Bill me this way! – customer preferences regarding electricity bills in Sweden

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Abstract

The liberalised electricity market in Sweden stresses the fact that the electricity companies must focus on customer satisfaction. Two major customer surveys concentrating on households' requirements concerning the electricity bill have been carried out in spring 2002. The interest in energy management lies within the fact that the electricity bill can be used as a feedback instrument to influence energy behaviour and the consumer's awareness of energy usage.

What kind of information do households really want on their bills? What do users think of the information they get on the bill today? How frequently do they want the bill to come? What information or which services should be included on the bill regarding content, design, medium and frequency? How important is it whether the bill is based on actual readings of electricity use and not just on preliminary estimates?

The experience of Swedish households indicates that the information included in the electricity bill is difficult to understand. Most customers feel that it is important that the bill is based on current readings of electricity usage. The electricity bills are not coming frequently enough to enable the households to relate their usage of electricity to habits and behaviour in everyday life. Historical information on the household's electricity usage could be added to the information in the bill to make such relations between electricity consumption and habits visible, although there are some limitations due to the format of the bills. The cost of the feedback is also an obstacle since neither the sender of the bill nor the receiver is willing to pay for the information.

Introduction

The power board customer plays a greater role now, since the de-regulation of the electricity market took place in 1996 in Sweden. The image of the energy consumer has changed from simply being seen as an anonymous load in the grid to being seen as a customer (Ketola & Matsson, 2001). The interest in knowing more about a specific customer has awakened. This interest stems not only from the current necessity to satisfy the customer needs, but information about the customers also helps the company to prioritise the customers who are most valuable to the company.

In relationship marketing, a relationship between the customer and the supplier exists. Although electricity is a service where the customers in general do not experience a high degree of engagement in the relation, this is said to exist when there is a contract between the customer and the supplier (Nyberg, 2002). Usually, there is not so much interaction and engagement in the relation between electricity suppliers and customers in general. The electricity bill is one of the few contact situations that occur, and the attitudes that the customers have to it is reflected on their evaluation of the service and the relationship.

In 1999, Wilhite, Høivik and Olsen reported that historical feedback on energy use led to energy savings and positive customer responses in an experiment in Stavanger. With historical feedback they mean data that shows how much energy the customer uses in every billing period of the current and previous years. Based on these results in Sta-

vanger, the Norweigan Water and Power Authority (NVE) introduced new billing guidelines for all Norwegian utilities, effective in 1999. The guidelines require billing for actual use at a minimum of 4 times per year, and the incorporation of graphical historical feedback on the electricity bill (Wilhite et al, 1999).

The action taken in Norway also influenced the Swedish government to take interest in billing based on actual use. In 2002, the Swedish Energy Agency carried out an inquiry to see if a regulation of this type was desirable also in Sweden. The investigation has been widely debated by different actors in the Swedish electricity market, especially the grid companies who own the electricity meters. The association of the Swedish electricity utilities, Svensk Energi, commissioned a review of the Swedish Energy Agency report, where the calculations of costs to society were questioned. (A consultant company, SWECO Energuide made the review). The conclusions were that monthly readings of electricity meters are not profitable for customers using less than 8 000 kWh per year. Instead of cogent legislation of monthly readings, they suggest that actual readings four times a year will enforce the electricity industry to gradually change to remote-controlled meters (SWECO, 2003-01-08).

Many operators in the Swedish electricity market have put a lot of money and effort into improving the electricity bill. In a press-release in October 2002 from Vattenfall– one of the leading energy producers and suppliers in Sweden and northern Europe – the company reveals that they, in a period of three years, are going to spend 600 million SEK (approx. 65 million Euro) on strategies to facilitate the situation for the electricity customers, e.g. easier meter readings, improved bills and new "electricity price products" (Vattenfall, 2002).

This article describes the results of two major customer surveys carried out during spring 2002, studying the households' preferences regarding electricity bills.

The attitude of Swedish households to the electricity bill

The first study (here called study 1) was commissioned by the Swedish Energy Agency (Energimyndigheten) in order to investigate the effect on energy behaviour and consumer attitudes towards billing for the actual use of energy. The study used a comparative research design with customer groups from three different electricity utilities (Smedjebacken Energi, Skånska Energi and Lunds Energi), where one of the utilities (Smedjebacken Energi) had been using billing based on current readings of electricity for some years. A questionnaire was handed out by mail to a random sample of customers of the three different electricity utilities (1 000 households in each group). The frequency of respondents was approximately 35% in all groups (Pyrko, Sernhed and Matsson, 2002). In this article the three groups are used as a base for descriptive statistics. Generalizations cannot be made for the whole Swedish population, only for the three different populations.

It was interesting to note that at the same time another study (here called study 2) was carried out by TEMO – a Swedish consultant company that deals with customer and opinion research (TEMO AB, 2002). Svensk Energi ordered this study. The method used here was telephone interviews based on a standardized questionnaire and the target group was "the ones responsible for the electricity bill". According to TEMO the findings represent the general public in Sweden from the age of 16.

In spite of the fact that those two surveys were carried out with different methodology, it was valuable to compare answers between the two studies because nine out of the sixteen questions asked in study 2 were exactly the same as in study 1.

COMPREHENSION OF THE BILL

In both studies, the majority of the respondents found the electricity bill difficult to understand. In study 1: 57% of all cases found the bill hard or very hard to understand, and when comparing the three different customer areas, the one with the billing system based on actual readings (Smedjebacken Energi) showed a significantly higher understanding of the electricity bill than the other groups – 51% thought the bill was hard to understand compared to 59% (Skånska Energi), respectively 62 % (Lunds Energi). This could imply that the bills based on actual readings are easier to understand, although this result also could be due to other reasons, for example the fact that the design of the bills differed in the three different areas. In study 2, 52% answered that the electricity bill was hard to understand.

The households find the information on the bill difficult because they experience expressions or concepts as being too complicated. They also feel that there is too much or too detailed information and sometimes the information is not specified clearly enough. These results correspond rather well in the two studies.

Another confusion for the customers is the fact that different parts of the bill are sometimes divided into different periods of time. Since the liberalisation of the electricity market, there have been two bills for electricity – one from the grid operator and one from the electricity supplier. When these actors coincide – although as different legal persons - the regulation permits a joint bill (which can be seen as a market advantage). The joint bill might be the reason why different periods of debit items occur on the same bill. This, however, weakens the customer relations and should be solved if the company is focusing on consumer satisfaction.

BILLING SYSTEM

Most of the electricity utilities in Sweden today use an invoice-system where people are billed several times a year for a theoretical fraction of their yearly electricity usage. The discrepancy between actual and estimated paid energy, is evened out on a final bill. In study 2, more than 9 out of 10 respondents stated that they have this type of billing system. When asked what billing system they would like to have, 69% report that they would prefer billing on actual use, 22% say they would prefer the pre-estimated invoice system and 8% say that it doesn't matter to them what system they have. For the 8 out of 10 that prefer the pre-estimated invoice system, the reason is that they are satisfied with the way they are billed today.

Table 1: Different areas of use of the electricity bills in a company-customer perspective.

Symbolic meaning and areas of use	Electricity utility	Customer
Invoice	To get payment for executed services.	To get information of costs and instructions of payment
Market document	An opportunity to present the company and to reinforce the company profile.	
Control tool		To be able to control if the cost of electricity is reasonable and if the reported use of energy corresponds with the electricity meter.
Feedback instrument	An opportunity to offer the service of feedback information to the customer	If interested, the customers can get valuable information on their energy use.

In study 1 the results were similar, though there was one more option to choose from in the question put to them, namely pre-estimated invoice systems with a flat payment: 66% preferred billing on actual use, 22% flat payment and 12% wanted the pre-estimated invoice system. Those having the billing system of actual energy use were by far the most content with their billing system, but even those with a flat payment were quite satisfied with their billing system. This can be explained by the large part of households in electrically heated detached and semidetached houses represented in the population of study 1, and they have big fluctuations in their electricity costs since heating is season-dependent.

According to study 2, most of the customers who wanted to be billed for their actual energy use, were prepared to pay a small extra fee for each bill if based on actual readings. 63% agreed to pay 10 SEK (about 1.1 Euro) extra for each bill, 28% agreed if they had to pay 20 SEK and only 6% if the fee was 50 SEK extra.

The electricity bill as a feedback instrument

The electricity bill as a feedback instrument is a form of indirect feedback. The energy saving potential for indirect feedback is not as big as for direct feedback, which is always available when needed (Darby, 2000). However, there have been examples of significant energy savings due to feedback information on electricity bills (see for example Wilhite and Ling, 1995).

Feedback can be defined as the control of a system or a process. It is the information of the result of the system or the process. It is also a necessary part of learning, and here, a satisfactory frequency of the feedback is important to enable some understanding of cause and effect.

On the electricity bill the households get information on their latest consumption of electricity and the cost of that. This feedback could alert the costumers to focus more on their energy use (in order to save costs). A billing system based on actual readings clearly provides more reliable basic data for feedback, because it better reflects the household's actual energy use than the bills based on preliminary estimations. Nevertheless, the bills do not come that often (4-12 times a year) and therefore this feedback is not frequent enough to enhance the household's understanding of how specific behaviours or everyday routines influence the consumption of electricity.

SYMBOLIC MEANINGS OF THE ELECTRICITY BILL

The electricity bill has several different symbolic meanings and areas of usage. In Table 1, different areas of usage are listed and organized in a company-customer perspective.

STATISTICAL INFORMATION ON ENERGY USAGE

Households were asked if they would like to get more specific information about their energy consumption on the electricity bill or via the Internet (study 1). The answers from the three different customer areas are here merged into one group, although the answers were very much the same in all groups for all questions about specific feedback information. The answers are compiled in Figure 1:

- **Warning:** Nearly 90% of the households wanted to be alerted if the energy consumption suddenly increases.
- **Graph:** Around 75% wanted a graphic presentation of the actual consumption compared with the consumption the same month the previous year.
- **Tips:** About 65% wanted energy conservation tips incorporated into the bill.
- **Norm:** Just about 50% wanted comparative statistical information from a comparable household.
- **Internet:** The least popular kind of information was statistical information via the Internet – 33% were positive and 50% negative. This should be put in relation to the fact that about 75% of the households have stated that they have access to the Internet at home or at work (64% have access at home). So the accessibility is not solely the reason that the interest here is lower.

The households were also asked if they would be interested in these services if they had to pay for them. Only 24% were interested if there was a cost attached to the services. 16% stated that they were only interested if the cost was very small.

FREQUENCY

Both study 1 and study 2 show that most people tend to be satisfied with the frequency they get the bills today (each month, every other month or quarterly). This might imply that this question is of no great importance to the customers. People who live in detached or semidetached houses want the bill to come more frequently than those living in flats (study 2) and usually these households already get the bill

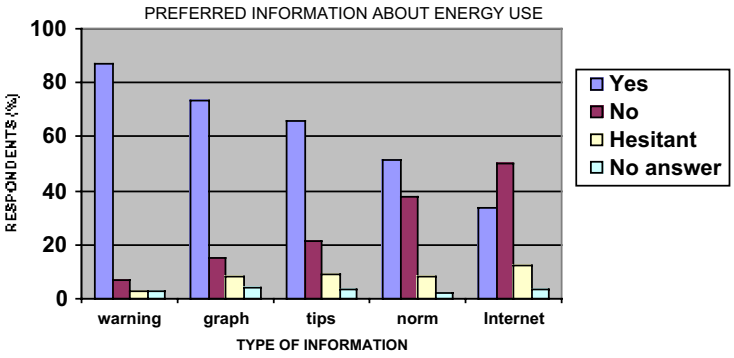

Figure 1: *Consumer preferences regarding different types of information on energy use (study 1).*

Table 2: Cross table over the proportion of the electricity cost in a household in relation to total household budget compared with how carefully the electricity bill is read.

The cost of electricity in relation to household budget	Percentage of households that read the electricity bill carefully	
	Yes	No
Very large part	65	34
Large part	63	37
Moderate	53	47
Small part	45	54
Very small part	41	59
Don't know	41	58
Totally	53	46

more frequently than customers in flats today. This can be explained by the need to split the cost into shorter periods.

DIFFERENT WAYS OF READING THE BILL

Different ways of reading the bill can reflect the different needs of the customer. In study 1, the households with high electricity costs in relation to the total household budget tend to read the electricity bill more carefully (Table 2).

Results showing that the feedback is more efficient when the energy cost stands for a larger part of the household budget has also been found in earlier research, see for example Constanzo et al. (1986).

The experiences from Svensk Energi are that there are different types of readers of the bill: those who just skim through the information on the bill, those who read the information to see if it is reasonable and those who check the reported meter readings against the electricity meter. Then, there are "inspectors" who control all the received information. Because "the inspectors" are the group who most often contact the energy companies, the electricity bills have more or less been designed after their wishes (Svensk Energi, 2002).

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