

The Role of the Demand-Side in Delivering Effective Smart Grids

The owners and operators of electricity systems are facing significant challenges due to the unprecedented changes in the way that electricity is generated and the demands for electricity. These changes are driven by a variety of factors, but especially important is the focus on reducing carbon emissions and the move towards a low carbon economy. The effects combine to make the challenge of balancing the supply of demand for electricity increasingly challenging and complex.

As a consequence of these challenges, a coordinated approach is required whereby the actions of all energy producers and consumers (and those that do both) are integrated to ensure the use of renewables can be optimised. Such an approach is the essence of the Smart Grid Concept.

Whilst there is considerable focus on the technological aspects of delivering Smart Grids, little is understood of the extent to which consumers are willing and able to embrace new technologies and initiatives that lead to changes in the way that they consume electricity.

Subtask 1 - Impact of energy markets on the role of customers

There are many stakeholders in the energy market with different interactions with consumers and different responsibilities. This Subtask examined the interactions of different stakeholders, with the consumer as the central focus.

Subtask 2 - Interaction between technology and customers

The way that customers use and relate to technologies such as Smart Meters, electric vehicles, heat pumps and energy storage has a significant impact on their ability to contribute to an effective Smart Grid. This Subtask reviewed a number of Smart Grid related case studies in order to understand consumer attitudes towards Smart Grid related interventions.

Subtask 3 - Identification of risks and rewards associated with Smart Grids

This Subtask focussed on the risks and rewards associated with Smart Grids from a consumer perspective, and examined a range of factors that influence the decision making of individuals.

Subtask 4 - Defining offers and programmes to help ensure Smart Grids meet the needs of customers

This Subtask collated the results from Subtasks 1 to Subtask 3 to produce guidance on how Smart Grid initiatives should be designed in order to make them more attractive to consumers.

Subtask 5 - Helping customers to actively engage with Smart Grids – Synthesis and dissemination of findings

This Subtask ensures that the learning points are disseminated amongst the key stakeholders within the participating countries.

Results

The results of the Task have been collated to provide general guidance on how Smart Grid initiatives should be designed in order to make them more attractive to consumers.

The following reports can be downloaded from the IEA DSM website.

The Impact of Electricity Markets on Consumers

Interaction between Customers and Smart Grid Related Initiatives

How Risks and Rewards from the Perspective of Customers Affects the Decision to Engage in Smart Grids



The consumer is central to successful implementation of Smart Grids. Gaining a better understanding of customer risks, rewards and interactions with technology is key.

Smart Grid Guidance Document

This report combines the results of Subtask 1 - Subtask 3 to produce a step-by-step approach to implementing Smart Grid Initiatives that require action from households and small commercial/industrial businesses. An Executive Summary provides an overview of the project and the Guidance Document.

Task Duration

June 2012 – June 2014

Participating Countries

Netherlands Sweden
Norway United Kingdom
South Korea

Task Publications

All official publications can be found on the DSM website, www.ieadsm.org

Operating Agent

Mrs. Linda Hull
Operating Agent, United Kingdom
linda.hull@eatechnology.com