



D6.6 Concepts, stakeholders and value chains in smart energy business and services

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Executive summary

The paper explains the concepts of smart energy and smart grids (electricity and thermal) and gives an overview of possible benefits of smart energy concepts and solutions. The stakeholders in smart energy and smart grid business are described and goals and tasks of them are described. The regulatory environment, the changes and possible changes of the regulations in the future are discussed. The model for analyzing the business and service models is described and value chain, value network and value creation principles are presented. These analyses include the description of the possible business and services, value capturing principles, investment and pricing principles and analysis of possible benefits and risks associated to new business and services. The study was performed combining literature research and interviews of 11 experts in energy sector in Finland, the Netherlands and Belgium. The main advantage of the smart energy concept is seen to be its ability to optimize energy usage in a more holistic way than smart grids and its higher energy efficiency in local areas. The benefits of smart solutions include improved reliability and security of the energy system, maximized energy efficiency and minimized environmental impact for example due to increased renewable energy sources and reduced need for fossil fuels.

Regulation of electricity markets in EU has changed a lot due to liberalization and aim towards single internal energy market. Liberalization has meant decoupling of suppliers from monopoly activities in such way that consumers can choose which supplier to use, suppliers can produce electricity in all EU countries and open access is enabled for all participants. Regulation can have a major impact on the business possibilities for smart solutions. Current regulatory frameworks are diverse but it is argued that none of them clearly incentivize for investments in smartening the grids or more generally in smart energy solutions.

There are multitudinous stakeholders and actors identified in smart energy business and thus it's more logical to discuss the value creation models than a business model of a single company

in the network. Smart energy solutions enable new business opportunities like services, but it is still an open question, which stakeholders will develop them. New participants such as facilitators and financial organizations might also emerge to help in the development of smart energy districts, solutions and services.

This paper is part of EU FP7 project *Energy-Hub for residential and commercial districts a transport (E-Hub) WP6 Business strategies and non-technical issues* Task 6.1.1 State-of-the art of markets and business models. The main purpose of the paper is to improve the common understanding of topic services, business models and value chains.

The stakeholders, business and service models and value chains will be analysed further in WP6 Task 6.1.2 Business and service models for e-Hub systems.