

## Energy and resources

### NERC enables growth through efficient regulation

NERC research creates enormous benefits for the energy sector; over its 50-year life it has helped the UK keep the lights on while developing new, cleaner power options. That is the conclusion of a 2015 NERC-commissioned analysis by Deloitte.

Energy generation and resource extraction make an important contribution to the UK, adding almost £35bn of gross value to its economy in 2013. NERC research has been prominent in supporting the development of energy industries; it stimulates private investment,

develops new technology and increases competition by lowering barriers to entry, making it cheaper for firms to explore possible activities in a particular area without having to invest in drilling expensive test wells. It also enables more efficient regulation for safe, secure, cheaper and more sustainable resource use.

#### Investment

From 2011-2015, NERC invested an average of £6.6m a year in research relevant across various energy sectors:

**Nuclear**  
**£1.7m**

Improves understanding of environmental effects of nuclear waste disposal, benefiting public health

**Shale gas**

**£800k**

Supports safe development, enabling efficient regulation

**Carbon capture and storage**

**£1.9m**

Critical to development of CCS, estimated to cut cost of meeting 2050 climate target by £30-£40bn

**Wind**

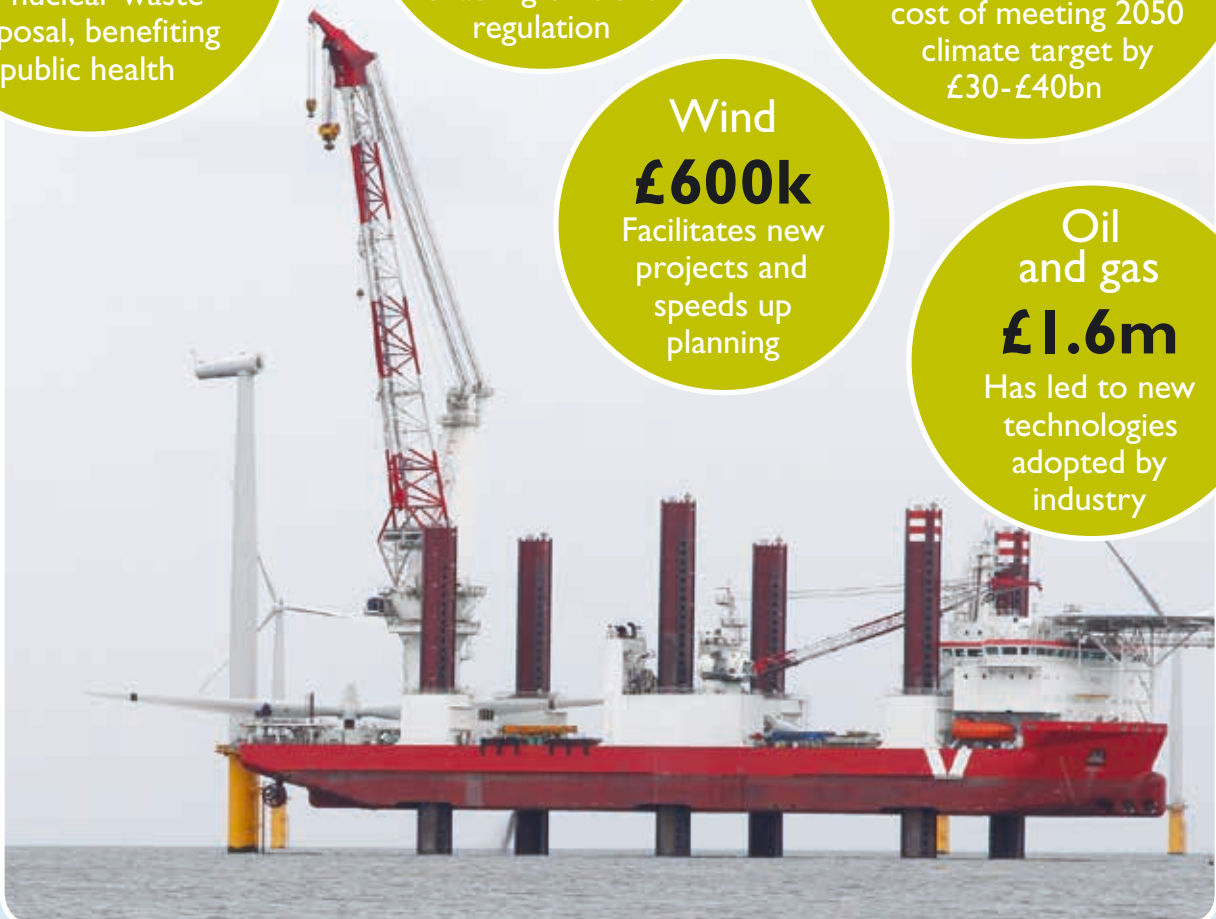
**£600k**

Facilitates new projects and speeds up planning

**Oil and gas**

**£1.6m**

Has led to new technologies adopted by industry





## Impact

Deloitte's analysis shows that NERC investment has produced huge benefits:

### CARBON CAPTURE AND STORAGE

**Enabling new industries** – By monitoring the Sleipner carbon storage site in the North Sea, NERC's British Geological Survey (BGS) was the first organisation to identify CCS as a viable option to reduce greenhouse gas emissions, giving the UK competitive advantage and the opportunity to meet emissions targets at lower cost.

**Increasing investment** – NERC research has identified that a cumulative carbon emissions target, rather than annual targets, is a better way to limit climate change. Shell has identified this as central to its decision to invest **\$1.35bn** in a Canadian CCS facility.

### WIND ENERGY

**Enabling new industries** – 1 gigawatt of wind energy capacity in Eskdalemuir, Scotland will go ahead after NERC science showed it posed no threat to human health or to a nearby MOD installation. This will create gross value added for the UK economy estimated at **£1.2bn** over 25 years in present value terms, or an annual average of **£50m**.

**More efficient regulation** – Scientists at NERC's National Oceanography Centre (NOC) showed offshore windfarms do not contribute to coastal erosion, saving the industry **£3.6m** in monitoring costs.

### NUCLEAR ENERGY

**Enabling new industries** – BGS is working to develop the UK's geological disposal industry. It generates commercial income of around **£1m pa** for international advice on the diffusion of radioactive gases through rocks.

**More efficient regulation** – Research into the effects of radioactivity on wildlife at NERC's Centre for Ecology & Hydrology (CEH) has saved the public sector **£655k pa** through revisions of the UK Post-Chernobyl Monitoring Programme and ceasing annual payments to farmers.

### OIL AND GAS

**Enabling safe development of energy sources** – BGS's assessments of the Bowland Basin in north-west England have identified potential shale gas resources of 23.3-64.6 trillion cubic metres. BGS monitoring of groundwater contamination and micro-seismic earth movements informs regulators and industry to ensure safe development of shale gas extraction.

**Saving industry costs** – The NERC-funded National Geological Repository (NGR) makes more than 23,000 rock cores from around the UK available for inspection, letting energy firms avoid unnecessary drilling costs of around **£12m per well** and enabling around **£390m** of economic growth each year.

**New technology for industry** – BGS was central in developing new geomagnetic methods for surveying well boreholes. These means smaller reserves can be targeted and more oil and gas extracted. This has generated cost savings of up to **£330k per day** for deep-water drilling.