Programme Area: Smart Systems and Heat

Project: Consumer Response and Behaviour

Title: An addendum to the request for proposals

Abstract:

An addendum to the request for proposals for the Consumer Response and Behaviour project.

Context:

The delivery of consumer energy requirements is a key focus of the Smart Systems and Heat Programme. The Consumer Response and Behavior Project will identify consumer requirements and predict consumer response to Smart Energy System proposals, providing a consumer focus for the other Work Areas. This project involved thousands of respondents providing insight into consumer requirements for heat and energy services, both now and in the future. Particular focus was given to identifying the behaviour that leads people to consume energy - in particular heat and hot water. This £3m project was led by PRP Architects, experts in the built environment. It involved a consortium of academia and industry - UCL Energy Institute, Frontier Economics, The Technology Partnership, The Peabody Trust, National Centre for Social Research and Hitachi Europe.

Addendum to Request for Proposals: Consumer Response and Behaviour

On 29th March 2012, the ETI issued a Request for Proposals (RfP) for a Consumer Behaviour study. This Addendum has been issued to parties that have expressed interest in submitting a proposal. The Consumer Response and Behaviour study is the first Project in the proposed ETI Smart Systems and Heat (SSH) Programme. This Addendum will:

- Introduce the ETI Smart Systems and Heat Programme;
- Position the Consumer Behaviour Project within the Smart Systems and Heat Programme; and
- Describe the expected interactions between the Consumer Behaviour Project and the other projects of the Smart Systems and Heat Programme.

Introduction to the ETI Smart Systems and Heat Programme

The ETI is commissioning a major Smart Systems and Heat Programme in 2012, focussing specifically on the design, development and demonstration of an energy system aligned with the needs of UK consumers in the domestic and small commercial-scale sectors in 2050. This will focus on the retro-fitting of existing buildings, and will involve a significant low-carbon heat delivery activity. The work will inform technologists and policy makers on the social requirements, technology, commercial frameworks and policy design of a smart energy system.

The four key themes of ETI SSH Programme are:

1. Understanding real mass-market consumer behaviour, requirements and profiles in order to design and communicate effective service products;
2. The provision of energy services and integrated products (i.e. the physical elements) to consumers in domestic and commercial buildings (primarily domestic & retrofit);
3. Key focus on space and water heating (comfort, cleanliness), but including other energy service needs in or connected to buildings (e.g. vehicle charging); and
4. Understanding the evolution of the whole energy system out to 2050, including buildings retrofits and energy distribution system choices.

Given the broad remit of the programme, it will be divided into a number of projects covering key technology and consumer-end issues; the alignment and integration of these projects will be critical to overall project success, and will be managed by a dedicated integration project with oversight provided by the ETI.

Through the adoption of a phased approach, the Programme is designed to achieve the following:

The first phase (system design) will develop the toolkit, approach and capacity to deliver the prototype Smart Energy System to mass market consumers. This capacity will be demonstrated through the design of a Smart Energy System for a proposed demonstration location.

The second phase (system demonstration) will seek to validate the toolkit and approach with a substantial real system level demonstration of the designed Smart Energy System in a

chosen location that is representative of the UK's housing and social characteristics. The toolkit and approach developed in Phase One will be refined based on insights from the demonstration.
The anticipated programme structure is shown in Figure 1.

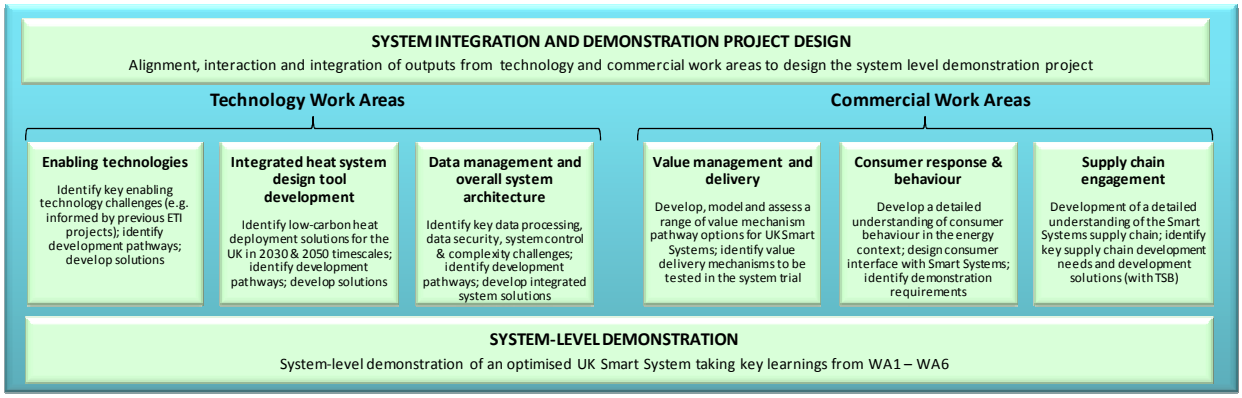

Figure 1 ETI Smart Systems and Heat Programme Projects

The major outcomes from the overall Smart Systems and Heat Programme are:

1. Identification of the opportunity areas and potential solutions for UK Smart Energy Systems;
2. Identification and development of specific enabling technologies for UK Smart Energy Systems;
3. Quantification and validation of Smart Energy Systems value delivery mechanisms;
4. Detailed insights into the impact of Smart Energy Systems on consumer response and behaviour;
5. Development and validation of whole system consumer-end product solutions, and deployment pathway options;
6. Demonstration of the feasibility of UK Smart Energy Systems pathways to 2030, and identification of pathways to 2050;
7. Identification of Smart Energy System supply chain challenges in the context of the UK; and
8. Dissemination of learnings to inform future development opportunities.

Consumer Response and Behaviour Project

The Consumer Response and Behaviour Project is the first of the SSH Programme to be defined, and provides the consumer context for both the programme's energy system design and subsequent physical demonstration phases.

The Aim and Objectives of the Consumer Response and Behaviour Project are presented in the RfP. With knowledge of the wider ETI SSH Programme, the Aim of the Consumer Project can be expanded:

Aim

To exploit current understanding and develop new knowledge of human behaviour in energy-use technology and system contexts in order to directly increase the likelihood that Smart Energy System designs are a success. To use this understanding and knowledge of

human behaviour to inform the other Projects of the ETI Smart Systems and Heat Programme and therefore increase the likelihood that the Smart Energy System design and demonstration phases are a success.

A successful design must meet the requirements set by climate change targets, energy security needs and cost constraints, whilst meeting consumer requirements and minimising the impact on consumers' lifestyle expectations.

Interactions with Other Projects of the Smart Systems and Heat Programme

To achieve this Aim, the activities of the Consumer Response and Behaviour Project should align with the activities of the other Projects within the Programme. It is envisaged that the Consumer Project will need to interact with other Projects in the following respects:

- The Project requires the evaluation of different constraints and opportunities that the future external environment will place on consumers in several spheres (political, economic, social, technological, legal and environmental). In addition to analysis based on existing futures work, engagement with other SSH Projects, and in particular the Enabling Technologies, Integrated System Design Tool, Data Management and System Architecture, and Value Management and Delivery Projects, will inform the analysis.
- The Project requires the development of energy system solution scenarios that will focus the Project on the delivery of particular consumer requirements. These scenarios should reflect and be informed by technical scenarios developed in the other SSH Projects.
- Consumer insights gained in the Project should inform the development of the SSH Programme, providing a consumer focus to the activities of the Programme. The Consortium delivering the Consumer Project must communicate regular updates and insights to the System Integration and Demonstration Project Design and the other SSH Projects, in particular the Enabling Technologies Project.
- Prior to the phase two System Demonstration, the Consumer Project should provide criteria for the determination of a suitable demonstration location, such that the demonstration incorporates an appropriate cross-section of consumer profiles.