

IEA DSM TASK 23

Role of the Demand Side in Delivering Effective Smart Grids



What is the Relationship Between Consumers and Smart Grids?

The current pace of change within the electricity supply industry is unprecedented. The wide ranging measures being implemented to reduce the emissions of greenhouse gas emissions, particularly the wide-scale deployment of time variable renewable generation, presents a number of challenges in relation to the balance of supply and demand. No longer is it considered viable for electricity to be provided 'on demand' in response to the requirements of end-users. Rather, a co-ordinated approach is required whereby energy production and demand are integrated to ensure the use of renewables can be optimised while also minimising the use of fossil fired generation and network infrastructure investment. Such an approach is the essence of the Smart Grid concept.

Today, there is considerable focus on the technological aspects of delivering Smart Grids, however, little is understood of the extent to which consumers are willing to embrace new technologies and initiatives that enable their use of energy to be actively managed. There is a real risk that if customers do not adopt new approaches to the way that they consume electricity, Smart Grids may not be able to achieve their full potential.

Therefore this Task, led by EA Technology, is investigating the role of consumers in delivering effective Smart Grids.

Main Activities - Objective and Scope

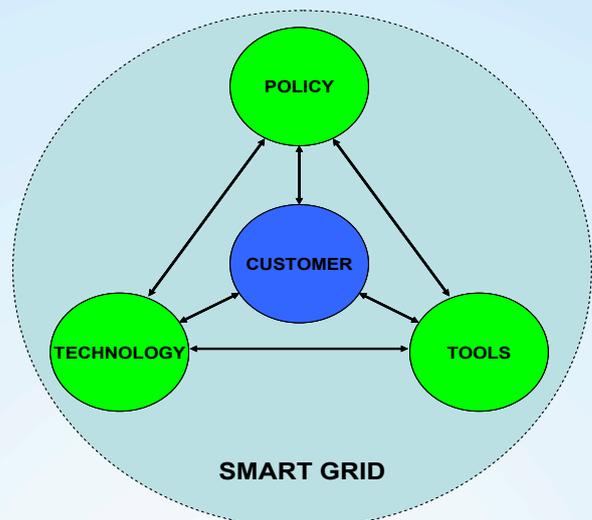
The main objective of this Task is to identify, and where possible, quantify the risks and rewards associated with Smart Grids and Smart Meters from the perspective of the consumer, both now and in the future.

The project seeks to develop best practice guidelines in order to ensure the demand side contributes to the delivery of effective Smart Grids.

Task Work

This Task is exploring the potential risks and rewards associated with Smart Grids from the perspective of customers. Participants are collecting international experiences and identifying best practices to ensure that the demand side becomes an integral component of a successful Smart Grid.

The focus is on the interaction of policies, technologies and tools with customers and the impact of these interactions on the effectiveness of Smart Grids, as illustrated below.



To achieve the objectives, the Task is divided into 5 areas:

Subtask I - Impact of Energy Markets on the Role of Customers

This subtask is mapping the interactions of different stakeholders in a 'market map' for each participating country, with the consumer as the central focus. This could include power and information flows and responsibility (e.g., for billing and metering).

Subtask II - Interaction Between Technology and Customers

This subtask is drawing upon the available

information on Smart Grid enabling technologies in order to consider the appropriateness of these technologies, both from the customer perspective and the Smart Grid industry perspective.

Subtask III - Identification of Risks and Rewards Associated with Smart Grids

This subtask is identifying the possible risks and rewards related to the Smart Grid concept from the consumer perspective. Each of these risks and rewards are influenced by a number of stakeholders for which the Smart Grid can meet specific needs and requirements.

Subtask IV - Designing Offers and Programmes (Tools) to Help Ensure Smart Grids Meet the Needs of Customers

This subtask is drawing upon the work already undertaken in this area, and focusing on the costs and benefits associated with different approaches that have been adopted. For example, the benefits of mandating vs. the ability to opt-in to a program and the trade off between the level of functionality included within smart meters as standards against the risks and rewards for customers.

Subtask V - Ensuring Customers Actively Engage with Smart Grids - Synthesis and Dissemination of Findings

This subtask is working to understand how the findings of Subtasks 1 to 4 come together, and will disseminate the results via a series of regional workshops organised and delivered by the Task participants.

Task Duration

June 2012 to May 2014.

Participating Countries

Netherlands, Norway, South Korea, Sweden, United Kingdom

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Outputs from the Project Will Enable Participants To...

- Understand the factors that influence customer reactions and attitudes towards Smart Grids.
- Gain an independent view of the risks & rewards of Smart Grids from the customers' perspective.
- Understand how the needs of customers can be aligned with the needs of other industry stakeholders.
- Understand the importance of the demand side in ensuring the effective delivery of Smart Grids.
- Identify measures and tools to use to ensure customers are willing and able to contribute to the successful deployment of Smart Grids.
- Design customer propositions that allow and enhance the use of the "smartness" of a grid.