offshore wind turbines.