# Engaging consumers and citizens in the creation of low-carbon energy markets

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# Abstract

Engaging consumers and the public (i.e. citizens) has become a widely accepted procedure when developing and adopting new services, technologies and policies. In the energy domain, consumers and citizens have in recent years been engaged to participate in the development of smart grids, services and meters as well as low-carbon energy services such as microproduction of energy. In this article, we analyse relevant topics and framings for consumer and public engagement based on survey results from Finland in 2013 on energy efficiency services that can be provided through real-time monitoring or control equipment, for instance. We argue that it is critical to consider the contexts and aims of the engagement when assessing its outcomes and that consumers are also likely to provide responses which are located at the intersection of consumerism and citizenship. Furthermore, the way engagement is carried out may have an effect on how individuals respond as consumers and as citizens.

# Introduction

The energy sector is under pressure to transform from energy provision to service oriented business networks that involve numerous less traditional actors in their value creation. Low carbon energy services may be the key that enables the survival of the incumbent energy producers until the transformation process towards a new and sustainable energy sector. Recently, Petteri Repo University of Helsinki Consumer Society Research Centre Unioninkatu 40 (PL 24) 00014 Helsingin yliopisto Finland petteri.repo@helsinki.fi

ever louder voices have been heard that call for consumers and the general public to become active participants in the value creation of the future low-carbon energy sector: consumers can become producers themselves, provide storage for energy created with renewable energies and be active in demand response according to the needs of the market. Until recently, consumers have, however, remained more passive than active and functioning ways to activate consumers in the energy sector are still sought for.

Better consumer engagement in the energy sector in general and in the development of low-energy services in particular has been seen as the primary mechanism for this aim. Consumer engagement relates in this context to involving individuals in their role of consumers to the development of new products, services and processes and is a prevalent practice in the domains of marketing and design (Prahalad and Ramaswamy, 2004; Kujala 2003). Consumer engagement may be used to improve products, increase consumer satisfaction and in general enhance interaction between developers and consumers.

We argue, however, that while consumer engagement is important, public engagement is also of relevance in the energy domain and that the two forms of engagement overlap, creating intersections which need to be considered. Public engagement emerged as a concept in the 1990s in response to previous policy developments (Maile and Griffiths 2014; Clarke and Newman 1997) and can be described as involving the public, i.e. citizens rather than consumers, through communication, consultation and participation (Rowe and Frewer 2005).

Yet it may be unclear when an individual acts as a citizen and when as a consumer, and this distinction is of both conceptual and practical relevance. Conceptually, the citizen has been equipped with rights and responsibilities whereas consumerism has been considered to relate more to individual freedom and choice, but this dichotomy has eroded over time and the tension between these two concepts has evolved (Gabriel and Lang 2006). Although it may in practice be hard to distinguish between these concepts or sometimes even unnecessary to do so, it is nevertheless valuable to consider whether or not individuals are speaking for themselves and their personal choices or addressing wider societal issues.

The concept of citizen-consumers represents an attempt to overcome the dichotomy between consumerism and citizenship (Vidler and Clarke 2005; Jubas 2007; Livingstone et al. 2007). This concept has challenged the conventional yet widespread view on citizens acting for the benefit of society and consumers acting in their self-interests and thus contributing to the degradation of the environment. While citizenship still is often considered to contain the notion of acting for the common good, consumerism has also been recognized to perform similar acts. The consumer movement and the activities it performs, such as interest representation, education and boycotts, represent collective practices traditionally associated with citizenship (cf. Mayer 1989). This suggests that the methods individuals and groups utilize may be just as important as the category to which they are considered to belong (cf. Hirschman 1970). In contrast, the concept of citizen-consumer sees these roles as overlapping and that people act from both motives depending on the context and situation. Historically, the concepts of citizenship and consumerism have also been blurred, such as in 19th century Britain where specifically consumers were expected to act patriotically and unselfishly to promote the interests of the empire (Trentmann 2008).

It should come then as no surprise that the distinction between the concepts of consumer and public engagement may also be blurred and that engagement procedures may be characterized by overlapping aims and similar activities. In this article, we argue that also consumers find the distinction blurred, overlapping and perhaps even irrelevant. We proceed by examining how consumer engagement and public engagement have been carried out in the domain of new energy solutions relating to smart grids, smart meters and low-carbon services. We then compare these procedures with original results from a recent survey carried out on energy efficiency in Finland, highlighting the intersections between consumerism and citizenship. In our final discussion, we argue that energy companies and other actors should be aware of the intersections between consumerism and citizenship in their engagement activities to ensure that the results from these activities are interpreted and applied appropriately.

# Consumer and public engagement in new energy service development

Previous research has recognized the need to engage consumers and the public, i.e., citizens, in the development of a 'smart' energy system. In particular, issues surrounding the "smart grid" and "smart meters" have received attention recently (Gagnale et al. 2013; Hess & Coley 2014). However, there is limited research on how consumer engagement and public engagement might overlap or be interconnected (Walker and Cass 2007). We focus in this article on the body of knowledge collected in engagement research on "smart grids", "smart meters" and lowcarbon service development by energy companies (examples of these services relate to micro-production of energy or supply of energy saving equipment such as air or ground heat-pumps and their installation or maintenance). This data is then contrasted with results from an energy efficiency service -survey (such as real-time energy monitoring or guiding devices or online services) which is presented at a latter section.

We argue that this is also due to what kind of engagement is sought for and partly due to research methodology and in particular how much room respondents are given to formulate their stances. As the dichotomy between consumerism and citizenship is conceptually overlapping and intersectional, we believe it benefits from empirical analysis that looks at both epistemological and practical issues.

The following response from our consumer survey demonstrates the issue of overlapping roles of respondents as citizens and consumers and the influence of research methodology:

More sensible street lighting! Start using LED lights. An extra tax on flying! All leisure time vehicles [should be charged] a use fee. [category: Citizen (3); authors' translation]

The response considers that it would be beneficial for society if street lights would be used differently and if flying and the use of vehicles for leisure would be made more costly. According to our categorization, we consider this response to reflect a concerned citizen's stance on required changes, which in turn would require a political process in order to be achieved as these are not issues that markets are likely to address. If, for the sake of argument, this was considered a consumer stance, it would very likely be difficult to achieve on a voluntary basis i.e. subjective consumer choice. A voluntary fee could be seen as a solution for more costly expenses, but it would be unlikely to be successful unless a great number of consumers would agree, which we cannot know based on the response. In this respect, the consumer-citizen dichotomy has a dimension relating to procedure as well as targeted individuals (cf. Hirschman 1970).

In economics, the concept of public goods (i.e. goods that cannot effectively be excluded from others and where consumption of one person does not reduce consumption of others) is used to explain this kind of dilemma. The logic of collective action then exhibits that if there are common interests, there will also be collective action to achieve these interests (Olson 1965). When there is a lack of such common interests or there is a lack in the strength in these interests or when there are market failures and barriers, a political process may be required to achieve the sought public goods. Energy efficiency and new network solutions such as smart grids can be considered to resemble public goods. Large numbers of consumers can benefit from their introduction without needing to cover expenses individually. This is the reason why government regulation or subsidies may be required to promote new such solutions because markets, at least partly due to lack of functioning consumer incentives, may not develop them. Consumer incentives may be lacking also because the solution being developed is a credence good, that is, it is hard for the consumer to evaluate its impacts (Benz 2007).

There is research gap on explicit research on the intersection between the energy consumer role and the public citizen role. Given that some consumer and public engagement concerns

overlap, while others are distinct (e.g. convenience vs. societal benefits), should people be engaged separately and explicitly as "members of the public" or as "consumers", or could public engagement encompass these two roles at once? This is a difficult and novel question to study empirically. We aim to make a modest first contribution to this question by addressing how consumer and citizen roles, and the intersections between them are represented in open-ended responses to a survey on "consumer acceptance" of smart energy services (i.e. services that are enabled by investments in the smart grid and smart meters, such as real-time energy monitoring devices, low-energy equipment such as LED lighting, or micro-production of energy). In order to conceptualize and contextualize the issue, we next look at how consumer and public engagement have been conducted in the domain of energy, arguing that intersectionality between the two kinds of engagement can be observed.

### CONSUMER ENGAGEMENT

The need for better consumer engagement has been recognized in several studies on smart grid projects and pilots (Darby 2010; Gagnale et al. 2013; Mengolini and Vasiljevska 2013; Verbong et al. 2013). Yet these studies define consumer engagement in quite different ways.

Gagnale et al. (2013) summarize the consumer engagement practices in existing smart grid projects under two headings: (1) observing and understanding the consumer and (2) engaging the consumer. Of these, the first refers to "studies of use", that is, studies observing consumers' energy behaviour and practices i.e. the way they manage their everyday life, their reactions to new technologies, as well as attempts to identify consumer segments and early adopters as well as their motivations to adopt new energy services. The second refers to the provision of information to consumers on new technologies and/or on their own energy consumption, and to attempts to change consumer behaviour.

Darby (2010) and Geelen et al. (2013) discuss ways in which "smart" technologies could engage consumers in learning processes. This is necessary because consumers are widely acknowledged to be currently in the "periphery" of the energy system, rather than the "active agents" envisaged in smart energy discourse. Both Darby (2010) and Geelen et al. (2013) discuss affordances or design solutions that support user interaction and guide processes of behaviour change as well as acknowledge the social and collective aspects of learning new practices and new roles in the energy system. Such analyses do not employ a static perspective on how smart meters are or might be used, but rather see the use of such meters as emergent – but also dependent on the relations between users and electricity providers that metering devices construct (Darby 2010).

In a broader context of energy market evolution toward lowcarbon services, Bonnemaizon and Batat (2011) discuss the need to involve consumers in service co-creation, accounting themselves for a part of the supply of the service in question. On the basis of an analysis of a large energy company's employees' consumer representations, they recognized that this can be difficult since company representatives perceive consumers as being "ignorant". Hence, they argue that a significant learning process is also needed in organizations, building on experimentation that reshapes existing customer representations and recognizes that consumers can become competent by sharing expertise amongst each other and by making use of digital technologies (Bonnemaizon and Batat 2011). Indeed, Marres (2013) and Wallenborn and Wilhite (2014) argue for a concept of "material engagement", where consumers are involved in experimentation with new technologies that become part of their daily practices. Such engagement is open-ended and allows for unexpected results. Thus, the consumers are the experimenters themselves, rather than experimental subjects.

### PUBLIC ENGAGEMENT

While consumer engagement has received increasing attention among proponents of a smart grid, research shows that experts rarely recognize the need for public debate or engagement, even though the smart grid is recognized as a potentially transformative infrastructure with significant implications for the entire energy system. For example, Schick and Winthereik (2013) analysed the non-existence of "the public" in Danish and German smart grid innovation platforms. They found that expert smart grid proponents recognized the difficulties of engaging the public, yet in response called for more experts (experts on human behaviour) to be involved, rather than engaging directly with members of the public, who were perceived of as ignorant and thus not part of the "smart grid family". Verbong et al. (2013) reported similar findings among smart grid experts in the Netherlands, who mainly considered users as "barriers" to smart grid roll-out and rarely considered that a smart grid (and more active user involvement in the energy system) might lead to organizational changes in the energy system.

Indeed, difficulties in engaging the public have in some places led to significant public resistance to the "roll-out" of smart meters. Hess and Coley (2014) and Hess (2014) have analysed public controversies concerning smart metering in the USA and Canada. They found that opposition toward smart meters could be found across North America, with a main focus on health risk concerns, but not precluding other issues such as privacy and cost. In some cases, resistance had led to persistent opposition campaigns, with local governments ruling to opt out of state/province-wide roll-outs. Hess (2014) concludes that energy companies and governments should consider abandoning a focus on "informing the public" and turning to genuine engagement, that is, dialogue, the building of trust, and mutual innovation that addresses the concerns voiced by opponents.

Cotton and Devine-Wright (2012) have made a critical analysis of how representatives of the UK distribution and transmission networks conceptualize "publics", "stakeholders" and "customers". They show that engagement of the public is largely ceremonial and rhetoric, while current institutional structures in the energy market actually hinder distribution service operators from engaging with (their own) consumers. Hence, public engagement processes are conducted by the energy regulator at a national level and remain too abstract to offer direction for concrete changes in the market. Moreover, electricity is a challenging topic for public engagement, deliberation and debate. Industry and technology experts and ordinary citizens speak of electricity in very different languages, and struggle to communicate (Parnell and Popovics-Larsen 2005). It is no wonder that Cotton and Devine-Wright (2012, 33) conclude that "both the rhetoric and practice of public and stakeholder engagement across the networks industry lack a clear rationale, as well as a

means of identifying relevant citizen perspectives and mechanisms to deliberate and incorporate public perspectives "upstream" in decision-making processes."

While public engagement remains a fragmented and largely rhetoric activity, "smart" or low-carbon energy services give rise to several issues (apart from the obvious health, privacy, data security and cost concerns) that would call for more public debate. One is the (envisaged, future) need for demand response, which is far from universally recognized among the general public (Darby et al. 2013). Indeed, both Schick and Winthereik (2013) in Denmark and Heiskanen and Matschoss (2012) in Finland found that at least some members of the public consider the current energy system to be the epitome of "smart" because it requires so little effort from users. Issues of trust and confidence have been highlighted - e.g. Mengolini and Vasiljevska (2013) found this to be a major concern among companies, well backed up by surveys showing a lack of public trust in energy companies. A third issue that is likely to require public debate is the capacity of a liberalized electricity market to create a smart energy system, given the way in which the roles of e.g. energy retailers and distribution service operates have been separated from each other in order to encourage competition (Cotton and Devine-Wright 2012; Darby et al. 2013; Apajalahti et al. in press). This might be a difficult topic for public engagement to address, given the fact that most Europeans struggle to understand the current structure of the energy market (Kolk 2012).

# INTERSECTIONS BETWEEN CONSUMER ENGAGEMENT AND PUBLIC ENGAGEMENT

Consumers and "members of the public" are the same people; the roles intersect. However, the literature addresses people somewhat differently in their roles as users and as potential political actors. Some of the categories of issues discussed overlap, but there are also distinct issues that pertain to users and non-users of the smart grid. Following Wuestenhagen et al. (2007), we can distinguish between socio-political acceptance, community acceptance and market/consumer acceptance (see also Raven et al. 2009) as referring to different aspects of engagement. In the context of smart grid acceptance, Mengolini and Vasilijevska (2013) represent these different "levels" of engagement as concentric circles, where consumer acceptance refers to "understanding", "protecting" and "engaging" consumers, community acceptance refers to "local ownership" and "community grids", whereas socio-political acceptance refers to issues of "externalities", "social fairness and development" and "uncertainties".

Arnstein's (1969) "ladder of citizen participation" is a classic representation of different levels of public engagement. It is tempting to build on this metaphor, yet a linear view of "levels" might not capture all the relevant dimensions. It is perhaps possible to imagine a situation where citizens might have full powers of decision, but in practice, due to existing institutions, infrastructures and historical competencies, decisions about energy systems are never made on a "clean slate" (see e.g. Cotton and Devine-Wright 2012). Aspects of learning, evolution and materiality – as well as the interconnectedness of energy systems – should be factored into processes of public engagement. Moreover, it might be simplistic to view consumer engagement as a "lower" level of engagement and "public" engagement as a more advanced one – the fact that public engagement often deals with broader societal issues might obscure the concrete materiality of consumers or householders experimenting with new technologies, and the (potentially) political and unexpected outcomes of such engagements.

Hence, we focus our interest on the intersectionality (Warner 2008) of consumer and citizen roles. Intersectionality is a concept from gender studies, which highlights the fact that people identify themselves and are identified by others as members of several different groups or categories at once. From this perspective, identity is seen as dynamic and historically and situationally constructed. We use this concept to access a notion that people might be simultaneously consumers and members of the public in their relations to new low-carbon energy services, markets and institutions. This concept allows for a 'flat' consideration of the private and the public sphere as equally important and mutually constitutive.

# Methodology

### DATA

This paper uses data collected in context of a research project conducted in 2013 in Finland called The market potential of energy efficiency services and best practices. This research was funded by the Energy Research Pool of the Finnish energy companies, the Finnish Innovation Fund, an institution of the state of Finland, and the Energy Industries, an organisation for the industrial and labour market policy of the energy sector in Finland. Thus, the interest of these organisations guided the design of the project and its aims. The background for the interest in such a study lays in the smart grid developments and emerging need of the industry to develop new ways of doing business, due to the expectations of the EU that the European companies help reduce the energy consumption of their final customers by 1.5 % annually (EED 2012) but also due to climate change and increased pressures to reduce the carbon dioxide emissions of energy use. This research project was built upon a previous research that studied lead users of novel smart energy solutions and utilises the methods developed in the context of that study (Heiskanen and Matschoss 2011).

In context of this research, we made two surveys: one was directed to the Finnish energy companies and the other, called "Energy efficiency in Finland", was addressed to lay people<sup>1</sup>. The key idea behind the execution of the surveys was, thus, to gain a perspective to both sides of the energy efficiency service market: the supply and the demand side. The energy company survey dealt with questions about the firms' service production such as what kinds of services do firms offer to customers; are they planning to supply some; would they like to add more to their business palette; what are the greatest obstacles in service design, and have they offered energy efficiency services with third parties such as hardware stores or telephone companies. The questionnaire was send to 180 persons in all Finnish energy companies and we received responses from 53 employees

<sup>1.</sup> The results of the quantitative research of this survey data can be found in Matschoss et al. (2015) and Matschoss and Kahma (2015; submitted).

in 43 firms. The point of view of the firms was further deepened and explored in two workshops organised for electricity company representatives, the first of which was organised in spring 2013 and the second in autumn 2013. In these workshops, the service development, barriers and determining factors that contribute to successful piloting of energy efficiency services were discussed from the company point of view. There were 13 participants in the first workshop and 15 participants in the second workshop.

The questionnaire directed to consumers on its part examined consumer attitudes towards energy, technology, energy firms and some variables related to the socio-demographic background of the respondents. We sent the consumer survey to 5,000 Finns aged 18 to 70, who were selected by drawing a random sample from the Finnish Population Register Centre's database in spring 2013. Postal questionnaires were distributed and respondents were offered the possibility to fill in the questionnaire also online. As the first posting of questionnaires did not result to an adequate amount of responses, we organised a second posting. Finally, we received 1,240 filled in questionnaires, which makes a 24.8 % response rate that we consider adequate remembering that energy is a difficult subject matter to most lay people. Other studies show that when there is reason to suspect that there is a commercial interest behind a survey, the response rate is often around 25 per cent in Finland (Dillman et al. 2009; Ruostetsaari 2009.) In this paper, we focus on gaining insights on the role of people as consumers and as citizens by using open question responses to the consumer survey and reflect them in the light of the firm survey. We study the responses to two open questions: one that asked responses from the respondents on any issue that they would like to raise and another that asked respondents to name services that they would be interested in. The open questions were not as popular as the multiple choice questions and they were not obligatory, which is why there are not as many answers to them. Our data is finally comprised of 166 responses for the completely open question and 234 for the question for service wishes.

### **RESEARCH METHODS**

Our research design is in line with interpretive constructivist analysis (Eatough and Smith (2008): we are interested in the participants' experiences and own categorizations, but acknowledge that the researcher's interpretations are necessary for making sense of this experience. Since our interest was in how participants positioned themselves vis-à-vis our particular categories of interest: as consumers or as citizens, we employed a deductive coding approach (see Fereday and Muir-Cochrane 2008) based on our review of the previous literature to identify issues as "Consumer", "Citizen" or other concerns. (See e.g. Gabriel and Lang 2006; Livingstone et al. 2007.)

We developed a method to evaluate the responses in a systematic way including a quality check. Each author of this paper evaluated each reply independently of the other two. We first decided upon four categories for the roles of the respondents: 1) Consumer, 2) Citizen, 3) In between the two and 4) something Else. The replies that related to respondents' own situation or directly to their close surroundings were determined to belong the "Consumer" category. If the response had a wider perspective related to something that dealt with a larger community or a wider societal issue, it was determined to belong to category "Citizen", and if the response concerned both perspectives in belonged to category "In between". Anything, that did not seem to belong to any of these categories, was ruled to be "Else". After the cases were evaluated by all authors, a summary was made. We decided against a categorisation of the responses to the open question, as it would have been arbitrary because responses often included several themes and topics. One response, for instance, encouraged energy saving, was concerned about security of supply and criticized nuclear energy. In this example, the role of the respondent was, however, easy to recognise (citizen).

The evaluation process showed that it was not self-evident to identify the role of the respondent in each individual case. Table 1 presents the differences in the categorisation process. The labels in Table 1 represent the final allocations showing for example that for the completely open questions, 47 quotes that were finally categorised as "Consumer", were initially nominated as such by 2 out of 3 authors. The responses belonging clearly to consumer or citizen roles were the easiest to recognise, which was also expected while designing the method for the categorisation. The citizen role was the most straightforward to recognise as 50 % of those nominations were made by all authors whereas nominations for the "Else" category were the most widely dispersed. In turn, nominations in the "In between" category were more frequently nominated by one author differently than the other two. When the nominations fell into different dimensions such as consumer-citizen-"Else" (rather than the consumer-citizen-in between dimension), these cases was categorised as "Else". In the latter quotations, the final category is underlined.

The "Else" category reflected most diversity in nominations. One of the authors classified responses related to the research design to belong to the category "Else" whereas the two others could at times see the roles of consumers or citizens in such responses. For example:

This research initiates from completely commercial interests, that is the sales promotion of electricity companies. This organisation is not the right forum for that! It should be for consumers, not for energy companies. Or do you belong to commercial actors? For example energy companies ... in that case your name is misleading and should be changed. [category: Else-Citizen-In between (1+1+1)]

In the company survey, the main reasons for not developing services were addressed with preselected multiple choice questions, where they could choose as many as they wished, and have an opportunity to specify the reason if the option was missing from the list. This data was scrutinised with common statistical methods. For the data collected in the workshops, we analysed the data with an approach similar to the one used with the open questions. We categorised the responses that represent the views of companies from different point of views. The companies can view their customers' on the one hand as actors in the market, and on the other, as societal actors. There are also issues that fall between the both as well as issues that are something "Else". We discuss these shortly as a reflection to the consumer analysis at the end of the next section.

### Table 1. Initial nominations of the cases by authors (n).

	Consumer	Citizen	In between	"Else"	Total				
Completely open question									
All nominated the same	21	22	1	5	49				
Two out three nominated the same	47	23	18	5	93				
All nominated differently	0	0	3	21	24				
Total	68	44	22	32	166				
Question about service wishes									
All nominated the same	63	1	43	0	107				
Two out three nominated the same	52	4	64	1	121				
All nominated differently	0	0	1	5	6				
Total	115	5	108	6	234				

Table 2. Frequencies of the replies in different categories.

Role as respondent	Open question		Question about service wishes		
	n	%	n	%	
Consumer	68	41	115	49	
In between	22	13	108	46	
Citizen	45	27	5	2	
Something "Else"	31	19	6	3	
Total	166	100	234	100	

# Empirical findings related to Finnish energy markets

### Consumers versus citizens: results of open questions

Table 2 presents the frequencies of the responses in different categories and latter quotations depict the coding process. A clear conclusion from the analysis of the open questions is that when the question dealt with respondents' wishes for services, the respondents take the role of the consumer. They speak for themselves or for the people in their surroundings. Some of their suggestions are quite novel and creative, reflecting an open attitude towards technology and developments in the energy sector. In terms of services, the services most called for related to advice and information on how one could influence one's own energy consumption (60 replies). In addition, systems based on renewable energy production (own microgeneration) and advice on ecological alternatives were frequent (37 responses). Some respondents also wished for real-time electricity consumption monitoring (13) and services related to the maintenance of the building (8).

It would have been interesting to be able to break down the "In between" category in order to be able to determine the topics, in which respondents frequently take the roles of both citizens and consumers. However, this was deemed unfruitful and arbitrary after an initial attempt. It turned out that although respondent mention several recurrent topics in their responses, it is the whole that determines that the response belongs to category "In between". For instance, the topic of "monetary saving through intensifying energy use" reoccurs, as well as how this is difficult due to tariff structures or because of small saving potential in apartment buildings, but these topics are not exclusive for this category as they are also mentioned in the category "Consumer".

One of our findings is that even when explicitly addressed in a consumer survey, some consumers take a citizen role when considering low-carbon energy services, if they are offered an opportunity to do so. These are well presented by the following quotations (all authors' translations):

The condominium association should motivate and encourage the residents to change their electricity provider. [category: *Citizen* – In between (2+1)]

[I would wish as services ...] wood pellet pressers for households so that one could press one's own pellets. Equipment with which households' own waste could be turned into gas that could be used for heating, in the car, in a grill, etc. [category: *Consumer* – In between (2+1)]

The variety in the completely open question was rich. An example of a response from a consumer role that often related to the own, individual situation of the respondent:

If I were a technician, I would install solar panels right away onto our wide southern side roof area and connect them to direct electric heating and to floor heating. [category: *Consumer* (3)]

An example of an answer clearly related to the citizen role:

Imported energy use must be reduced. I wonder why so few single-family homes have air central heating. [category: *Citizen* (3)]

We identified the category "In between" in responses, where people, for example, linked their role as consumer to broader societal issues such as the profit-seeking imperative of private energy companies. Some responses in the "in between" category asked for advice for the individual consumer as well as for some broader category of people, such as rural households. These respondents wanted energy companies to invest in some particular kind of technology development (e.g. energy efficiency of IT products, more efficient PV panels), or called for overall facilitation of electricity micro-generation. Moreover, some responses required that the companies' energy efficiency measures should be focused toward conservation in larger facilities (companies, public buildings) rather than focusing on individual consumers, or called for more advice for condominiums and housing companies. Our analyses show that the opinions or views presented as citizens do not contradict those presented as consumers. Both categories seem to see the benefits of the society to benefit also the consumer. Thus, the interests in both roles seem to be overlapping and working in the same direction. We list some examples of responses that fall in between of the two categories consumer and citizen, such as:

[I would wish as services ...] the utilisation of efficient solar power for households. The present equipment are still rather inefficient. There should also be advice for the utilisation of the solar power alongside the current system. [category: *In between* (3)]

I don't trust a system where energy companies recommend how to save in energy use. That will only result in less profit to them. Recommendations need to come from an independent organisation. This applies to the consumer's possibility to produce electricity into the network. This possibility must be guaranteed by some other body than the energy company because the own production would compete with their production facilities. It would be fantastic if consumers could sell their extra electricity to others. [category: *In between* (3)]

The tariff structure of energy companies has been designed such that energy saving is impossible or benefits primarily the energy company. [category: *In between*-Citizen-Consumer (1+1+1)]

The category of responses that do not fall clearly into the consumer or citizen role was categorized as "Else". These responses often addressed other issues than those being analysed: other forms of energy than electricity; services provided by the public sector, the monopolistic position of energy companies, and concerns over the proliferation of new energy consuming products, which easily negates conservation efforts in households. We present some examples of "Else" cases, where the categorisation of the response into roles also fell into several categories, as was most often the case. ... public support [subsidies] for [equipment] acquisitions. [category: *Else*-In between-Consumer (1+1+1)]

The results show that people talk from various roles and that there is a richness of ideas and concerns, the expression of which might be hindered if there are strong expectations of the kinds of answers a qualitative survey is supposed to give and if the questions asked are designed narrowly. As one of our respondents said:

You have lousy questions in your survey. You'll get exactly the answers you expect to get. [category: *Else* (3)]

### FIRMS LISTEN PREDOMINATELY TO CONSUMERS

In the separate survey directed to energy companies, the firm's state as the main reason for not developing new energy efficiency services<sup>2</sup> the lack of personnel resources (41 responses). The other two important reasons are the fear that the customers interested in the services are only a minority (33) and the uncertainty of the demand for services (32). Firms are also concerned about the possibility that the services would lead to economic losses (19). A substantial number of respondents (15) also thought that developing services is burdensome. A few of the firms also found that predicting how the cooperation with the customer will succeed is so difficult that it poses a barrier to service development (5), that services will not lead to sufficient energy saving to be worth developing (6) and that the firm is not able to deliver service to all customers equally (3).

The firms also expressed their concern that customers, for example, are not prepared to pay even the cost price of an energy expert's visit at their homes. Moreover, the commercialization of the services is highly challenging and the service development requires investments. The respondents pointed out that the supply of services is not seen as the core business of energy companies and that the strategies of the firms did not include service development at that time. Uncertainty related to standardisation of equipment and software as well as to the general future of technology – for example how fast does new technology alter forcing the firm to invest into new technology – is a major overarching issue, which was raised frequently in the open-ended responses of the firms.

The workshops discussed the possibilities and challenges, what to monitor and to pilot, what kind of knowledge should be developed and where to invest related to service development. When considering the voice of the people, whether they speak as consumers or citizens, it becomes clear that firms do not seem to regard their customers as societally relevant (political) actors. Their views of customers relate more to market actors and to their role as consumers. The firms focus more on "developing consumer skills" and they "... hope that the customer would share more information of their individual situation with the energy company, so that better service could be offered".

An important challenge that relates to people as societally aware actors was found to be the 'thin' relationship of the youth

<sup>[</sup>I would wish as services ...] comparisons between different forms of electricity production and their benefits. [category: *Else*-In between-citizen (1+1+1)]

<sup>2.</sup> The company survey did not specify new services in question, but it was clear to the respondent from previous questions that they related to many kinds of energy related services such as energy audits, energy advice giving services, renting or selling displays, air or ground heat pumps, service for the design of energy efficient electric heating, individual advice for heating system operation, etc.

with energy in general and electricity in particular: meaning that for example the concepts of kWh or KW/MW are unclear to many, but also this view of unconnected youth relates to people's roles being "In between" the market actor and societal actor. An exception relating to the perceived role of the people were the environmental attitudes of the youth: the participants suggested that "the raising consciousness of the youth" of today related to climate change and energy consumption and "a growing sense of responsibility" point to the notion that, as these issues are becoming mainstream some new possibilities for service development may emerge. Relating to climate change, the firms thus changed their views of the youth from being mere market actors into youth becoming societally conscious actors as well, but the discussion gave the impression that we are not quite there yet. The firms seem to be expecting the people to "evolve" as consumers.

# Discussion

Consumer engagement and public engagement, i.e. individuals in their roles of citizens, are believed to assist the development and large-scale adoption of new energy services and solutions. There is also a call for these new services and solutions to be sustainable, bringing in a new challenge the engagement processes. Our analysis of the responses to two recent surveys on energy efficiency in Finland indicate that consumers may take the position of a citizen alongside the consumer position and that there is also an intersection between these two positions. Organizers of consumer and public engagement would benefit from the consideration of these findings in order to frame engagement processes and assess the outcomes of these processes appropriately. The dichotomy between consumers and citizens is by no means clear (Gabriel and Lang 2006; Jubas 2007). Our analysis suggests that the concept of citizen-consumer, itself, also incorporates several dimensions, which we have highlighted with the concepts of "in-between" and something "Else", which aim to chart some of the intersections between consumer and citizen roles.

In our analysis, we identified an interesting category of "in between" responses, where people linked their own role as consumer to broader societal issues. Responses in the "In between" category called for advice for the consumer her-/himself and some broader category of people, wanted energy companies to invest in some particular kind of technology development, or called for overall facilitation of electricity micro-generation. Still others wanted to refocus the energy companies' efforts toward conservation in larger facilities or called for more advice for condominiums and housing companies. These responses relate to the consumer position since people respond as a customer of a particular energy company, but call for new and different services or investments by their energy provider, some of which are not related to energy conservation in households at all.

We also identified a category of responses that does not fall clearly into the consumer or citizen role, but represented something "Else". These responses often sought to broaden the discussion: beyond electricity to all kinds of fuel use; beyond energy companies to address the services provided by the public sector, beyond energy services to a discussion on the monopolistic position of energy companies, or beyond energy conservation to the proliferation of new energy consuming products which easily negates conservation efforts in households. These are examples of responses where the respondent relates or compares some broader topic to their own situation or potential for action, for example by wondering whether the private activity of energy conservation makes sense given the proliferation of new products or the energy providers' (perceived) monopolistic position. They include conventional "citizen-consumer" themes like a desire to influence markets via one's own consumption, but also reflect doubts concerning the consumers' possibilities to influence the energy system by conserving energy or selecting one service over another. They are thus consumer-citizen responses that argue for the need for a citizen role in order to surmount the limitations of the consumer role.

The energy companies primarily saw their customers as consumers, and were thwarted in their service development by uncertainties concerning demand and their own capability to meaningfully connect with their customers. It is quite natural that companies relate to their customers first and foremost as consumers, and discuss issues like lacking consumer skills and competences (e.g., lack of understanding energy units like the kWh). Yet the entire problem of providing energy services is also a societal one, and the firms seemed to recognize this, as they anticipated a future demand for energy conservation and renewable energy services - once consumers "have evolved" to a sufficient degree. Hence, in the companies' discourse, the consumer is bounded by current practices and resources, but the citizen is more of an ideal. The two representations of customers co-exist, creating tensions between ideals and potentials and current possibilities.

Our results show how the division between (embodied, concrete) consumers and (disembodied, idea) citizens leaves a problematic gap that leaves both consumers and citizens marginalized in today's large-scale and expert-driven energy systems. Many consumers would like a system that is more frugal in energy use, but feel their own possibilities as consumers are constrained by current infrastructures and governance structures, as well as their peripheral role in a large energy system. As citizens, on the other hand, many aspects of the energy system are outside the scope of democratic decision making since they are framed as technical issues (such as the configuration of the smart grid), which are delegated to experts, markets and administrators rather than political decision making. This is an example of how an intersectional approach can allow us to understand how people might be marginalized in several ways simultaneously: as consumers, wishes and expectations that are outside the mainstream are only heard in the open-ended questions of a survey, whereas as citizens or community members, people often lack ways to get organized and call for solutions or public debates that serve a broader (perhaps underserved) societal need.

These observations are preliminary, and would merit closer analysis. Moreover, there are certain limitations to our study. The responses received to open-ended questions represent the more active respondents (about one-fifth) of our survey study, which in itself might also include some sample bias (see Matschoss et al. 2014 for more details). The data pertain to only one European country: further research might address the cultural and geographic specificities of consumer and citizen roles in the energy sector in different European contexts. Furthermore, we decided against the categorisation of the replies in the open question because the results would have been very vague as the open questions often included responses relating into many different topics.

These limitations notwithstanding, our results have implications for consumer and public engagement in the low-carbon energy markets of the future:

- The number of responses received suggests that energy is a topic of interest: people have opinions that they want to express and which do not fit neatly into precategorized consumer roles.
- Framing matters: when asked about services, most people respond in a consumer role, even though some adopt a broader citizen role. With a more "open" framing, more people take on the role of citizen.
- The fact that there are intersecting categories that do not neatly fall into a "consumer" or "citizen" role suggests that public engagement should be designed with care, so as not to obscure these concerns, but to allow room for them to be voiced and debated.
- One way to address the intersection of consumer and citizen roles might be to organize public engagement around practical examples and cases. This could allow for a more concrete public engagement process that goes beyond the ceremonial and rhetoric engagement processes characterized by Cotton and Devine-Wright (2012) and considers material and everyday engagements discussed by Marres (2013) and Wallenborn and Wilhite (2014).

We find it critical to consider the contexts and aims of consumer and citizen engagement when assessing its outcomes. Our initial findings indicate that consumers are also likely to provide responses which are located at the intersection of consumerism and citizenship. Due to the fact that some consumer and public engagement concerns overlap, while others are distinct, people should be engaged both as "members of the public" and as "consumers", hence public engagement should encompass both of these two roles. Our data reinforces and extends the arguments by Cotton and Devine-Wright (2013): citizen and consumer concerns overlap; moreover, some concerns are not completely captured in a pure "Consumer" or "Citizen" role. Hence, if people are engaged separately as consumers, community members and members of the public (Mengolini and Vasilievska 2013), some of these concerns might be obscured. Public engagement, while often dealing with broader societal issues, should not obscure the concrete materiality of consumers or householders experimenting with new technologies (Marres 2013; Wallenborn and Wilhite 2014) - our findings illustrate how such material engagements (e.g., attempts to save energy in the home) can give rise to political reflections (e.g., pro more distributed energy systems, or stronger political control of energy or product markets). Therefore, it would be simplistic to view consumer engagement as an inferior level of engagement and public engagement as the more advanced one.

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