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Öko als Luxus-Trend: Rosige Zeiten für die Vermarktung „grüner“ Produkte? + Understanding the Green Energy Consumer + Nachhaltige Unternehmen unter Innovationsdruck + Ecomagination – Ein Unternehmen positioniert sich nachhaltig + Club of Pioneers – nachhaltiger Dialog per Community Marketing + Klimaschutz beim Wohnen – schlummernde Potenziale wecken + Corporate Blogs – Kundendialog im Netz mit hohem Anspruch + Nachhaltiges Marketing im Schweizer Detailhandel: Das Beispiel Migros + Motivallianzen als Treiber des nachhaltigen Konsums

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Grüne Kunden

Understanding the Green Energy Consumer

A threefold increase in crude oil prices over the last five years, growing concern about climate change, and public policies promoting renewable energy have begun to cause a fundamental transformation of the housing industry. In this phase of discontinuous change, it is essential for both incumbent heating marketers as well as new entrants to understand shifting customer preferences. This article provides critical insights for successful creation of customer value with new residential energy technologies.

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Based on focus group research, expert workshops and an explorative lifestyle segmentation study among Swiss homeowners, this article provides both conceptual and empirical results for a better understanding of environmental consumer behavior in the heating market.

Increasing evidence of climate change, high levels of energy import dependence, rising oil and gas prices, and concerns about the depletion of resources have created a renewed sense of urgency with regard to energy issues. Eighty percent of today's energy supply is based on fossil fuels; therefore, energy effi-

ciency and renewable energy are high on the agenda of policy makers and executives in energy-related industries. An important area of market opportunities is the provision of heat and electricity to residential customers. Technology trends have created new opportunities for distributed energy systems (or micropower), where electricity and/or heat are provided on the individual building level, using technologies such as photovoltaics, heat pumps, solar thermal collectors, wood pellet stoves, and micro-combined heat and power generation (micro-CHP). While the technological potential and policy challenges of mi-

cropower have been widely acknowledged, the wide-spread adoption of distributed energy systems ultimately depends on customer decisions to buy them.

Compared to other aspects of micropower, research on customer preferences and acceptance is a relatively underdeveloped field of research (notable exceptions include Haas et al. 1999, Pehnt et al. 2006, Wüstenhagen et al. 2007, Ott et al. 2007). This paper reports on empirical research on customer preferences for micropower systems in Switzerland. It aims at answering the following research questions:

- What are the attitudes of Swiss residential customers towards various micropower systems and what are the implications for market segmentation?
- Who plays an important role in the decision process for or against micropower systems, and what are the most relevant sources of information for preparing buying decisions?
- What are important barriers for adoption of micropower by homeowners, and how can they be overcome?

Sustainable consumption and diffusion of energy innovation

In his reviews of research on drivers and barriers for sustainable consumption, Jackson (2005) highlights important lessons on modern consumption: the huge variety of different social and psychological roles that consumer goods can play in modern society. Because of various economic and institutional factors, or simply habits, consumers are far from being able to exercise free choice about what to consume and what not to consume. Consumers often act through instinct, emotion or habit rather than reason, hence deviating from the homo oeconomicus model of calculating individual costs and benefits to choose between options and to maximize utility. It is also important to note that pro-environmental behaviors are rarely motivated by purely altruistic concerns, and that awareness in itself is not enough to foster pro-environmental behavior.

McKenzie-Mohr (2000) supports the view that policies providing information and price signals based on assumptions of rational consumer choice have had limited success in changing unsustainable behaviors. A possible alternative is community-based social marketing, consisting of four steps: (1) uncovering barriers to behaviors, (2) selecting which behavior to promote, (3) designing a program to overcome the barriers to the selected behavior, piloting the program, and (4) evaluating it once it is broadly implemented (McKenzie-Mohr and Smith 1999). To identify barriers, social marketers often identify differences between individuals who engage in the activity and those who do not. To uncover these differences, several research methods

can be utilized including focus groups, observational studies, and survey research (McKenzie-Mohr 2000).

Longterm energy investment decisions, such as buying a new heating system, occur very few times in a person's life and imply important investments. This may be one of the factors explaining why diffusion of ecoinnovation has been relatively slow in this sector (Figure 1).

Faiers and Neame (2006) used a diffusion theoretical approach to identify attitudes towards domestic solar energy systems. They surveyed a group of 100 early adopters and a group of 1000 previous adopters of other types of energy efficiency measures who were classified as early majority with regard to solar energy. They found that although members of the early majority demonstrate a positive perception of the environmental characteristics of solar energy, its financial, economic and aesthetic characteristics are limiting adoption. For widespread customer adoption, it is important that consumers identify the relative advantage of solar energy over their current sources of energy.

Research methods

To identify barriers and fostering factors for micropower adoption, we applied a mix of empirical research methods. Overall, nine focus groups with a total of 61 participants and

15 individual interviews were conducted in Switzerland between November 2005 and December 2006: Seven focus groups with private customers (mostly owners of residential buildings), one of which included only female participants to explore gender differences, and two focus groups with professionals, such as architects, installers and employees of a heating company. At the beginning of the focus group session, participants were asked to fill in a short questionnaire on residential energy systems and at the end a questionnaire that allowed to determine their lifestyle segment. These survey elements were also extended to a sample of 34 owners of solar thermal collectors and 20 students.

Focus groups have been widely used in marketing for various consumer goods (Fern 2002), but their application is still relatively rare in the field of energy marketing (Wortmann et al. 1996, Truffer et al. 2001, Tutt and Davis 1998, Markard and Holt 2003). Focus groups provide information about emerging customer preferences, and on the interactions between consumers as they form their attitudes and opinions towards new innovative technologies. At the same time, their results need to be interpreted with caution to account for the attitude behavior gap (LaPiere 1934). Also, social desirability is a concern, particularly in the context of environmental issues. The complementary questionnaire provided us with an element of triangulation.

Figure 1: The diffusion of eco-innovation from niche to mass market

Source: Wüstenhagen 2000, adapted from Rogers 1995

Empirical results: understanding the micropower customer

The focus group discussions showed that knowledge and awareness on micropower and renewable energy was very limited among Swiss homeowners at the time of our survey two years ago. Presuming that there has probably been some selfselection bias in the recruitment of focus group participants, we must assume that average knowledge might be even lower. Oil and gas boilers, and to some extent heat pumps were the most widely known heating technologies. Some participants mention solar technologies, but cannot distinguish between solar thermal energy (for heating) and photovoltaics (for electricity generation). Very few mention micro-CHP, and almost none of the respondents can explain how it works. Therefore we concur with Keane's (2006) finding from focus groups in the US that there is a major lack of knowledge when it comes to understanding clean energy, and that this may constitute a serious barrier to market penetration.

Another barrier, particularly for micro-CHP, is that people tend to think about heat, but not electricity when asked about the energy supply of their home. An additional issue for micro-CHP and photovoltaics are administrative challenges around the sale of electricity to the grid. Finally, for many focus group participants, Switzerland's electricity

supply appeared to be convenient as it is today, while the heat sector with its reliance on expensive fossil fuels captured more customer attention.

Regarding attitudes towards specific technologies, several statements from focus group participants suggested that oil may be about to lose its status as a socially accepted energy source for heating in Switzerland. Homeowners with oil-fired heating systems almost apologized for it. In terms of public perception, natural gas has a surprisingly more positive image than oil. This may be a result of effective marketing efforts by the gas industry.

Many participants said they could imagine using district heating. In terms of who would be an appropriate supplier for heat, most homeowners expressed more trust in a public organization (such as the municipal utility) than in private companies. Sharing the heating system with neighbors was also seen as an option by some, but perceived as risky and potentially problematic by others, especially when the initial partner moves out and contracts need to be renewed with new neighbors.

Decision-making process – information and buying habits

In this section, we present findings with regard to six steps of the decision-making process for micropower (Figure 2):

The first step is problem recognition. As stated by professional focus group participants, the purchasing process fundamentally differs between new and existing buildings. In the planning phase of new buildings, almost all kinds of micropower systems can be considered while refurbishing of existing buildings implies more constraints. For instance, building floor heating into an existing house entails heavy reconstruction. The availability of gas supply is also an important aspect. Many Swiss cities have dense gas distribution networks and architects mentioned that they would be less likely to consider other systems and fuels when gas is available.

The second step towards the purchase is information search. The analysis of questionnaires that were filled out before the start of focus groups shows that the most frequently considered sources of information for preparing buying decisions are trade fairs, companies and installers, friends, colleagues, neighbors, municipal utilities and public energy information centers (cf. Figure 3). Internet sources are commonly used by younger respondents. Asking for the perceived reliability of information sources, municipal utilities and public energy information centers appear to be by far the most trusted sources. In fact, many focus group participants seemed to welcome an independent energy information center (such as a regional energy agency) to provide neutral information and reduce complexity.

As a third step in the purchasing process, customers evaluate a smaller set of alternatives. Based on statements of homeowners as well as energy professionals in our focus groups we can assert that customers rarely look for more than two offers from micropower system vendors. An important finding is that the evaluation process at this stage typically does not only involve different heating (and possibly electricity) systems, but that these investments compete with other, more visible building-related investments such as fancy kitchen features.

According to installers, vendors and architects that were interviewed or participated in focus groups, the consultation process often coincides with the selection process, the fourth step of purchase behavior. This implies that selection normally does not take more than one to three hours and that customers

Figure 2: Decision-making process for micropower

Figure 3: Information sources influencing the buying decision for micropower

easily accept the propositions of the vendor or the architect. Heating systems evoke mainly functional expectations and their potential for emotional marketing has only been marginally explored. Therefore micropower products and services should not be considered high involvement products, although the initial investment and the operating costs are high. Our research showed that many residential customers have very limited knowledge of their energy costs, such as annual expenses for heating or electricity. Higher initial costs in comparison to conventional products constitute an important barrier for new environmentally sound products.

Experiences during the fifth and the sixth step, use and post purchase evaluation, have a high influence on the next micropower system buying decision. Several participants reported that positive experiences with a given system are a strong predictor that they will consider the same vendor and/or brand next time, whilst negative experiences increase the chances of competitors to sell their product.

The “black-green coalition” of solar thermal customers

An explorative survey among 32 owners of solar thermal collectors revealed specific characteristics of early adopters of this technology.

Interestingly, more than 85 % of respondents were men and almost 70 % between the age of 40 and 60. With regard to professional background, the survey reveals that solar thermal collectors are currently adopted by “techies”. More than 50 % of all responding owners of solar thermal collectors had a technical background, compared to only 10 % in the overall Swiss population. Interestingly, the lifestyle segmentation based on Sinus Milieus (Figure 4) paints a bifocal picture of solar customers. Two of the 10 lifestyle milieus are clearly over-represented. One is the post-materialist segment, which is a usual suspect for environmen-

tal products. However, an equally important segment is the conservative, status-oriented milieu (cf. Figure 4). In other words, alluding to recent tendencies for a rapprochement between conservative and green parties in the political systems of German-speaking countries, there seems to be a “black-green coalition” of renewable energy customers. If this result can be confirmed in larger samples, then it has important implications for marketing and branding strategies. Marketers need to understand that these two very different segments are both promising target groups for micropower, but they will not be reached through the same communication channels.

The way from eco-niche to mass market

Focus groups showed that average Swiss customers are relatively uninformed about aspects of heating supply of their homes, and are even less informed about aspects of electricity supply. Among different micropower systems, heat pumps and solar thermal collectors are relatively popular in Switzerland, while micro-CHP technologies are less present in customers' minds and their value proposition is not immediately clear to many of them. The present research shows that technical professions are significantly over-represented among early adopters of solar thermal collectors. With regard to lifestyle segmentation, current solar customers belong to two different camps, namely post-materialist and status-oriented milieus.

Figure 4: Lifestyle segmentation of owners of solar thermal collectors

Buying decision processes and criteria for heating systems differ between two typical situations, namely an emergency replacement of the existing boiler, and a more planned search for a new system (for new buildings and the much larger refurbishment market). In emergency replacements, customers tend to be conservative and often choose the same system as before. As a tendency, more time available for the search of a new system increases the chances of adoption of renewable energy-based micropower.

Our research showed that initial investment costs as well as limited knowledge of energy costs are important barriers for new technology. Breaking down higher initial costs for renewable and efficient energy technologies with adequate financing solutions, and integrating total cost signaling in marketing and in purchasing processes has a leverage effect on the diffusion of energy-efficient technology.

Installers and architects play a key role in influencing homeowners' buying decisions, therefore micropower suppliers are facing a multi-level segmentation challenge. Identifying the right allies in the distribution channel is just as important as finding promising target groups on the final customer level. Ultimately, the micropower purchasing process combines characteristics of B2C and B2B markets, and can most accurately be described as a buying network. In the light of low education and awareness levels, the introduction of regional energy agencies providing independent advice can play an important role in facilitating market development. As

customers are looking for trustworthy sources of information, municipal utilities may find that they have an interesting competitive advantage. In the light of recent oil price increases, there can be little doubt that successfully targeting "light green" consumers and intermediaries will pave the way for sustainable energy technologies to move from eco-niche to mass market.

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