

Goal 1: - To characterise the impact pathways of specific energy chains and energy infrastructure development in the UK's marine, aquatic, coastal margin and terrestrial environments under a range of energy scenarios.

The question

- Different people read different things into the question. There are four separate components (impact pathways, energy chains/infrastructure, environment(s) and scenarios).
- The components are all plurals (pathways, chains, scenarios, etc.) indicating the need for a whole system rather than reductionist approach where individual components may be studied in isolation.
- Low carbon ≠ sustainable (and low carbon does not necessarily mean low carbon – it is often used as a general label).

Space

Space is central to addressing goal one in several ways. It is important in terms of location, quality, extent and in effectiveness of competing demands. The goal is about land and water (salt and fresh), so it should not focus on terrestrial or marine habitats, but recognise that they are linked and interact dynamically. Geodiversity and atmosphere are both intrinsic but often overlooked components that must be taken into account, recognising all four dimensions.

Time and type

The triumvirate of space, time and typology are key to defining information that is relevant to assist in aiding good decision making. When internalising the externalities (i.e. expressing the total costs of goods and/or activities) must be considered in the context of space and time, recognising the importance of the geographic support (base unit characteristics). Similarly, the interactions between different components should be set in context and include the full gamut of components. Most energy models are additive, despite the relations being complex (synergistic and antagonistic).

Scenarios

- Within the funding of this project there is insufficient time to generate new scenarios.
- Scenarios should be selected from energy systems models (e.g. UKERC Energy 2050) or ecosystems services approaches (e.g. National Ecosystems Assessment follow on).

Linkages

The project can be divided into several separate, but linked sections:

- Understanding of existing technologies
- Availability and appropriateness of environmental monitoring data
- Comprehensive interpretation of natural capital and ecosystem services for each location
- Integration of first three sections
- Data analysis
- Flexibility to extend for new technologies

Ignorance!

- Explanation of differences between valuations of individuals and groups
- Recognition of vital resources
- Understanding of other reasons for different opinions, their robustness and dynamics

- Identification of research issues (different psychologies)

Metrics

A number of questions were raised around metrics; their need was recognised ('you can't manage what you can't measure') but the projects role was questioned.

- Identification and use of existing metrics versus the formulation of new measures
- Monetary versus non-monetary
- Combination and expression of non-monetary measures
- Include cultural and social issues.

Deliverables

The goal is to provide a methodology, tool box or support system that can use knowledge of natural capital and ecosystem services to help advise decisions about our energy system. The approach should be clearly expressed, transparent and simple to use, without being simplistic. It must be comprehensive covering all components, not just those that are easy to quantify; this is best achieved through a whole systems approach. Above all else the system must be balanced to effectively represent the different valuations made by different people.