

Energy customers in dialogue: Exploring boundaries in energy use and environmental concern

Johan Hagberg, Mikael Lind & Nicklas Salomonson

University of Borås, School of Business and Informatics, Encounters & Markets Research Group, Allégatan 1, SE-501 90 Borås, Sweden

johan.hagberg@hb.se, mikael.lind@hb.se, nicklas.salomonson@hb.se

Paper to be presented at the “Energizing markets” conference at Copenhagen Business School, October 30 – November 1, 2008.

Abstract

The debate in society on climate changes and global warming has become appreciable. Much of this debate revolves around the issue of policy making, regulations and international agreement. Too little attention is however put upon what do energy users say and how they act in relation to their consumption of energy. In this paper we explore boundaries in energy consumption and climate changes based on dialogues between customers of one specific energy company. The analysis revolves around three main themes; *From invisible to visible – or not?*, *Compensation of practices*, and *Consciousness or bad conscience?*. The analysis reveals that some aspects of energy consumption have become visible due to de-regulations of energy markets, but there were also aspects that the customers expressed a need for to become even more visible. The customers in the study has thus not yet fully transformed from subscribers to active customers. The customers also expressed a need for becoming more motivated to pay attention to and act in aspects related to energy consumption and environmental care. From the analysis, six aspects of boundaries regarding energy consumption and climate changes emerged: commodity boundaries; supplier-customer boundaries; use and cost; production, distribution and consumption; between practices; principles and practices. Finally, we reflect upon our role as social science researchers in relation to the debate on climate changes.

1. Introduction

The energy sector has in many countries, based on de-regulations, undergone major transformations during the last years with new roles for suppliers and users of energy (Summerton, 2004; Olsen, 2005). One of the consequences among energy companies is an increased focus on customers' demands (c.f. Mikkelsen *et al.*, 2002; Royo *et al.*, 2005). In relation to the global debate on climate changes, energy consumption is also being reviewed in a different light. Even if the debate on climate changes and global warming is not new, it has attracted enormous attention during the last years. In The Stern Review (Stern, 2006) one element of policy that was explicitly mentioned in relation to the issue of global warming was "... action to remove barriers of energy efficiency, and to inform, educate and persuade individuals about what they can do to respond to climate change" (viii). Much of today's energy debate revolves around the issue of policy making, regulations and international agreements. In relation to this debate - what do energy users say and how do they act in their consumption of energy? The purpose of this paper is to present user narratives, based on energy customers being in dialogue with each other, about their actions and reflections in relation to energy consumption and climate changes. We will present empirical material from a research project performed at an energy company. Based on these narratives, we will discuss different boundaries regarding energy consumption and environmental concern which were identified in the dialogues among the customers.

1.1. From passive subscribers to active consumers - transitions and formation of boundaries

During the last decade many efforts have been made to transform the energy sector in Sweden and these efforts have concerned the electricity system in particular. According to Summerton (2004) the electric system in Sweden was long time characterized as a hierarchical structure with local monopolies. In this system, users were subscribers in the sense of not being allowed to choose from where, who, and on what terms when purchasing electricity. This was changed dramatically with the electricity reform, which in Sweden was implemented in 1996. Summerton (*ibid.*) describes this transformation as a way in which users "were expected to make transitions from having been subscribers to becoming active customers" (p. 492), where the role of being a subscriber implied passivity and the role of being a customer implied an active actor making informed choices.

This transformation can be conceptualized as a way in which efforts were being made to convert subscribers into calculative agents. The prerequisites for calculative agents to be able to make decisions can with the words of Callon (1998a) be described as being able to:

- (i) establish a list of the possible states of the world (each state of the world being defined by a list of actors and goods, and by a certain distribution of these goods amongst the actors); (ii) rank these states of the world (which gives a content and an object to the agent's preferences); (iii) identify and describe the actions which allow for the production of each of the possible states of the world. (p. 4)

Judging from a report of The Energy Markets Inspectorate (Andersson *et al.*, 2006), a Swedish government authority working for efficient energy markets, these prerequisites are now in place, at least in principle:

When the electricity market was deregulated in Sweden in 1996 new rules of the game emerged for electricity consumers and electricity sellers. From being anonymous actors consumers can nowadays make active choices about what company to buy from, what type of electricity [way of production] to buy, and what price contract that agrees with ones own willingness to pay. (p. 1, our translation)

However, in practice, there are indications that this transformation from subscribers, or “anonymous actors”, to consumers making active choices of electricity seems far away. The majority of energy users seem not to have made an active choice of what energy company to buy from and under what conditions. In a poll asking Swedish consumers, only 25 % of the respondents stated the feeling that the de-regulated market was working well (TEMO 2005). The respondents were especially dissatisfied with prices, the ethics and moral of the industry, and that it was difficult to know where to turn to in different errands and to understand the invoices.

The report from The Energy Markets Inspectorate (Andersson *et al.*, 2006) also indicates that these new rules has not been achieved and applied once and for all, but there are continuous efforts being made for transforming energy users to become market actors, enhancing their capacity to calculate and choose. Even though price has been considered the most important aspect for making users behave like market actors in choosing among alternatives, the issue of

climate changes is one example of an additional aspect that users are supposed to take into account, while making informed choices on their terms of energy use.

Olsen (2005) described the de-regulation of electricity in Norway (which pre-dated the market reforms in Sweden), where electricity gradually was no longer seen as a public good, but was becoming a “market commodity” (p. 240). On the other hand there are studies that show that today’s use of electricity has led to that the supply of electricity is regarded as somewhat of a social right (e.g. Ketola, 2001); a natural part in a modern society and not a commodity that can be bought on a market (Andersson *et al.*, 2006).

The continuous efforts to construct an electricity market can be described with the notions of *framing* and *overflowing* (Callon, 1998a; 1998b; 1999). Framing in this context concerns efforts to define agents (an individual person or group of persons) and introduce boundaries between them. It also means to define goods and introduce boundaries between these and other goods. Framing of agents and goods are used to make the agents able to perform calculations. For calculations to be performed boundaries are “drawn between the relations which the agents take into account and which will serve in their calculations, on the one hand, and the multitude of relations which will be ignored by the calculation as such, on the other.” (Callon, 1999:186). We adopt the notion that framing is not something that happens of itself or is established once and for all, but is a temporary result of continuous efforts, which might involve many actors (Callon, 1998b). Framing is never complete, but there are continuous overflows, which might call for new framing efforts.

The notion of framing can be applied to the electricity market in which de-regulation consist of efforts to construct distinct market actors (electricity consumers) and a distinct commodity (electricity), which could become calculated, evaluated and exchanged. What the discussion above indicates is that these boundaries are not as clear and distinct in practice, which turns our interest to explore the issues of boundaries further and to explore their complexities (Mol & Law, 2005; Callon & Law, 2005). Both as analytical tool and as understanding of markets the exploration of boundaries related to deregulated electricity markets becomes important. In the endeavor of exploring boundaries in the customers’ dialogues the research question dealt with in this paper is: *What boundaries regarding energy consumption and environmental concern can be identified in the dialogues among the customers?* The empirical basis for

these dialogues comes from workshops performed with three groups of customers of one particular energy company.

1.2. Energy consumption and climate changes

The Stern Review (Stern, 2006) state that climate changes are a serious global threat and it demands an urgent global response. The climate debate is nowadays also ever present in the media and consumers are given different types of advises of how they can be more conscious about the environment in their consumption. Advises are also given from energy companies that sell electricity or provide the electrical grid. In the choice of company, type of electricity and under what terms, the consumers are now also supposed to take the effects on climate changes into account. As the report of the Energy Market Inspectorate (Andersson *et al*, 2006) states:

In the best of worlds consumers are part of a well functioning electricity market and are well-informed, cost and environmental conscious and have the ability to be in control of their own electricity consumption and costs. (p. 1)

While the discussion of climate changes is becoming more frequent, it might also have impact on the organization of energy markets, which encounters problems due to increasing “uncertainties about the states of the world, on the nature of the actions which can be undertaken, and on the expected consequences of these actions” (Callon, 1999:184). In relation to energy and climate changes; how do consumers reason about these matters?

The study made by The Energy Markets Inspectorate in Sweden (Andersson *et al.*, 2006) argue that a well functioning market is dependent on that consumers are aware of their possibility to switch supplier, to negotiate and to get lower prices. Information is therefore crucial for consumers’ ability to act in an economical way and for their ability to make prognoses about costs of electricity. Consumers that are well informed are also more likely to change to better alternatives. However search costs and costs for changing supplier are sometimes perceived as larger than the expected profit a change of supplier would lead to. This can lead to that consumers remain passive. 5-10 percent of the consumers in Sweden switch each year to another supplier. An indication that consumers are passive is that their price sensitivity about electricity is low in the short run. Their sensitivity in the long run are however higher and they are then willing to change to alternative ways of energy if that lowers the costs. From the consumers’ point of view, good quality in the delivery of

electricity equals deliveries with few or no disruptions. The likeliness that a consumer will change supplier increases with the level of income, high electricity costs, a perception that high electricity costs is a consequence of poor competition, previous activities on the market, and an interest in questions related to the electricity market.

The study (ibid.) also showed that a large part of the households actively tried to keep the consumption of electricity down, especially when it comes to washing clothes and cooking. A bit fewer households tried actively to keep consumption of indoor heating down. The households' willingness to take steps of action to reduce electricity consumption increased if they received information about what concrete actions that was available. Many also expressed that it was important to keep consumption down for the sake of the environment. However almost half of the respondents saw that it was difficult to do more about their consumption than what they already were doing. A large majority of the households also discussed the size of consumption with other households.

2. The context and methods

This paper is based on a one-year research project (Giannakis *et al.*, 2008ab) that was performed in cooperation with Göteborg Energi (GE). GE is Sweden's fourth largest energy company and the leading energy company in West Sweden. The company has about 300,000 customers and provides energy services, broadband, district heating, cooling, natural gas, and the electrical grid. Most of the customers are in the Göteborg area and include households as well as the corporate and the public sector. About 95 per cent of the customers are households. The turnover in 2007 was almost SEK 3,700 million and the number of employees about 1,000. It is a wholly-owned subsidiary of Göteborgs Kommunala Förvaltnings AB which is owned by the municipality of Göteborg. The company describes its objective and aim in the following way:

Our objective is to provide the owner, i.e. society's citizens, with the products and services for which our company has been appointed, in a safe and cost-effective way. [...] We aim to create energy solutions that are sustainable in the long term. Efficient energy provision is one of the most important building blocks of a well functioning society. To achieve our goal, we have developed into a versatile energy company. We offer services and products that make life easier for both companies and private individuals. (www.goteborgenergi.se)

When it comes to electricity, GE is providing the electrical grid (where the users are not allowed to choose supplier) and there is a boundary between these companies and the companies providing electricity as a commodity. This boundary was an outcome of the de-regulations. On one side, there were companies providing electricity as commodity (the market) and on the other side there were companies providing the electrical grid (so called “natural monopoly”), “disentangled from the commodity to be actually traded” (Olsen, 2005):

However, since 1999 GE has together with another large supplier called Vattenfall, also provided and sold electricity through a mutually owned (50/50) associated company (Plusenergi AB). In a press release dated September 15, 2008 (Göteborg Energi, 2008) the two companies announced that they have agreed to end the corporation and divide Plusenergi AB among them. This will be done no later than April 1, 2009. The press release further states:

We dissolve mutually owned Plusenergi AB and continues to sell electricity through own brands. We believe that the customers, the market and we will benefit from it says Göran Hindemark, Vattenfall and Chairman of Plusenergi, and Anders Hedenstedt CEO of Göteborg Energi and Deputy Chairman of Plusenergi. When we created Plusenergi nine years ago the market was different. We have not been able to give the company the right conditions in order to fulfill our plans and expectations. Therefore it is just as good that we go separate ways on the West Swedish energy market. Our customers will benefit from that. (Göteborg Energi, 2008, our translation from Swedish)

The CEO of GE also states:

The customers will see that we are an even more complete energy company. Many customers have previously wondered why we have not had electricity to offer. We have that now. (www.goteborgenergi.se)

The research project was directed towards understanding how young customers characterise future encounters with GE and how they describe their contemporary and future energy consumption. In this paper we have used empirical data from one part of the research project where three different focus groups were conducted. During these workshops, the issue of climate change and energy consumption was discussed among the participants. The field studies were performed during the spring of 2008. The selection of participating customers

was based on their living (house owners, apartment owners and tenants) and that they all were between 26-35 years old. In each focus group 5-7 customers from a specific group (i.e. house owners, apartment owners or tenants) participated and all together there were 17 participants in the three focus groups. Each focus group had a three hour meeting in which questions related to the consumer's contact with GE was used as the starting point. The participants were also triggered to jointly reflect upon their behaviour in relation to energy consumption. The purpose of performed workshops, by the focus groups, were to develop knowledge about their attitudes, values, behaviours, and desired actions and needs regarding energy services (Giannakis *et al.*, 2008b). The results from the workshops were structured in three basic categories; 1) the customers' experience from their contacts with the energy company, 2) the customers' thoughts about their energy consumption, and 3) the customers' expressed needs and desires of the future – especially in relation to their contacts with the energy company (Salomonson & Lind, 2008). Besides customers there were also two researchers and two representatives from the energy company present. The focus groups were all digitally recorded (sound) and then transcribed. In the analysis of the material sections where the participants expressed feelings, thoughts and also described how they act when it comes to energy consumption and environmental concern were used. In this paper we are revisiting these recordings in order to analyse the actions and reflections of the participants related to energy consumption and climate changes.

3. Results and discussion

In this section we will discuss the results from three analytic themes. *First*, we are to discuss whether energy consumption which, in many other countries, has been something “invisible” and taken for granted now is becoming more “visible” in the everyday consumption. *Second*, we will discuss how customers were establishing boundaries between “bad” and “good” practices of energy consumption and what we call *climate compensation*. *Third*, we will discuss how the participants while being conscious of climate changes also talked in terms of having a *bad conscience*, where the boundaries of “bad” and “good” principles are confronted with the practices of their everyday consumption. We found examples where the consumers were establishing “good” and “bad” principles of energy consumption and simultaneously were expressing bad conscience when their practices did not relate to these principles.

3.1. From invisible to visible – or not?

According to Summerton (2004):

Electricity has long been one of the most anonymous and standardized infrastructures of daily life in much of the world. For more than a century, successive generations of users have grown accustomed to consuming electricity without regard for the contingencies of its production or the identities of those managers and firms that provide it. (p. 490).

Summerton (ibid.) means that this anonymity characterizes power systems in three ways: 1) electricity as a non-differentiated, unbranded, commodity, 2) the anonymity of suppliers and lack of contacts between suppliers and users, and 3) the anonymity of users, black-boxed in collective subscriber categories.

The element of invisibility can be illustrated with a quote from the annual report of the Swedish energy company: “The best thing is if our customers hardly know that we exist” (Göteborg Energi, 2007). Beyond market reforms, where the users are expected to make more choices and become more active in choosing their energy distributor, energy as a good is also undergoing transformations, due to commodification. Transforming electricity to a commodity also implied cutting the ties and introducing new boundaries between this commodity and other relationships, making it “decontextualized, dissociated and detached” (Callon, 1998a:19). Even though the deregulation of energy markets in Sweden has contributed to a transformation of electricity from being an invisible “social right” to becoming a visible “commodity”, the participants gave many examples of the lack of visibility in relation to their energy use. The same goes for the anonymity in supplier-customer interactions. It was an apparent lack of direct contacts between the customers and GE personnel. Most of the participants in the three workshops have had very few or no direct contacts at all. One of the tenants mentioned that although she had been a customer to GE for 15 years, she never had been in direct contact with the company. In the few cases it happened, it was due to some kind of errors or in relation to questions of prices or invoices. In general, the customers also found it hard to remember what happened in these interactions. The anonymity between supplier-customer seems to be connected to that electricity is taken for granted and that there are very few power outs (high delivery precision). Two of the participants expressed this view:

House owner: I never think of Göteborg Energi because they are doing their job. The electricity is there. They do it well since I never think about it.

Tenant: We are a bit spoiled... It's nothing you think about, that there is electricity. It's something one take for granted.

Customers to GE can not choose another company for distribution of electricity and this can also contribute to the anonymity. One of tenants expressed that she do not pay so much attention to invoices about the cost of distribution since she can not do anything about it:

I must admit that I don't read it so carefully. [...] It's a monopoly and that's it.

Even though these developments in which electricity was becoming more visible in everyday consumption, the framing of electricity as a commodity and the efforts to construct new market actors also introduced and enforced boundaries of what was to be taken into account and what was placed outside the frame. In the next section, we will give examples of how the customers were talking about these boundaries.

Dialogue 1 – apartment owners (R = researcher, C = consumer)

R1: Is the cost of energy consumption important for you? Is it something you think about everyday... or?

C1: Not as the telephone bill so it's not that I think about most.

C2: It is probably that you can't directly see the connection that now I have had the oven turned on each day for a week or two. Oh now it is much higher. You don't see that connection. You don't sense that okay now I have had this cosy light on around the clock for three weeks.

C3: One should have something like the driving computer you have in the car, where you can tell how much money or minutes... but unfortunately you don't have that at home.

R1: Would you like that?

Several: Yes.

R2: If you have turned the Advent lightning on you will see...[GE had an advertisement about what an Advent lightning costs]

C3: Yes that is good service if you install it in every household.

C4: I don't think you got bills every month. You got it every 3 or 4 months. I don't know the cost per month. It would be good if you got an invoice each month. Then you know that this month I have used this a lot.

R2: So one would willingly pay more often just so one can...

C4: Yes now I don't know anything. You don't have a clue.

C3: It is complicated because it has always been estimated electricity costs. When you then get the annual actual cost you get money in return or have to pay even more. Then you don't know when you consumed most electricity. Now there are new electricity meters on the way so it will be run through the GSM-network or? Then I suspect it will be a monthly invoice but so far it is quite difficult to see.

R1: Do you also think about the environment in connection to your energy consumption? Any thoughts about that? Are you concerned about environment when it comes to your energy consumption? Oops, now I turned on the TV. That was maybe not so good for the environment. Do you have a connection between environment and...?

C1: Dish washer... detergent

C2: I think it is difficult to know how or from where the energy comes in Sweden. We buy energy from abroad as well as we sell energy abroad. Why... it is probably due to tax reasons or economic reasons but it is really bad if one buys from coal or oil based power plants. Nuclear power and water power are relatively environment friendly energy sources that we have in this country and also wind power and such things. I think one should use that much more. But then, you think about the environment when you turn off the lamps, that you know it affects the environment.

R1: Do you feel that you can make a difference?

C2: Yes of course. If everyone do it.

Dialogue 2 – tenants (R = researcher, C = consumer, GE = Göteborg Energi representative)

C1: What kind of heating do you use? Is it district heating or direct electricity, or?

C2: I don't know. Actually, I am not good at this. This is why I'm sitting here.

C1: Do you have radiators on the wall?

GE1: They have district heating. All of you have, but with a central of your own.

C3: Different types of houses will require different amounts of energy. Depending on the windows, as I have understood it...

R1: Is heating included in the rent or do you pay it separately?

Several: It's included.

R1: Then maybe it's not so strange if you don't know so much about that. Or what do you say?

C4: If I would live in a house of my own, I would probably think more about that.

C3: If we were supposed to pay for heating, I would have sent an invoice to my husband [laughter]. Yes, no, but seriously it's too cold, but you can't have 24 degrees [celcius] inside I think. Well, it is too cold. He is turning the radiators up and I am turning them down in slyness. When I think that he will watch, I usually turn it up.

R1: Do you think that this is common, as a tenant, to increase it a couple of degrees?

Several: Yes.

C3: Because you never see it in black and white, that this is how much it cost, with the heating. It is similar with water consumption. I remember when I lived with my parents. They complained; "Do you have to take a shower for so long? Do you have to have so hot water? It will require too much water". Things like that you don't think about as a tenant. You only get angry on these water saving devices. Instead of a quick shower you have to wait for five hundred years in order to get rid of the soap. So I don't know if it is actually more environmentally friendly. But exactly this that you don't see how much energy or water you are using. Maybe you see that with the electricity, it is possible to see in black and white.

From these dialogues there are two aspects in particular that we would like to highlight. First, there is a boundary between using the electricity and the cost of using the electricity. When the customers receive the invoice, there is not, in their view, clear why the cost has increased or decreased. Second, there is a boundary between the production, distribution and consumption of energy, meaning that the customer does not know from where the electricity originate. Regarding the first aspect the apartment owners do not make a connection between use of an oven or "cosy" lamps and costs of using it since they can not see what the actual cost is. The cost is in that sense "hidden" for them. In the dialogue there are suggestions to get some kind of apparatus that keep track of consumption. A higher frequency of invoices is suggested to increase the understanding of using electricity and costs of it. Estimated costs

versus actual costs also contribute to a sense of not knowing when the costs arise. A hope is expressed that new electricity meters on the way will solve this. The invisible will become more visible. The tenants' answers about heating indicate that there is a difficulty to see the connection between cost and consumption since the cost is included in the rent. Another living where they pay for heating separately would lead to a more cautious behaviour.

The boundary between electricity consumption and the process of electricity production/delivery can be conceptualized as a difference between electricity as good or as product. In this dialogue, electricity is seen as a good, at a state of consumption where the relationship to its production and distribution is unclear. According to Callon *et al.* (2002) "A product... is an economic good seen from the point of view of its production, circulation and consumption" (p.197). The product is a process, consisting of a sequence of actions which transform it and changes its characteristics. The good in turn, "corresponds to a state, to a result or, more precisely, to a moment in that never-ending process." (p.197).

During the workshops there were also expressions of that the participants continuously wanted to be reminded and to see effects of their actions. The following dialogue is an example of this.

Dialogue 3 – tenants (C = consumer)

C1: I see such a picture... it is an advertisement from another company with a polar bear made of candle wax under a lamp and the longer it is lit the more it melts. And I can sometimes think about that when I have the light on in each room at home... that "Oh, now the Arctic is melting". [laughter] So that message has made a mark. But I also think that the economy matters. Because I acknowledge this immediately with certain things where I have changed my behaviour at home. As for example I do not run the laundry machine in the apartment and go down to the laundry house instead.

What seems to be the case here is that beyond the boundaries of production, distribution and consumption there is also an issue of boundaries of the effects on different actions related to energy consumption and climate changes. The use of a lamp or the laundry machine contributes to an association that this affects climate and the own household economy.

3.2. Compensation of practices

During the workshops there were several examples of how the participants reflected upon their energy use in relation to climate changes. They expressed a concern about themselves and about others. We did however find several examples where such actions had a price from a perspective of consumption. A principally “bad” practice was compensated with a principally “good” practice.

Dialogue 4 – tenants (C = consumer)

C1: I actually put the towel [in the tumble drier] when I’m cold and have taken a shower. But I have decided not to think about that [the environment] now. Because now I have to allow myself some luxury. Then I can start to think about it. I feel that I’m doing many other things. I never travel by bus to work. Not even to town and I live as far as you can go down to [a suburb]. I walk or ride my bike everyday. Partly for my own sake but also... yes for everybody else sake. It is a stupid compensation and we have like the laundry room in the other house but... I want to do my laundry.

Dialogue 5 – apartment owners (R = researcher, C = consumer)

R1: We would like to talk more concrete about your energy use. The question is if you have a good hold on your energy use.

C1: Good hold? No, I can’t say that. But I would say that I can be away for a couple of days if I’m staying with friends for example. On these occasions I know that, now I’m not spending so much energy... Sometimes I forget to switch off the light. I’m falling asleep with the lamp switched on. I did that yesterday for example. Then I know that I have to level off some other day.

R1: As compensation?

C1. Yes, honestly. I think that way deliberately. So now I have to do that.

R1: What do you do then, when you have forgot to switch off the lamp?

C1: Then it will be candles instead when I’m home. Or, as now, I know that I will not be home during the weekend, so then it will level off. It might sound a bit strange, but that’s the way it is. Later on, I will also go on a trip. Then it will really level off. But when I get the invoice, I do not really understand. It’s more

like, 'ok, as long as it will not exceed 250, then it's good'. But what you said earlier about kilowatt, I have no idea...

R1: 250?

C1: [Swedish] crowns... I don't have any hold of that.

From these two dialogues we would like to highlight the aspect of compensation. In dialogue 4, where the participant is in her view "in general" acting environmentally friendly, there is a kind of compensation, a reward for another form of behaviour that she experiences as bad for the environment. In dialogue 5 there is also an element of compensation, where consuming more electricity in one situation is followed by consuming less electricity in another situation. In both cases they make active choices and at the same time feel that the behaviour is something "stupid" or "strange"; something they are almost ashamed of.

3.3. Consciousness or bad conscience?

In the workshop, the customers were asked what they think about when we mentioned the name of the company "Göteborg Energi". The following dialogue is an example of what one of the apartment owners responded.

Dialogue 6 – apartment owners (R = researcher, C = consumer)

C1: A bit of bad conscience. One should check things up. That you have right... that you pay as little as possible. You don't have the energy or you don't feel like checking it up.

R1: So that's what you think about when we say Göteborg Energi?

C1: Yes then I think about that I should really find out and call and check and do this and that.

R1: In what way?

C1: One should check electricity prices, from where the electricity is coming, what is... environmental friendly. That is yet a thing one should do, yet a choice you really do or think about. We in Sweden take it as granted that one can turn on the lamp each day. You don't think about it, that you are happy that "Wow, today I have electricity again".

With this excerpt we would like to highlight the issue of bad conscience. In this example it results from the participant not acting in accordance with the prerequisites of being an active

consumer making informed choices. In this example this derives from information on prices and the conditions out from which the electricity is produced. In another example, one of the house owners gave an example of an advertising campaign dealing with this bad conscience, but with the result of raising new doubts.

Dialogue 7 – house owners (R = researcher, C = consumer)

C1: It was something I reacted on – an advertising campaign.

R1: Ok, yes...

C1: It was something with the garbage. Göteborg Energi wanted to point out that they burn all the garbage and that it is transformed into heating. It said that “You may sort your garbage, but don’t have bad conscience for what you waste” or something like that. I thought, ok, then it would be pretty okay to waste at the most, it would be burned and transformed into heating and hot water anyway. It was that kind of message that I thought that, if that is what they mean. It doesn’t matter whether we would sort the garbage or not, it will be transformed into heating in my district heating anyway. So it would be even better if I put in some extra in the bin so to speak. I found that a bit strange in these “climate days”.

What especially can be seen in the case of the tenants is that the consumption is also viewed in relation to the collective of other tenants. As the “good” practice there are however several reactions that others, by using common facilities, do not act good enough in relation to energy consumption. It can also be revealed that several give expressions for being a model for others.

Dialogue 8 – tenants (C = consumer)

C1: All the apartments where I live... I live in a small area with terrace like houses as apartments. In all apartments everyone has a washing machine and a dryer. Since people use them instead the common laundry room is never used. We have things like sauna, jaccuzzi as well as a gym and that is like... And the light is on everywhere all the time. I think about how I use ... but I get really bad conscience of how I wash my clothes at home after this [workshop]. I should actually... [use the common facilities]. They are right outside my door.

Being in dialogue, as in this workshop, seems to have contributed to this bad conscience. Interestingly, the customers make reflections about their own actions and starting to express bad conscience as well as a desire of being an example for others.

4. Conclusions

In this paper boundaries revolving from consumer dialogues related to energy consumption and climate changes has been explored. Six different aspects of boundaries regarding energy consumption and environmental concern have emerged in the analysis of consumer dialogues. These are related to the analytical themes used to categorize the dialogues above.

Commodity boundaries

As described by Summerton (2004) and The Energy Markets Inspectorate (Andersson *et al.*, 2006) the electricity reform was supposed to transform users of electricity from subscribers to active customers that can make well informed choices. However there are studies demonstrating that a majority of consumers do not feel that the de-regulated market is working well (TEMO, 2005). Electricity is in some degree even seen as somewhat of a social right (e.g. Ketola, 2001). The participants in our study also expressed a confusion regarding the electrical grid and electricity and frustration about the inability to choose supplier of the electrical grid. The boundary of electricity as a commodity is thus not clear which makes calculations (Callon, 1999) more difficult and the effects of the different conceivable actions (Callon, 1998a) more difficult to anticipate. The consumers in the study has thus not yet fully transformed from subscribers to active customers since they experience a lack of information and knowledge. The comment from the CEO at GE (www.goteborgenergi.se) that they will start selling electricity through an own brand and that their customers will see GE as an even more complete energy company by this action is an indication that they are aware of problem of confusing the electrical grid and electricity.

Supplier-customer boundaries

As indicated in our study there is anonymity in existing supplier-customer interactions. As indicated by the quote of the energy company, this kind of anonymity is also something the company has a strive for. Direct interactions between the energy company and the customers seemed to be rare. The anonymity between supplier-customer interactions seems to be connected to that electricity is taken for granted and that there are very few power outs (high delivery precision).

Use and cost

This study identified a boundary between using the electricity (act of consumption) and the cost of using the electricity (act of payment). The participants could not, based on the received invoice, identify why the cost of electricity had increased or decreased. An individualised or collective solution regarding electricity also has an effect on consumption versus cost. Respondents living rental apartments that have collective form of payment did not make a connection between usage and cost. As suggested by respondents a higher frequency of (energy related) invoicing could make it easier to keep track of consumption versus cost and also make them pay more attention towards, and willingness to reduce, energy consumption. Some kind of apparatus that keep track of consumption and actual instead of estimated costs could also make it easier.

Production, distribution and consumption

We could identify a boundary between production, distribution and consumption of electricity. The respondents found it difficult to know where the electricity originated from. The electricity was seen as a good, at a state of consumption where the relationship to its production and distribution is unclear. They expressed a need for more knowledge about the origins of electricity. The experienced distance between production and consumption of energy is line with Summerton's (2004) thoughts about anonymous power systems. The study also identified boundaries of the effects on different actions related to energy consumption and climate changes. The respondents expressed consciousness that their actions regarding use of household appliances, lamps and heating did matter when it comes to climate changes, but the effects of these actions were unclear.

Between practices

Another boundary is what we call compensation between practices. Participants expressed a behaviour where they compensated a principally "bad" practice of energy consumption by a principally "good" practice. Heating a towel in the dryer could be followed by walking or bicycling to work and excessive use of lamps could be followed by use of candles instead. A common feature was that the active choices of compensation also generated a feeling that they were doing something "stupid" or "strange".

Principles and practices

The last identified boundary is between principles and practices. Respondents' practices sometimes gave rise to a bad conscience; that practices were not in tune with principles. Such an example was not acting in accordance with the prerequisites of being an active consumer making informed choices. Respondents also viewed their consumption in relation to the collective of other tenants. They expressed bad conscience about the collective use of electricity in a world where environmental concern is expected.

Using a research approach getting consumers to go in dialogue has been interesting and challenging. As social science researchers there is a need to reflect upon our role in relation to the debate constituting the social setting. Did we contribute to a change of actions by stimulating reflection among energy users? The workshops, as well as other sites of investigation for social scientists are not taking place on a clear, demarcated stage outside the reality that we are investigating. Researchers as well as journalists, policy makers, companies and consumers are part of shaping this reality in which climate changes is among the most prominent issues in contemporary debate. It is an important dialogue and calls for reflexive research in order to contribute to this debate. It is important that our common efforts do not just end up adding to bad conscience for us all. An interesting issue of further research would be to relate the findings about what have been revealed from consumer dialogues to the societal debate on climate changes and the environmental concern.

5. Acknowledgements

The authors would like to thank Göteborg Energi Research Foundation, University of Borås, as well as Jan Wallander's and Tom Hedelius' Foundation for funding this research. We also owe our gratitude to our colleagues Stavroula Giannakis and Malin Sundström participating in the research project "Service Encounter 2015" performed at Göteborg Energi.

References

- Andersson, K., Björklid, A., Persson, M. och Stubelius, A. (2006), *Elkonsumenten som förbrukare och marknadsaktör: En rapport från Energimarknadsinspektionen*, Energimarknadsinspektionen.
- Callon, M. (1998a), Introduction: The embeddedness of economic markets in economics. In Callon, M. (ed.), *The Laws of the Markets*, Oxford: Blackwell Publishers, pp.1-57.
- Callon, M. (1998b), An essay on framing and overflowing: economic externalities revisited by sociology. In Callon, M. (ed.), *The Laws of the Markets*, Oxford: Blackwell Publishers, pp.244-269.
- Callon, M. (1999), Actor-network theory – the market test. In Law, J. & Hassard, J. (Eds.), *Actor Network Theory and After*, Oxford: Blackwell Publishers, pp.181–195.
- Callon, M., Méadel, C. and Rabeharisoa, V. (2002), The economy of qualities, *Economy and Society*, Vol. 31, No. 2, pp. 194-217.
- Callon, M. and Law, J. (2005), On qualculation, agency, and otherness, *Environment and Planning D: Society and Space*, Vol. 23, pp.717-733.
- Giannakis, S., Salomonson, N., Lind, M. och Sundström, M. (2008a), *Kundmöte 2015 - Befintliga kundmöten mellan Göteborgs Energis kontaktcenter och kunder, Avrapportering av etapp 1 – Kundmöte 2015*, Encounters & Markets Research Group & Göteborg Energi.
- Giannakis, S., Lind, M., Salomonson, N. & Sundström, M. (2008b). *Kundmöte 2015 - Hur framtida möten mellan Göteborgs Energi och kunder kan gestalta sig*, Slutrapport, Encounters & Markets Research Group & Göteborg Energi.
- Göteborgs Energi (2007), Annual report - 2007 (<http://www.goteborgenergi.se>).
- Göteborgs Energi (2008), Press release, Sept. 15 2008 (<http://www.goteborgenergi.se>).
- Ketola, A. (2001), *Elen är fri - Energianvändning ur ett kulturanalytiskt perspektiv*, Licentiatavhandling, Avdelningen för Energihushållning, Institutionen för Värme- och Kraftteknik, Lunds Universitet, Lund.
- Mikkelsen, A., Nybø, G. and Grønhaug, K. (2002), Exploring the impact of deregulation on HRM: The case of the Norwegian energy sector, *International Journal of Human Resource Management*, Vol. 13, No. 6, September, pp. 942–957.
- Mol, A. and Law, J. (2005), Boundary variations: an introduction, *Environment and Planning D: Society and Space*, Vol. 23, pp. 637-642
- Olsen, P.I. (2005), The re-formatting of electricity and the making of a market. In Czarniawska, B. and Hernes, T. (Eds.), *Actor-Network Theory and Organizing*, Malmö: Liber & Copenhagen Business School Press, pp. 230–251.

- Royo, M.P., Tricás, J. and Tomás, X. (2005), Improving Quality in the Spanish Electrical Sector: A QFD Application, *Total Quality Management*, Vol. 16, No. 4, June, pp. 555–568.
- Salomonson N., Lind M. (2008), Service Encounters in 2015 – Desires and Needs of Future Customers in the Swedish Energy Sector, accepted to e-Challenges e-2008 Conference & Exhibition, October 22-24, 2008, Stockholm.
- Stern, N. (2006), The Economics of Climate Change: The Stern Review. Available: <http://www.hm-treasury.gov.uk/>
- Summerton, J. (2004), Do Electrons Have Politics? Constructing User Identities in Swedish Electricity, *Science, Technology, & Human Values*, Vol. 29, No. 4, Autumn, pp. 486–511.
- TEMO, (2005), ”Byte av elleverantör – Den svenska elmarknaden efter elmarknadsreformen”.