

Views on Energy Efficiency –

Findings from the CASSANDRA project

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Abstract—In this paper we present findings from the CASSANDRA project, in the area of energy efficiency. We set out to explore what view on energy efficiency elderly individual tenants and the European Union (EU) convey, respectively, as well as whether their respective views differ or not. Data used are a) qualitative interviews with 15 tenants at a multi-residential building for elderly people; and b) EU Directives in relation to energy efficiency. We find that environmental concerns are shared by both parties, and that resources are limited is also agreed upon. Where they differ is around growth and lack of information, of which the first is not an issue for the tenants, and the other they regard to be wrong – they see themselves as informed. Of specific interest was whether the tenants was aware, knowledgeable and motivated or not, since this is regarded to be preconditions for energy efficiency, according to the EU. Our findings show that most individual consumers show great concern for the environment, and they claim that they are raised and taught in being economic with all resources.

Keywords—energy efficiency; final consumers; smart meters

I. INTRODUCTION

The energy situation in the European Union (EU) calls for action. Currently it is marked by scarce energy resources, something that lead to increased dependence on energy imports. There is also need to limit climate changes, which is closely related to energy consumption. One way to tackle this is through energy efficiency initiatives. These initiatives are expected to improve the security of supply by reducing primary energy consumption and decreasing energy imports. Accordingly, the aspiration is to shift the EU into a more energy-efficient economy, where an accelerated spread of innovative technological solutions that address energy efficiency contributes to handle the situation per se, but also helps to improve competitiveness of industry in the EU [10]. The energy and emission objectives for 2020 is set high, the EU is committed to build a low carbon society by a reduction of greenhouse gas emissions by 20%, by an increase of renewable energy to 20% and by target a 20% improvement in energy efficiency [11].

Energy efficiency is regarded as one of the most cost effective ways to secure energy supply, while simultaneously leading to reduced emissions of greenhouse gases and other pollutants. As such, efficient use of energy can be regarded as Europe's major energy resources. E.g. between 1996 and 2007

a 13% improvement in the energy efficiency of final consumers took place in the 27 EU member states, leading to energy savings of about 160 Mtoe (million tons of oil equivalent) over the period.

Across the, now 28, EU countries household electricity consumption constitute approximately 28% of the total electricity consumption [14]. Much effort has been put on reducing energy consumption by appliances, but changes in lifestyle have counterbalanced a large part of this. In the European Consumer Agenda adopted on 22 May 2012 [5] the Commission announced its intention to improve the information available to consumers on how to better manage their domestic energy consumption and encourage them to use technology to their benefit. Moreover, as highlighted by the European Consumer Organisation (BEUC), the liberalization of energy markets has not yet fully delivered the expected benefits, and consumers are still experiencing difficulties regarding e.g. switching, high prices, unclear billing, and poor complaint handling procedures.

In their 2020 Vision for Europe's Energy Customers, BEUC and CEER [2] promotes four principles as the cornerstones of an energy sector where the European consumer truly comes first, namely reliability, affordability, simplicity, and protection & empowerment. In Directive 2012/27/EU the EU establishes a common framework of measures for the promotion of energy efficiency in order to ensure the achievement of the Union's 20% headline target on energy efficiency and to pave the way for further energy efficiency improvements by 2020. The rules are designed for to remove barriers in the energy market and for to overcome market failures that hamper efficient supply and use of energy.

Intelligent Energy – Europe [11], launched by the European Commission in 2003, is a programme aiming at the creation of an energy-intelligent future for all. The Programme generates improved conditions for a more sustainable energy future in various areas, e.g. renewable energy, energy-efficient buildings, industry, consumer products and transport. IEE has funded several EU projects, such as SMARTREGIONS¹; European Smart Metering Alliance (ESMA)²; ENERGY

¹ <http://www.smartregions.net/>

² <http://www.esma-home.eu/>

NEIGHBOURHOOD (EN2)³; EFFICIENCY_2.1⁴; and ICT for Energy Efficiency in European Social Housing (E3SoHo)⁵. Some of the lessons learnt from these projects are as follows,

It is of great importance to;

- involve and inform users of their energy consumption,
- incorporate users in the process and
- keep the users engaged for the long-term

It has shown that users are more inclined to change their consumption behaviours to energy efficient use if they;

- have good knowledge on what their usage has been and are,
- know what this usage means in terms of time and money, and
- have clear objectives on what the consumption could be and with what means this could be achieved.

Users are interested at the start of ICT use and interaction, but if not engaged and challenged on regular intervals, interest tends to decrease. Also, adequate real time data is an added value, if the display shows baseline and real time consumption.

The CASSANDRA Pilot Case in Sweden has applied many of these findings. In a Pilot Case running at Seniorenen, which is a multi-residential housing cooperative for elderly, the tenants have been involved in the Pilot Case and provided information on their energy consumption, what their usage has been and are, and also got real time data feedback of their energy use (for the building as a whole as well as their own, individual consumption).

In this paper we therefore concentrate on elderly individual consumers, and our aim is to discuss two of the challenges above that need to be addressed if energy efficiency will be fully realized. The first is the assumption that most household consumers do not know how much energy they are using, something that is central knowledge when an individual decide how to act in energy issues. The other challenge is how to create consumer engagement and motivation to save energy over time, since energy efficiency might demand a change in behaviour when it comes to energy consumption.

The rest of the paper is structured as follows. First we describe the project, and the multi-residential building taking part in the CASSANDRA project. This is followed by a description of the methodology used in Chapter III, and then the tenants view on energy efficiency is provided in Chapter IV. Chapter V is an account of the view the EU show in different directives. In Chapter VI the discussion is found, and we end the paper with some conclusions in Chapter VII.

³ <http://www.energyneighbourhoods.eu/>

⁴ http://www.eaci-projects.eu/iee/page/Page.jsp?op=project_detail&prid=2614

⁵ <http://www.e3soho.eu/>

II. THE CASSANDRA PILOT CASE IN SWEDEN

CASSANDRA is a Collaborative project (STREP) within Call FP7-ICT-2011-7, addressing the work programme topic ICT-2011.6.2 ICT systems for energy efficiency. It started in November 2011, will run for 30 months, and includes 9 partners from 7 countries. The CASSANDRA project aim at constructing a platform for realistic modelling of the energy market stakeholders, that provide its users the ability to test and benchmark working scenarios that can affect system operation, company policies, and environmental regulations at different levels of abstraction, from a basic level (single consumers behaviour) up to large consumer areas (e.g. a city) [3].

As part of CASSANDRA two Pilot Cases are running; in Sweden and Italy, but this paper focus solely on the Swedish Pilot Case. The intention is to collect energy data from a multi-residential building for elderly people in three steps; first and foremost Smart Meters were installed and baseline data was gathered from January 1st to May 31st 2013. This data constitutes the starting point for CASSANDRA platform modelling [12]. With baseline data available, the Pilot has implemented two different programs, first a feedback program running from 1st of June 2013 until 28th of February 2014. The second program lasted from 1st of November 2013 until 28th of February 2014, and was a Demand-Response program. Here the intention is to explore whether tenants are willing to move their energy consumption from high consumption periods to low consumption periods, based on monetary incentives. As such the Swedish Pilot Case addresses behavioural patterns among tenants before and after actions are taken, and these are, besides being gathered and measured through Smart Meters, investigated through surveys, interviews, workshops and consultations with the tenants. All this data generated at Seniorenen is used as input for the CASSANDRA platform modelling capability.

The multi-residential building

Seniorenen was built during 1992-1993 for to realize the visions of a safe and easy living for elderly people over 55 years old, insofar that it addressed their needs of safety, high quality living and well-being. It is organized as a housing cooperative and consists of 33 apartments plus shared areas, such as a library, a sauna, meeting rooms and rooms for hobby activities such as wood craft and carpentering.

The tenants can be regarded as a network of consumers, since the tenants are members of the housing cooperative Seniorenen's tenant association. This means that as a member of Seniorenen they are expected to contribute with work such as maintenance, to attend member meetings, and joint activities such as shared dinners etc. The underlying idea behind the common areas is that these should enable and promote collaboration, community building, safety and well-being.

When it comes to energy, Seniorenen have district heating for the building, and electricity through Luleå Energi, a local energy supplier company. At present the tenants share all costs for electricity consumption on an equal basis. During the last years the tenants have put much effort into reducing the electricity consumption at Seniorenen; they have e.g. changed equipment, improved the isolation of the building, installed

timers on the engine warmers and bought energy-efficient washing machines. Besides this they have had information meetings where energy saving strategies has been discussed. The tenants took a joint decision to take part in CASSANDRA in order to further understand their energy consumption behaviour and for to make grounded decisions and act towards lowering their consumption, and thereby their energy costs. As such, the tenants already from the beginning constitute a well aware and initiated group of energy consumers.

III. METHODOLOGY

Much of the data gathered at Seniorens is quantitative, that is, it is collection of energy consumption data in Wh. However, for the purpose of this paper we rely on the qualitative materials, built up through the tenants' stories, thoughts and experiences. Overall, the approach here taken is qualitative, and aims at discovery, interpretation and insight, in line with Merriam's recommendations [15]. We explore energy saving initiatives and how these are perceived by the tenants in a real-life context [22] with a focus on the individual tenant's view on energy efficiency.

The empirical materials are gathered through workshops and interviews with the tenants, conducted during spring 2013. In addition we have participated at members meetings, and we have regular contact with the chairman at Seniorens. As such, this research involve frequent visits to the field of study over an extended period of time, as advocated by Walsham [19].

Methods for data gathering

The qualitative data gathered at Seniorens started with a survey (October 2012), which aimed to capture the Seniorens tenants' interest of environmental issues and energy saving in general, as well as to get a picture of what electrical and electronic devices they use. The survey is reported in D6.1 [12] and in this paper it only plays the role as reference material.

In May 2013 three workshops took place, with the intention to find out about the tenants view on energy saving, as well as how they act today to save energy. In total 15 (4+6+5) tenants participated and the workshops lasted about 1h each. All of the focus group interviews were recorded and later transcribed verbatim.

During June 2013 nine individual interviews were carried out around information on energy saving / energy consumption. Each interview took approximately 35 minutes, and all except one were recorded and transcribed verbatim. During the interview not recorded, the interviewer took notes instead. Hence, the methods used for the data gathering at Seniorens are methods that emphasize dialogue for gaining access to people's information, stories, and understandings.

Focus groups

Focus groups have, since long, been used across a wide variety of fields, such as sociology, communication studies, education, political science, public health, and marketing [16]. Focus groups can be described as an interview method for conducting a moderated group discussion, where the informants are encouraged to exchange, discuss, agree or disagree on a topic chosen by the researcher. The participants

are asked to provide their opinions, attitudes, and experiences on the same. Therefore, focus groups contribute to a picture of people's thoughts, ideas, attitudes or opinions. There are several benefits with this method, e.g. focus groups are perceived less threatening than one-on-one interviewing; they are less time consuming since the researcher can yield the thoughts of many at one time; and the informants are viewed as experts. Focus groups also allow group interactions, and thereby it is possible to reach learning among the informants [17]. Hence, focus groups are an excellent way to get a thorough understanding of the opinions, values and feelings about a topic or research problem.

In a focus group the questions need not be standardized; instead they are more of themes around which the informants discuss. Also, questions that arise during the focus group interview should also be asked, not merely the ones prepared. The informants are therefore encouraged to speak as freely as possible, e.g. the interviewer is expected to leave room for the informants to spontaneously express thoughts, ideas and concerns. Focus group interviews should rather be distinguished by being a group of people who tell stories that they together create during the interview, than a well-structured, step-wise interview [16, 20]. However, it is advisable to prepare a (more or less detailed) interview guide in advance, so the researcher can concentrate on listening, and not worry to forget any question of importance [21].

Interviews

The interviews followed the same idea as for the focus groups, meaning that also here the questions were not totally standardized. Instead the interviewer and the tenant talked around the theme "Information on energy saving / energy consumption". Thus, also here goes that the questions that arose and developed during the interview were also asked. In all interviews the tenants were encouraged to speak as freely as possible, i.e. the interviewer encouraged the tenant to express thoughts, ideas and concerns as they came up [18]. Still, we had developed an interview guide, reported in Holst et al. [13].

Document analysis

Finally, we have also reviewed the European Union/European Commission Directives on energy efficiency, with the aim of identifying what overall view the EU present, and what are the incentives for different actions to be taken. Of specific interest was the EU view on energy efficiency that concern citizens as final consumers. The analysed documents are; Directive 2004/8/EC [6] on the promotion of cogeneration based on a useful heat demand in the internal energy market; Directive 2006/32/EC [7] on energy end-use efficiency and energy services; Directive 2009/125/EC [8] establishing a framework for the setting of ecodesign requirements for energy-related products; Directive 2010/30/EU [9] on the indication by labeling and standard product information of the consumption of energy and other resources by energy-related products; and finally, Directive 2012/27/EU [10] on energy efficiency. In this paper, most emphasis is put on the last directive.

Analysis method

For to analyze the materials gathered in the workshops, interviews, and documents, we have used discourse analysis. However, discourse analysis is a perspective rather than a coherent method; a discourse holds structured convictions, rationalities, logics, and forms of knowledge to which people relate when they e.g. make decisions, argue, or prioritize. The underlying idea is that humans are regarded to position themselves in relation to someone or something through discourses [21].

More specifically we use the approach described by Bacchi [1], who suggest that one should analyze what the problem is represented be, and identify implications of this representation, i.e. what are the underlying assumptions, effects, and what is left unproblematic. In the end, Bacchi argues, what the problem is represented to be in turn influence what types of solutions humans find reasonable [1].

We have explored the tenants' and the EU view on energy efficiency, and how these views are represented by using detailed discourse analysis based on the approach or position Bacchi [1] described. Of special interest were how the tenants' views relate to that of the EU, and whether their respective description and experience of the current situation is similar or not.

IV. VIEWS ON ENERGY EFFICIENCY BY TENANTS

Overall the tenants are very aware in energy matters. Many of them have lived in their own houses, and all of them reckon this to be a good schooling in energy saving. Already before their involvement in CASSANDRA the tenants at Seniorens have replaced or fixed many kinds of equipment, primarily in the common areas, such as replacing an energy consuming washing machine; reducing the area in the cooling room by 1/3; installed timers for the engine heaters in the garages; switched off an earlier heated area in the ground outside entrance doors; replaced ventilation fans and so forth. They also live as they preach, and have many tips for energy saving e.g.; dish or wash only when the dishwasher/washing machine is full; leave empty rooms dark, use low-energy bulbs/lamps or even better, articulated machine lamp, not leave any equipment on Standby, turn them off etc. Hence, the energy saving measures taken at Seniorens is of two categories: a) replacement or fixing of equipment, and b) changed behaviour, in that they are not using energy consuming appliances.

What problems energy efficiency addresses according to tenants – and the effects of these

As the underlying problem, leading to policy decisions on energy efficiency the tenants convey a rather coherent view; it is *environmental destruction*. They describe this problem as difficult to grasp, to involve many aspects, and that it concerns the humanity at large. One of the tenant said "This morning I heard [on the news] that they fear an environmental catastrophe at the Arctic zone, because of oil drilling" and another one asked "All those cars, what kind of cars should we have?" These expressions show worries for the environment, and are in many aspects a fear for what kind of society there will be for future generations. This is a problem that really makes the

tenants worried. As one tenants put it: "It is economic interests that govern, and that... the feeling one gets is that environmental aspects and ethics will always be sidestepped if there is money to make elsewhere."

Assumptions underlying the tenants view

The assumptions underlying the tenants view on the problem is that, mainly the western world, currently handles resources in a very wasteful way, and if we as humans do not act the world, as we know it, is at risk. The tenants thus regard energy efficiency important from a societal perspective, the earth has limited resources and these must be handled with care. Overall they show great concern for younger generations and wish their grandchildren a better world to live in.

The tenants argue that it is important to be able to influence the energy consumption, and that being knowledgeable is a precondition for energy saving. They follow the energy debate, although more or less active. However, the tenants meant that there is much information about energy issues, one tenant gave an example: "If you for example listen to the P1 channel on the radio, it is something every day. So this you absorb... you hear it whether you want to or not." As such the tenants view on energy efficiency produces awareness, one of them concluded: "Everything is really about energy, when shopping, where does the food come from, and how long has it been transported, all these things. All this has to do with energy consumption."

But the view has a reversed perspective, as an individual there is so little you can do. There are energy consumers that are more in need of being aware the tenants argued: "We have the basic industry in this town, which is a huge consumer of energy." The tenant experienced that compared to the industry there is so little one single person can contribute with, which led to the statement that it is saving their own money that is the main driving force for individuals.

There were also two tenants that argued that being old, having worked for the most part of their lives; they now want to live "a good life" reaping the benefits of being a senior citizen. This was put in opposition to energy efficiency, with the underlying message that they should be freed from this kind of expectations. One of them explicitly said that "I really don't care about energy savings" but added that this did not mean that s/he was wasteful with energy.

None of the informants distinguishes between the concepts energy saving and energy consumption, instead they argue that these are closely interrelated. If you lower your consumption, you simultaneously save energy. However, what they first and foremost think about is energy saving, not consumption, and their main driving force for doing this is saving their own money.

As responsible for energy efficiency, the tenants mention politicians, the EU, the UN, the Swedish Parliament and government, and municipalities together with energy retailers. Overall, this is regarded a political issue, "but also journalists have an important role to play," said one tenant. Still another tenant meant that there are all sorts of communities and NGOs that also have a responsibility, together with research institutions and universities, and "also libraries need to secure

that they have adequate literature in the subject” stated one tenant.

V. VIEWS ON ENERGY EFFICIENCY CONVEYED BY EU

In the documents reviewed, [6, 7, 8, 9, 10] the following picture emerges. The initiatives for energy saving in 2004 aimed at cogeneration, that is, the use of a heat engine or power station to simultaneously generate electricity and useful heat. In 2006 focus was on energy end-use efficiency and energy services. New initiatives need new products; hence in 2009 the EC set the framework ecodesign requirements for energy-related products, or harmonization of national laws. In 2010 the directive addressed labeling and standard product information. The last directive reviewed here, from 2012, is the most comprehensive, addressing energy efficiency in its entirety. Together the documents show a coherent view, all of the different measures and policies build on each other, that is, new objectives are added, while earlier aims still prevail. As such, the EC view on energy efficiency embrace energy efficient products and services, while simultaneously paying attention to environmental aspects.

What problems energy efficiency addresses according to the EU

In Dir. 2004/8/EC [6] the problem is described as Europe being too dependent on external energy suppliers and there is need of diversification of sources and technologies. Added to this is the goal of sustainable development, where secure energy supply is regarded essential for this to happen. Thus, the problems highlighted here are *unwanted dependency* on countries outside the EU and the *threat of climate changes*. In 2006, addressing the promotion of production of renewable energy the underlying problem was security of supply, or put otherwise, the problem is represented to be *lack of energy needed* [7]. Improved, energy efficient products address the underlying problem of *environmental impacts* and rest on the argument that this will lead to economic savings for businesses and end-users [8]. In 2010 the problem is said to be that end-users do not get enough information on energy consumption of different energy-related products to make choices in favor for those products that consume less energy. The problem then, is *lack of information* [9].

In the directive from 2012, another challenge is added, *economic crisis*, and the message conveyed is energy efficiency as a means that can “accelerate the spread of innovative technological solutions and improve the competitiveness of industry” (p, 1) [10]. From this follows that improved energy efficiency target “jobs and smart, sustainable and inclusive growth” (ibid). As such, what is found problematic is *insufficient growth* in the EU. Moreover, energy efficiency will help to ensure sustainability of the use of energy resources. The EU policies claims to cover the entire energy chain, and includes various areas such as energy generation, transmission and distribution; the leading role of the public sector; buildings and appliances; industry and final customers, whom it is stated need to be empowered to manage their energy consumption.

Assumptions underlying the EU view – and the effects of these

Overall, the EU considers energy efficiency as a complex matter, requiring actions from many sectors and actors, i.e. an integrated approach; not least does it demand legislation. The assumption to be drawn from this is that there is need to force energy efficiency, otherwise it will not happen.

The first assumption that more specifically can be related to citizens is that they need to be encouraged and motivated to change their behaviour. This is regarded as a task for the public sector, e.g. are municipalities expected, and have started, to initiate integrated approaches through sustainable energy actions plans, which involve citizens. The plans should aim for clear objectives, and citizens should be adequately informed of progress and achievements.

Also, member states are expected to create national energy efficiency obligation schemes for energy utilities or other alternative policy measures that realize energy savings, and in doing so take into account “final customers’ habits” (p. 4) [10]. Vulnerable customers are specifically mentioned, but what distinguishes this group is not specified. The aim is that every citizen should have access to the benefits of higher energy efficiency in an objective and non-discriminatory way, which implies that the assumption is that this is currently not the case.

Smart meters are assumed to contribute to energy savings. The target is set to “at least 80% of consumers should be equipped with intelligent metering systems by 2020” (p. 5) [10]. To be noticed is that consumers relate to businesses and organizations as well as citizens. Individual meters measuring individual consumption in multi-apartment buildings supplied with district or common central heating, is regarded beneficial “when final customers have a means to control their own individual consumption” (Ibid.) and by this is meant thermostatic radiator valves. In buildings where this is not found, individual heat cost allocators installed on each radiator is recommended. The assumption underlying these suggestions is that if people know their own energy consumption, and if this is visible and information is provided on actual energy consumption at actual time of use, they will actually save energy.

Final customers should also “be able to choose between electricity from cogeneration and electricity produced by other techniques” (p. 7) [10]. Again, information is assumed vital, and is expected to increase the transparency for the final customer.

VI. DISCUSSION

It is obvious that the EU conveys a more complex and comprehensive view on energy efficiency than individual consumers do, and this is of course natural. Having stated that, it is still clear the identified problems that underlie the EU view on energy efficiency are also recognized by the tenants. First and foremost this goes for the risk of environmental and climate changes – this is acknowledged by both parties.

That the society uses too much energy, and handles it wastefully is also known by tenants and the EU. The tenants regard this to be more of a problem for the society and large industries, not individual consumers. This is in line with how

energy efficiency is tackled by the EU – most of the initiatives around energy efficiency concern public sector, industries and businesses.

Problems like dependency on others outside the EU and insufficient growth are on the other hand not at all mentioned by tenants. In other words, these are not problems on their behalf. Considering their bringing up and the culture which promoted being economic with resources that prevailed back in the 1930's to 1950's might even contrast the view of constant growth. They do not see the value in e.g. replacing technologies that function just because a new model has been released.

Finally, where the EU thinks it is lack of information, the tenants argue that they are well aware – instead they express it as almost impossible to not be knowledgeable in energy efficiency. The question then becomes, what kind of information is it lack of? Knowing you energy consumption minute by minute? That is, is it solely the information that smart meters provide, that is missing?

Our project shows that even if most tenants put efforts in energy saving, and that they mainly do this for financial reasons, some of them do not care. They are afraid of decreasing life standard, and the last thing they want is individual smart metering. This is left rather unproblematic by the EU. In general it is reasonable to believe that most people will try to lower their energy consumption. However, in part this might be dependent on what pricing scheme will be set. But it is also likely that many in the western world today spend their money rather unbothered. If so, the energy efficiency target of 20% reduction mainly should aim for industries and businesses.

VII. CONCLUSIONS

We set out to discuss two challenges that need to be addressed if energy efficiency will be realized. The first concerned the assumption that most household consumers do not know how much energy they are using, and the second how to create consumer engagement and motivation to save energy over time.

Our research shows that consumers are rather well aware of the importance of energy efficiency, and they have good knowledge of how much they energy they are using *on a monthly basis* and *for the entire building*. Through the CASSANDRA project this has been further improved, since they from the pilot started have had smart meters installed. All the measures taken at Seniorens, even before their involvement in the CASSANDRA project, witness of the tenants' engagement and motivation for energy saving. Hence, overall the tenants have good foundation to make informed decisions on how to act in energy issues.

The second challenge is trickier. If a consumer *is* engaged, as most of the tenants are, it is likely that they already live as they preach, and the possibility to change into a more energy efficient behaviour is almost non-existing because they are already energy efficient. If a consumer, on the other hand, explicitly express that they want to live as they always have, and show anxiety for changes, it is probably hard to motivate a

changed behaviour when it comes to energy consumption. However, we conclude that the majority are very eager to contribute to the efforts of making our society sustainable, green and a lovely place to live in, also in the future.

Finally, it would be very interesting to conduct a comparative study with a younger generation to explore whether they differ in their apprehension of energy efficiency.

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REFERENCES

1. Bacchi, C. L. (1999). Women, policy and politics. The construction of policy problems. SAGE Publications Ltd, London.
2. BEUC/CEER (2013). A 2020 Vision for Europe's energy customers. Joint Statement. http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Customers/Tab3/CEER-BEUC%202020%20VISION-joint%20statement_Long_v140613.pdf [2013-12-04]
3. CASSANDRA Project Proposal (2011). Cassandra – A multivariate platform for assessing the impact of strategic decisions in electrical power systems. ICT-2011.6.2 ICT systems for energy efficiency.
4. CEER. Council of European Energy Regulators http://www.ceer.eu/portal/page/portal/EER_HOME [2013-12-04]
5. COM (2012) 225final. Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions. A European Consumer Agenda - Boosting confidence and growth.
6. Dir. 2004/8/EC DIRECTIVE 2004/8/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC.
7. Dir. 2006/32/EC. DIRECTIVE 2006/32/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC
8. Dir. 2009/125/EC. DIRECTIVE 2009/125/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products.
9. Dir. 2010/30/EU. DIRECTIVE 2010/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products.
10. Dir. 2012/27/EU. Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on Energy efficiency.
11. IEE programme. Intelligent Energy Europe. http://ec.europa.eu/energy/intelligent/about/iee-programme/index_en.htm [2013-12-04]
12. Holst, M; Ståhlbröst, A; Yliniemi, K; Forsberg, H; Dromacque, C; Stromback, J & Diou, C (2012). D6.1 Pilot Requirements and Specifications. CASSANDRA, project number 288429.
13. Holst, M., Runardotter, M., Törnkvist, E., Diou, C., Dromarque, C., & Stromback. (2013). D6.2 Pilot Case Deployment. CASSANDRA, project number 288429.
14. HORIZON 2020. (2013). Horizon 2020 – Work Programme 2014-2015. Secure, clean and efficient energy. (Draft) http://ec.europa.eu/research/horizon2020/pdf/work-programmes/secure_clean_and_efficient_energy_draft_work_programme.pdf [2013-12-04]

15. Merriam, S. (1994). Fallstudien som forskningsmetod. Lund: Studentlitteratur.
16. Morgan, D. L. (1996). Focus groups. *Annual Review of Sociology*. Vol. 22, pp. 129-152.
17. Shaha, M., Wenzel, J., & Hill, E.E. (2011). Planning and conducting focus group research with nurses. *Nurse Researcher*, Vol. 18, No. 2, pp. 77-87.
18. Thomsson, H. (2002). Reflexiva intervjuer. Studentlitteratur, Lund.
19. Walsham, G. (1995). Interpretive Case Studies in IS-Research: Nature and Method. *European Journal of Information Systems*, Vol. 4, No. 2, pp.74-81.
20. Wibeck, V. (2000). Fokusgrupper. Om fokuserade gruppintervjuer som undersökningsmetod. Studentlitteratur, Lund.
21. Widerberg, K. (2002). Kvalitativ forskning i praktiken. Studentlitteratur, Lund
22. Yin, R. K. (1994). *Case Study Research*. Second Edition ed. Thousand Oaks:Sage