



The University of Birmingham is at the forefront of the technological innovation and original thinking required to solve the challenges facing the UK as it seeks to develop sustainable energy solutions in transport, electricity and heat supply. The Birmingham Energy Institute is focused on creating technology and guiding policy which will shape the energy solutions of tomorrow.

#### Key messages

- The University of Birmingham has nationally recognised centres of excellence across a range of energy research, including in energy storage, nuclear energy, fuel cells and their applications, and energy policy and economics.
- The University of Birmingham Energy Institute is a focal point for the University and its national and international partners in tackling the challenges at the heart of energy systems.

**THE BIRMINGHAM ENERGY INSTITUTE ALSO INCLUDES NATIONALLY LEADING RESEARCH CAPABILITY IN SMART GRIDS AND INTEGRATION, BIOENERGY, WIND ENERGY, ENERGY MATERIALS, OIL AND GAS TECHNOLOGY, AND ENERGY POLICY.**

**THE UNIVERSITY OF BIRMINGHAM IS PLAYING A LEADING ROLE IN HELPING THE CITY OF BIRMINGHAM TO REDUCE ITS CARBON FOOTPRINT BY**



**60% BY 2027.**

- Co-ordinated research, education and global partnerships are at the heart of the vision of the Birmingham Energy Institute and a focus on sustainability and environmental impact runs through all of the energy-related research programmes at the University of Birmingham.

#### The evidence

Across the board, the University of Birmingham has more than 140 academics, engaged in energy and energy-related research and development, and awards from external project funding related to energy in excess of £70 million.

The total income to centres associated with fuel cells, nuclear energy, transport and energy storage is in excess of £25 million.

The University of Birmingham is a founding member of the Midlands Energy Consortium. This is one of the largest collaborative national research activities in the UK, involving the universities of Birmingham, Loughborough, Nottingham and Warwick, together with the British Geological Survey. The consortium has over 200 staff and 900 postgraduate students active in energy-related research.

As a civic university, we also look to have an impact closer to home. Collaborating with the University of Leeds and funded by the Engineering and Physical Sciences Research Council, we have carried out a review of Birmingham and the wider region, to support the city in its vision to reduce its carbon footprint by 60 per cent by 2027. The Birmingham Energy Institute plays a leading role in the city of Birmingham's Green Commission.

The Institute hosts the only UK centre for doctoral training looking at all aspects of how fuel cells and hydrogen can contribute to creating a greener future and how it manufactures and tests fuel cells. The University has a fleet of five hydrogen fuel cell cars, a train and a canal barge.

Smart grid research at the University of Birmingham is focused on a wide range of projects to help deliver the step change in technology required to integrate large- and small-scale generation, electric vehicles and a variety of energy storage technologies. We have developed an advanced real-time power grid simulator which has the powerful capability of nanoscale modelling of system components.



## Key projects

### **BIRMINGHAM POLICY COMMISSION ON HOW TO DELIVER SUSTAINABLE COLD ENERGY AND COOLING SOLUTIONS**



The Commission addressed three questions:

1. What does the current cold economy look like and what challenges are there to address?
2. System-level thinking: What might a strategic 30-year map look like to meet our energy demand sustainably?
3. How can the UK exploit the commercial opportunities of home-grown cold technologies and become a global leader and exporter in the development of new products and services for the cold economy worldwide?

**CHAIRERD BY LORD ROBIN TEVERSON, THE COMMISSION ISSUED ITS REPORT IN AUTUMN 2015.**

### **BIRMINGHAM POLICY COMMISSION ON THE FUTURE OF NUCLEAR ENERGY IN THE UK**

**CHAIRERD BY LORD HUNT OF KINGS HEATH, THE COMMISSION REPORTED IN 2012. THE COMMISSION ADVOCATED A 'ROAD MAP' TO STALL THE 'SENSE OF DRIFT' IN UK ENERGY POLICY.**

It called for public consultation, greater co-operation between government and industry- and government-led training and education to ensure a suitably skilled workforce to meet challenges such as the threat of an energy crisis and climate change.

