

Workshop World Business Dialogue, Cologne

Change Towards a Sustainable Energy Sector

We want to welcome you to our workshop, in which we will discuss some thoughts on sustainability in the energy sector.

First I will describe, why the energy sector has to change. Then I will briefly talk about major fields of activity for utilities. One important field is sustainability through innovation. Another is the changing role of the customer as an active co-creator of solutions. And finally I would like to talk about a roadmap for smart cities on their way to sustainability, which may help to achieve regional advantages.

Necessary change of the energy sector

The energy sector has a special responsibility for climate protection. The question is what will be the role of the sector after the Copenhagen conference, which ended disappointing. Currently the sector is in an acceleration phase with a change of business models. The special responsibility of this sector is resulting from its high share of CO₂ emissions. The German government sees sustainability as a key to create a new global economic order and has announced an energy economic master plan for October – of course the companies are very interested to see elements of this plan. Some companies have declared, to wait with the communication of their new strategies, until a first draft of this plan exists. As a general hypothesis we can say, that those companies will reach competitive advantages, which are best in mastering this accelerated change. An important element of the change process will be the emergence of new business models.

As we look at the status quo of the utility industry today we see central production, traditional grids and passive consumers, who in Germany use traditional Ferraris metering devices.

A new business model can be described as evolution towards a smart utility company. This business model is characterized by a broad mix of energy production including renewables. Smart utilities will invest in smart grids, and customers use smart metering technology, which enables them, to become co-creators of efficient solutions.

A third business model is even more radical. It starts with the decentralized production of renewable energies. These facilities are realized locally, and the customers become energy producers for others and for themselves.

The development towards these new business models depends very much on external factors like the political and legal environment on one side as well as the change of customer behavior on the other side. Between the two business models many dependencies exist, for example: the more renewable energies receive public funding, the greater is the need for utilities to invest in smart grids, to keep the system stable.

As a result we see a broad range of challenges for the utility sector. The most important ones are:

- climate change and limited fossil resources
- the global economic crisis
- new technologies
- an instable political environment
- complex regulation and a trend towards remunicipalization and last but not least

- more active customers.

These challenges lead to a changing competitive environment with existing and new players from the utility industry, like the German company Lichtblick, as well as established and new companies from other industries like Cisco or Shai Agassi's e-mobility start-up Better World.

Nobody exactly knows, which of these competitors will be successful. But what is happening is the erosion of traditional industry boundaries. As a consequence of this complex dynamic change process we have high requirements for leadership.

Fields of activity for utilities

To achieve sustainability utilities have to master several fields of activity. They include

- competitive advantages with open innovation
- the renewal of business models and successful strategy execution
- mergers & acquisitions and alliances as value drivers
- retaining and winning new customers with a more interactive marketing
- balancing organizational design between customer orientation and cost efficiency and
- a strength based leadership combined with change management competencies.

Like other industries the utility sector is facing the need for open innovation. This means, that innovating companies will have to cooperate with others in open networks, to commercialize new technologies.

In a multi client study we currently analyze, how companies can improve their open innovation skills, for example how to develop technology roadmaps jointly, how to realize pilot projects successful and – most important – how to achieve scale advantages.

In this context marketing has to find the right balance between lowering prices and exploiting new opportunities.

As I mentioned the customer will play a more active role. Therefore companies must become solution co-creators together with their customers, and they must learn to interact with citizens in social networks.

For traditional companies this is not an easy task. Parallel to the cooperation in value networks, utilities are facing a greater variety of customer needs from high price sensitivity to individual problem solving. They have to harmonize different marketing channels and use interaction technologies like web 2.0 tools.

Maybe the greatest challenge for utilities is to meet the needs of new active customers.

Sustainability through innovation

Sustainability has a long history and an even greater importance for the future. Historical roots go back to forestry of the Middle Ages, like the Kursächsische Forstordnung of 1560. Some of us remember Dennis Meadow's report to the Club of Rome, in which he uses the word sustainability to describe the limits of growth. Today we have a three pillar model of environmental, economic and social sustainability, and companies are striving to achieve a high ranking in the Dow Jones Sustainability Index. So we can say that managing sustainability, which tries to

combine a stable long term business development with a positive impact for environment and society, has become more important than ever.

Since several years we see many companies of the sustainability cluster, that are on the way from problem creators to problem solvers, and on this way innovation plays a critical role.

If we look at the sectors of this cluster with different type of companies: the environment, the energy and resources, the infrastructure, IT- and telecommunication industry, as well as the mobility sector, we see, that smart grid, smart metering, smart home, and e-mobility are innovations between traditional industries.

Companies have to cross their traditional boundaries and / or work together with partners in other industries to become successful.

The German Government has initiated six e-energy projects with model regions like Cuxhaven, to achieve competitive advantages in the I & C based energy system of the future.

The core of the eTelligence project led by utility EWE, is a regional market place for power linked by innovative technologies, which coordinate virtual power plants. EWE was honoured by the price for sustainable innovation sponsored by WirtschaftsWoche.

In networks like this companies have the choice between different open innovation options from more traditional ones like alliances with R&D institutes to newer activities like crowdsourcing. The challenge within such a portfolio of options is, to better understand the reasons for success or failure and to develop the right strategy for increasing the intensity of one option or another.

In our open innovation projects we analyse specific success factors and barriers. Our goal is to understand best practice examples of successful companies and their open innovation processes.

Customers as active co-creators

For the utility industry smart metering is the starting point for more interactive marketing and innovation systems. The customer and his utility co-create efficiency solutions, which help the customer to save money and to reduce his CO₂ emissions. The benefits for the utility are improved customer retention and a differentiation with new services.

Both, the utility and the customer are a member of networks or communities, with whom they interact.

The challenge for utilities is, to develop the right technology and strategy to use smart metering as an interaction platform with customers to influence their behaviour in the right direction.

This kind of competitive differentiation will be achieved with a variety of services from improved transparency to individual tariffs and smart home systems.

In this dynamic environment, new competitors like Google are entering the smart meter market. The Google power meter is a free software tool that allows users to view their home energy consumption from their personalized iGoogle homepage using information from utility smart meters and in-home energy management devices. The Google i-partner network includes utilities like Yello Strom and meter manufactures. Google sees the idea to give users access to their own energy information as a part of their mission. In Germany Yello offers this smart metering system in cooperation with Google since 2008.

It is interesting to see, that in 2010 Google Energy has been granted by the US Federal Energy Regulatory Commission (FERC) to buy and sell energy. This might not be the last step of Google, within the energy market, because what Google understands better than most other players is to exploit the value of customer data.

Roadmap for smart cities to reduce CO₂

Smart city concepts require a close cooperation of a region with companies and its citizens. A smart city pioneer is Amsterdam, which plans to invest 1.1 billion € until 2012 including smart grid technology (300 million €) and energy efficiency of buildings (200 million €). A virtual power plant will produce 200 MW renewable energy. Until 2010 300 loading stations for e-cars will be installed. Other innovations include a remote energy management system. The target is to reduce CO₂ emissions by 40% until 2025. The program is coordinated by a public private partnership called Amsterdam Innovation Motor (AIM).

Beyond this example we think that every city should develop and implement its specific roadmap to CO₂ reduction. Necessary steps are:

- the analysis of CO₂ reduction potential and target setting
- the development of a framework to achieve these targets
- a better coordination and cooperation between relevant partners
- the planning and realization of pilot projects and model areas and finally
- the roll out, an exchange of experience, and a well orchestrated marketing.

Scenarios for other cities like Munich can support the planning process and help to create social networks of people who discuss innovation topics like smart homes.

Important is the fast creation of decentralized initiatives. Alliances like the one between Fraunhofer inHaus-Zentrum and RWE Efficiency offer the necessary know how. Municipalities then have to develop a master plan for urban model areas. A network of companies has to take responsibility for a coordinated realization. In this process lead user play an active role as innovating investors.

The marketing of different actors should combine traditional channels and web 2.0 tools. This approach helps to achieve regional advantages by attracting visitors, other investors, and citizens.

Summary

The energy sector with its specific responsibilities for the climate is in a fundamental change process. We have discussed

- major challenges and fields of activity for utility companies
- the change towards a sustainable energy sector that requires successful open innovation strategies with customers and partners
- the new role of customers as active co-creators, which offers chances but also risks.

Each city and each company has to find their specific roadmap to achieve competitive advantages. The challenges in different areas favor an adaptive approach with mutual learning processes.