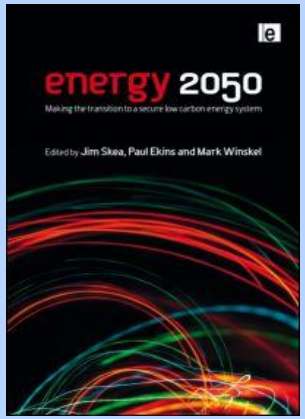
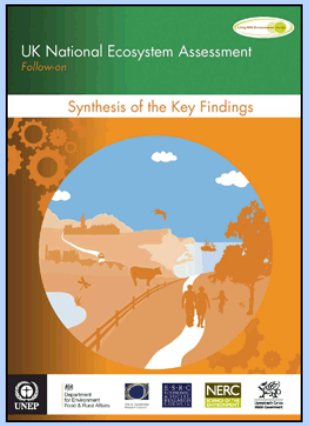
ADVENT (Addressing Valuation of Energy and Nature Together £1.9 M new consortium)

Research Programme: Valuing Natural Capital in Low Carbon Environments

Natural capital includes the elements of nature that produce value to people, directly and indirectly, including living aspects of nature as well as non-living, such as minerals and resources.

The Challenge





Decarbonising the UK Energy System

Incorporating Natural Capital and Ecosystem Services into Decision Making

Global Context

Greenhouse Gas Emission Reductions
Cimate Change Act (2008)

Securing the Value of Nature
Natural Environment White Paper (2011)

The Consortium

- Six partners with extensive research track records spanning the analysis of energy systems and valuation of natural capital (e.g. UKERC, Valuing Nature Network, UK National Ecosystem Assessment, Nexus Network Plus and SPLiCE).

- Expertise in different environments, methodologies, data sets, modelling techniques and integration challenges.

- A substantial history of previous collaborations.
- Established networks of contacts with academics, industry, NGOs, regulators and policy makers, both within the UK and internationally.

Objectives

Overall science aim to ‘develop and exemplify conceptual frameworks and modelling tools to integrate the analysis of prospective UK energy pathways with considerations relating to the value of natural capital’.

Four science objectives concerned with characterising the direct and indirect impacts of different decarbonisation pathways on UK and global environments within the context of the energy, land and water nexus.

Three complementary research capacity and knowledge exchange objectives focusing on PhD training, academic bridge building and evaluation of options across energy and environmental policy.

Capacity Building

Topic	Host Institution	Supervisors and Funding
Impact of the electrification of transport on natural capital	Aberdeen	Hastings & Anable (50% project, 50% Aberdeen University)
Visual impact of energy production chains	Leeds	Ziv, Dallimer & Carver (50% project, 50% University of Leeds)
Impact of a bioenergy carbon capture storage (BECCS) power generation on natural capital	Southampton	Taylor (Southampton), Hastings & Vega-Maza, (Aberdeen) (50% project, 50% Southampton University)
Global biodiversity implications of a UK transition to a low carbon economy	Southampton	Eigenbrod, Holland & Taylor (Southampton), Pearson (UCL CBER) (50% project, 50% Southampton University)
Producing a spatially disaggregated model of selected energy system pathways	UCL ISR	Agnolucci (UCL ISR) Papageorgiou (UCL Chemical Engineering) and Day (UEA) (100% project)
Integrated assessments and frameworks for evaluating natural capital implications of energy pathways	UCL ISR	Agnolucci, McDowall (UCL ISR), Beaumont (PML) (100% UCL)
Valuing natural capital: Economics and ecology of conservation	UEA	Bateman & Day (UEA), Pearson (UCL CBER) (100% project)
Siting energy infrastructure to optimise natural capital	UEA	Day & Lovett (UEA), Agnolucci (UCL ISR) (100% UEA)