

# WP 5: Consumers and the EU Energy Label Report from a European comparative study

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by

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# 1. Introduction

The main objective of this report is to discuss consumers' trust in the European Energy Label and consumer practices related to the use of the label in everyday shopping behaviour. It is part of WP6 in the BAREENERGY project, and this particular study is based upon a representative consumer survey in seven European countries: UK, The Netherlands, Norway, France, Switzerland, Hungary and Greece. During April and May 2009 5775 respondents in the seven countries answered a web-based questionnaire about various energy related topics in households. The Energy label was one of these topics.

The BAREENERGY project is developed around a methodological triangulation. In addition to the representative consumer survey, we have also carried out expert interviews (WP5) and qualitative focus groups among consumers (WP7). These three studies will later be integrated into a common perspective in WP8.

The framework for our analysis is the BAREENERGY project, funded by the ENERGY part of the 7<sup>th</sup> Framework Programme. Based upon state of the art we have identified the following barriers for change in energy consumption among households and consumers (Strandbakken 2006, Throne-Holst, Strandbakken & Stø 2008, Lüthi and Stø 2009):

- 1) Physical and structural barriers,
- 2) Political barriers,
- 3) Cultural-normative or social barriers,
- 4) Economic barriers,
- 5) Knowledge based barriers and
- 6) Individual-psychological barriers

BAREENERGY aims at combining an individual and institutional approach. This means that individual and household energy behaviour – and changes in this behaviour – will only be understood by integrating values, attitudes, norms and knowledge among individuals with studies of the context in which this behaviour takes place. We also want to consider the potential for change in relationship to *the situations of opportunities* (Svane, 2002). The revision of the EU energy label represents an excellent window of opportunity for all involved stakeholders to raise other energy policy related questions

In the project we are focusing on the strength and relevance of various barriers for change in consumer energy behaviour and how can these barriers be overcome by technical innovations, changes in the supply from energy producers and political measures by political authorities on local, national and European level. Lack of knowledge and information among consumers have been identified as one of the main barriers for change in energy consumption in households (Throne-Holst, Strandbakken and Stø, 2008; Lüthi and Stø, 2009).

This report deals mainly with the relationship between the *political barrier* (or level) – the EU energy label – and the *knowledge based barrier*: consumers' knowledge, trust and use of the label as information tool for purchase behaviour. To some degree we also address the structural barrier because technical innovations may be part of the first barrier mentioned above. In the concluding part we will discuss the future of the EU-energy label, where we also will draw upon information from the stakeholders interviews.

## 2. The EU Energy Label

The European Union's mandatory labelling of electric appliances has been an attempt at changing behaviour of consumers as well as of producers/importers, and it has been a definite success in the European consumer market. The label is based upon the framework directive 92/75/CE and covers today all large household electrical appliances such as freezers and refrigerators; electrical ovens for household use and microwave ovens; washing machines, tumble dryers and dishwashers. The label is mandatory both for producers and retailers. It has to be classified by the producers and the label must be visible in shops. The products is classified from an A to G scale where A is the most energy effective Appliances in the market should be labelled for their energy efficiency, rating from A to G, with A being the best. Rather quickly, and according to the intentions of the legislator, the inefficient appliances seemed to disappear, and As and Bs started to dominate the market. From 2004 this led to a change, where for fridges and freezers the A category had to be subdivided into three classes: Standard A, A + and A ++. Some A ++ machines might as much as 60 % better than Standard As in terms of energy efficiency (<http://www.energylabels.org.uk/eulabel.html>)

Substantial technical innovations have taken place for all the relevant product categories during the last decade. In the period from 1995 to 2008 technical innovations have reduced the electric consumption for white households' equipment in Europe with 12% (37 TWh) (CECED, 2005). The EU Energy Labels has been the main institutional framework for these innovations; it has constituted the platform for technology improvements and competition in the European market.

During this period we have seen a development from G to A in most European countries, and this has been the case for all product categories. The label is well-known and trusted among European consumers (Ipsos MORI, 2008), and it is actively used in the households' decision-making processes

However, already in 2004 the sale of A-labelled refrigerators reached 50% of the market shares; and for washing machines  $\frac{3}{4}$  of the sold products in 2001 was labelled either A or B (CECED, 2005). Today, A-labelled products are dominating the market totally for most product categories. This might more or less have destroyed the use of the label as a communication tool between sellers and buyers. It is difficult to identify the best product in the market if they are all labelled with an A. For refrigerators this has, as mentioned, lead to the introduction of A+ and A++.

The main reason for these problems probably is that the criteria for the product categories have not been developed parallel to the technical innovations. Technological development and product innovations have made the A level criteria irrelevant.

Even though there is a common understanding that the Energy Label has been a success, we have also witnesses other problematic aspects with the performance of the label in the market, in addition to the "A-inflation":

- The label is to a large degree not found on the products in shops (ANEC, 2007)
- The testing of classification is complicated and expensive. Many countries don't regularly carry out tests
- In most countries there is no reaction and enforcement against this insufficient market performance

Even if new products sold from retailers have been energy efficient, we know that there still is a large amount of older goods within all product categories in households (CECED, 2005), and it will take years to phase them out. Research has also shown that to some degree new products are not replacing old products, but often add to them. Old products are kept and used after new energy saving products is bought. Refrigerators and freezers are relevant examples (Strandbakken 2007).

This is the reason why the EU Commission for some years has been working with a revision of the label, and the need for radical changes was announced both in the Energy Efficiency Action Plan in 2006 (COM (2006) 545) and in the Sustainable Consumption and Production Action Plan from 2008. The Commission used a stakeholder dialogue in the development of the revision of the Council Directive 92/75/EEC. The consultation process included three elements:

1. Web-site input between December 2007 and February 22, 2008
2. Workshop on February 8, 2008
3. Written answer from various stakeholders

Based upon these feedbacks the EU Commission developed their proposal for a revision of the directive for the European Parliament and the Council in November 13, 2008 (COM (2008) 778 final). Since then the EU Commission has struggled to find a political and scientific compromise among member's states and all involved stakeholders. Various solutions were also discussed at the European Sustainable Energy Week in Brussels, February 10, 2009.

The EU-Commission reached to a final conclusion on April 1, and went to the EU-Parliament and the Council with a new proposal for the Energy Label. However, crucial parts of this proposal were rejected by the Parliament, and the future of the energy label is definitely uncertain. The Commission have to come up with a new proposal. This may take some time because there is just elected a new Parliament and a new Commission has just been appointed.

The BARENERGY interviews were conducted during this political process. However, we are not able to tell if it had any effect on the results. But we have to keep this in mind in the analysis of our data.

### **3. A consumer approach**

The BARENERGY project is concentrating on consumers and households. Within the academic literature is it possible to identify various theories and approaches to understand the role of consumption in modern societies and the potentials for change (Stø et al 2007). We will below give a brief overview of relevant theories. The reason for this undertaking is to develop a more nuanced perspective on labels in consumption; how labels are conceived and understood in the different theoretical traditions, based on a rather pragmatic idea that there are valuable insights and perspectives that might be lifted from a lot of approaches.

In many ways it is easy to place labels as relevant tools within the paradigm of various rational choice theories, where the influence of *Theory of Planned Behaviour* (Ajzen and Fishbein, 1977;1980) has been very strong within consumer research. According to this theory, behaviour should be predicted from actors' attitudes and intentions. This might be related to the common sense basic rationale for all labelling systems and brands: The label is the bridge between the attitudes of the consumer and the producer. The producer triggers the behaviour of the consumer with a label that connects to the consumer's pre existing attitudes. The relevant attitudes here are most likely to be a concern over the environment (the link

between energy use and climate change), or a concern over costs; the expectation that lower energy consumption in use will cover the extra investment. Or, obviously, the relevant attitudes are a combination of environmental and economic concerns.

However, labels may also play a significant part within other models of consumer behaviour. Many authors emphasize the symbolic values of consumption: "The fundamental conceptual hypothesis for a sociological analysis of consumption is not use value, the relation to needs, but symbolic exchange value..." (Baudrillard 1981:30). This phenomenon was also recognised by Veblen (1899/1925) for more than a hundred years ago, in the more recent writings of Bourdieu (1992) and in the post-modernistic "tradition" (Featherstone 1991). Consumption connects to the identity of modern individuals, (Douglas and Isherwood, 1979). In this perspective, a label will guide the consumer in his struggle for the creation and maintenance of a specific identity; here perhaps as a concerned environmentally oriented citizen.

A third contribution is the Theory of the Dream Society by the Danish futurist Rolf Jensen (1990), relatively closely linked to the symbolic values of consumption described above. Goods are not (mainly) produced and consumed for material reasons in affluent societies, but for emotional reasons. Future products have to appeal to our hearts, more than to our heads. Industries and business have to understand this fundamental change because the market for the market for dreams is growing. Consumers are to an increasing extent looking for good stories linked to their good and services. The label is here supposed to trigger the feel good factor. Basically, this Dream Society "theory" should probably be regarded as a case belonging to the symbol value approach.

A fourth contribution comes from Gronow and Warde in the book "Ordinary Consumption" (2001). They claim that the focus of consumer research has changed from spectacular to *ordinary* consumption. Consumption is mainly about the everyday life of ordinary consumers, and this should be better reflected in contemporary research. Consumption in modern societies to a very large degree is mass-consumption of ordinary products with few opportunities to excitements. Gronow and Warde are inspired by anthropology, where the *routines* of the everyday life always have played an important part. As for the energy label, this might be a remainder that this environmental product information system (EPIS) works with incremental change and rather small and not very dramatic improvements of rather mundane products.

Closely linked to routines is the Theory of Practice (Reckwitz, 2002; Warde, 2005). Human beings, in their role as consumers, take parts in a large number of activities, and their concrete praxis are decisive for their choices in the market. The main reference to the modern theory of praxis is Pierre Bourdieu (1977, 1990). The challenge in this part of the work by Bourdieu is to develop a theory that establishes a balance in individual behaviour between determination and freedom. Habitus create a dialectic relationship between social and mental structures. Habitus both determine individual behaviour, and is determined by collective practises.

A last relevant contribution is the theory of political consumption, relatively closely linked to the Dream Society. Consumption turns into *politics* when consumers choose markets arenas to influence decisions made by governments and companies, and mobilise other consumers to take part in this activity (Micheletti, Føllesdal and Stolle (2004). Micheletti calls this phenomenon political consumerism, or *individual collective action* (2003). Citizens may use the market arena to express themselves when other arenas have failed. It also makes it possible to influence the value decisions in private corporations, often a difficult task through other channels.

It is easy to understand that these six contributions to the theory of consumption in modern societies offers alternative and also to some degree competitive understanding of consumer behaviour. On the other hand they also to some degree, support each other. Energy labels fit very well into the rational choice behaviour; they help people to make rational shopping decisions. But this is also the case for theories that are more concerned about symbols and the meaning of consumption, like the dream society and the political consumerism. At last, energy labels are also a natural part of the routinised consumption and the theory of praxis.

## 4. The consumer survey: Trust and use of the Energy Label

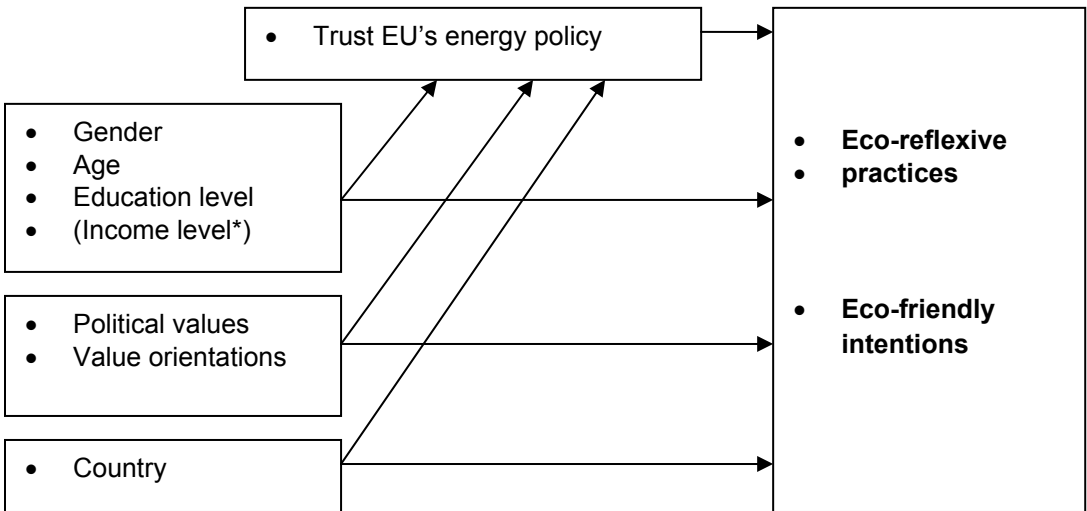
### 4.1 Objectives and an overview of the the collected data

Our intention has been to grasp what the Barenergy material (questionnaire II) reveals about consumers relation to energy labelling in general, and also to compare and show differences in how consumers in our seven selected countries relate to such labelling: To what extend do consumers trust the EU energy label? Are their practices affected by such labelling? Are there national differences in consumers’ good eco-intentions, measured by whether or not they intend to purchase energy efficient light bulbs? Our main research questions are to investigate what factors affects trust in the EU energy label, eco-reflexive practices and good eco-intentions:

*Is trust in the EU’s energy policy affected the most by individual social background variables, individual value orientations or country of origin?*

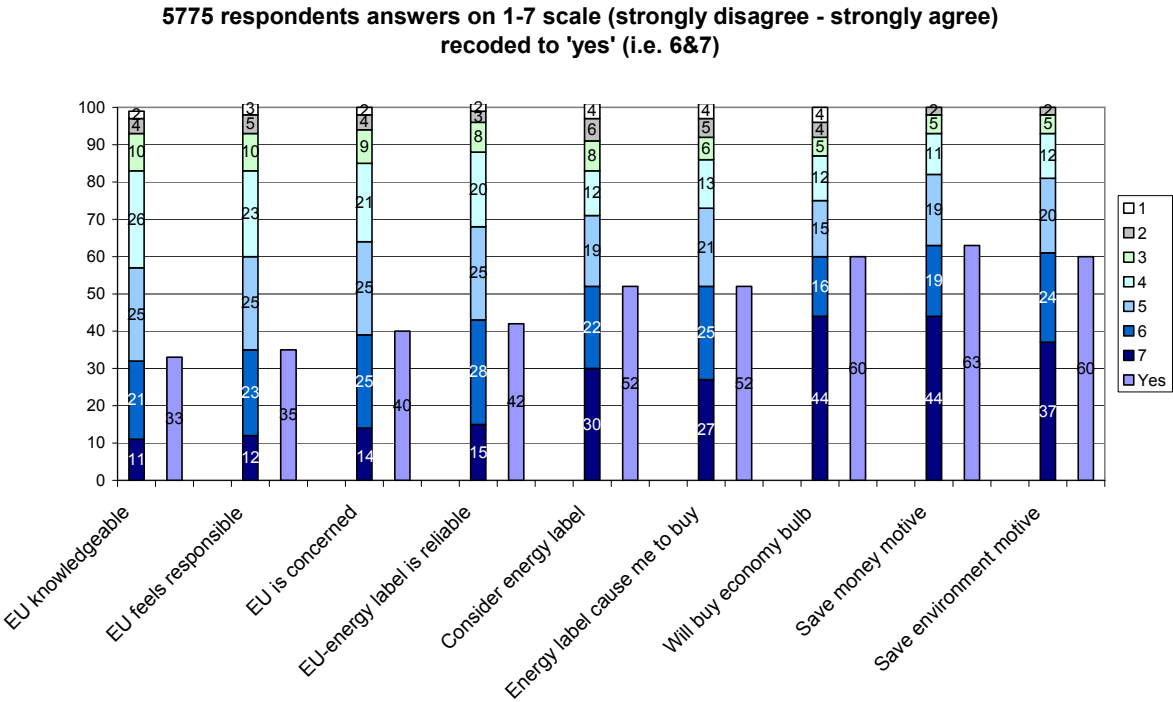
- *What factors affect consumers’ tendencies to show eco-reflexive practices (i.e. to consider and follow EU’s energy labels) and to have eco-friendly intentions (i.e. buying energy efficient light bulbs)?*

Our analytical model can be illustrated like this:



\* This variable is strongly affected by country of origin, and will therefore only be included in the analyses when also country of origin is considered.

Before answering our main questions, we shall first present some of the institutional variables that distinguish between our seven selected countries. Our intention is that these institutional variables, finally, might help us interpret probable country differences. Second, we introduce and show how the variables that will be included in the final analysis are operationalised. We also compare how the seven selected countries score on each and one of these variables.



**Figure 1: Variables to be included in the analysis, presented by the original scale (1 – 7), and recoded to percentages agreeing to the statements. (N=5775)**

Figure 1 shows the original variables to be included in the analysis, and how they are recoded from 1-7 scale to affirmative ‘yes’ measures. While the bivariate comparison - showing the results for each and one of the seven countries - are based on the simplified affirmative measure, the multivariate analyses are based on the scale.

In the following we shall present how we operationalize the intermediate variable ‘trust in the EU’s energy policy’, as well as the dependent variables eco-reflexive practices and eco-friendly intentions.

### 4.2 What distinguish the seven countries

It is reason to believe that our main category, country of origin, vary on several indicators that distinguish between different energy regimes and different energy needs in our selected countries. Such differences might help us interpret national differences in consumers’ responses to the labelling questions. Our point of departure is to consider the countries’ climate conditions and heating needs, relative electricity prices, percent renewables, as well as national differences in choice of heating fuel at home. In this introductory part we also describe the material due to the social background variables:

**Table1: Backgroundvariables. (N=5775, 786, 834,750,865,787,840,913,865)**

	All seven countries	France	Greece	The Netherlands	Hungary	United Kingdom	Switzerland	Norway
Women	51%	51%	50%	53%	51%	51%	51%	51%
Age mean	43	44	40	45	41	48	42	42
Higher ed.	29%	31%	27%	33%	21%	32%	29%	34
Income level (1-10)	5,3	5,5	4,6	4,6	2,0	4,9	7,6	7,5
Political left-right (1-10)	5,4	5,2	5,2	5,5	5,4	5,7	5,4	5,7

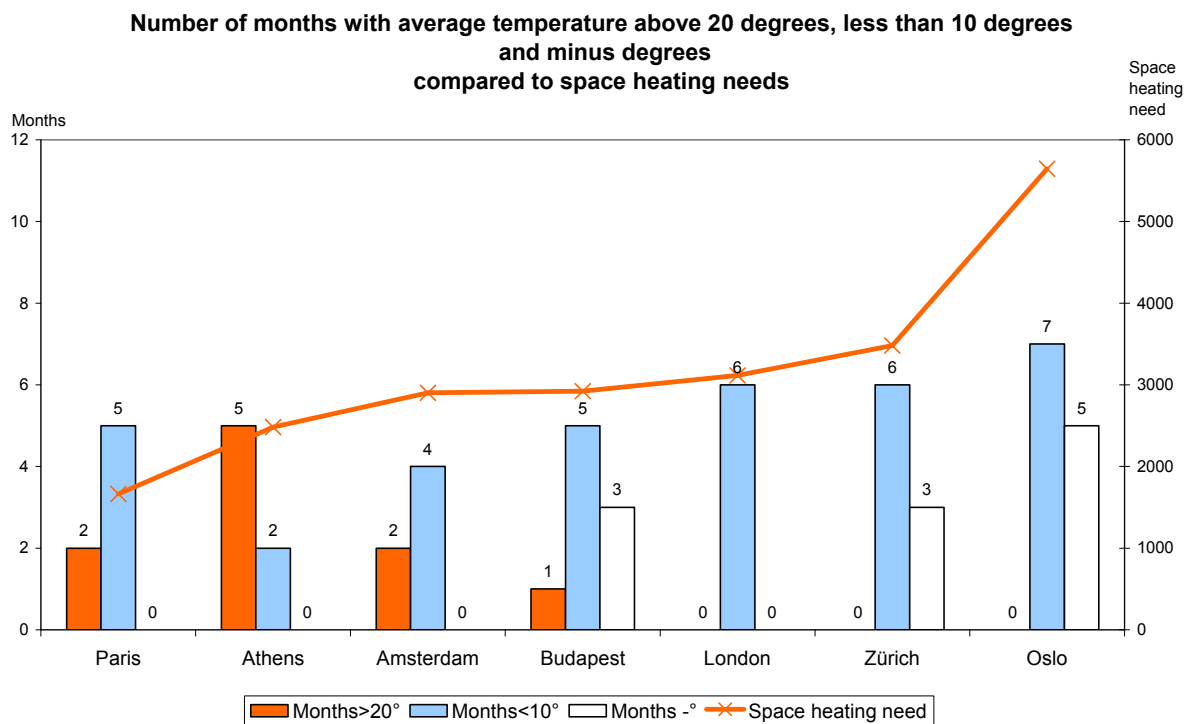
When comparing how consumers' in seven countries relate to EU's energy labels, the results might be affected by differences in characteristics of the national populations. In table 1 we therefore present some variables that we expect could have some implications on our dependent variables: Women are expected to be more eco-friendly than men. It is also probable that age and income levels affect eco-friendliness. Finally, it is reason to believe that political preferences at the left wing are more positive to eco-friendly behaviour than others.

The data material is stratified during the data collection period to be nationally representative on gender, age and geography. It appeared, however, that several respondents had to be removed because of lousy completing of the questionnaires (Martijn). This might have affected the distribution on central variables. Table 1 shows that the gender distribution is fairly equal in our countries, with a slightly higher proportion of women in The Netherlands than in the other countries, but this will hardly affect the results. Average age show some differences: while our average UK consumer is 48 years old, our average Greek consumer is only 40 years old. These differences might be a result of either nationally differences or biases in the national samples. In the final multivariate analysis, however, we control for age, so that this will not affect the results.

Our income measurement show large differences. From an average of 2, 0 in Hungary to an average on 7,6 in Switzerland. These differences, however, are not quite comparable because of different price levels in the selected countries. Therefore, in the multivariate analysis, this variable should not be included if we do not control for country of origin.

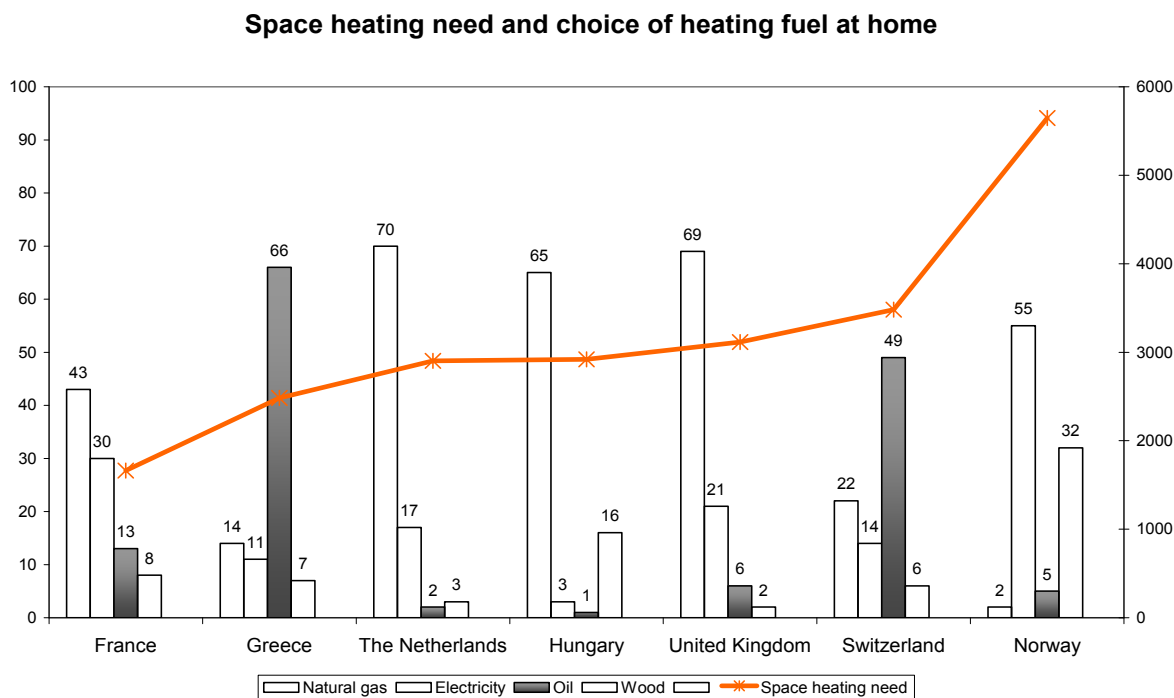
According to our data material, political preferences in all seven countries are approaching the center (the mid value is 5.5).

In figure 2 (on the next page) we compare the institutional variable 'space heating need' with meteorological observations ([www.worldweather.org](http://www.worldweather.org)). The reason why we include months with high temperatures is because there is also a need for air conditioning in warm countries, which could explain why France has a lower need for space heating/cooling than Greece (?). The Space heating measure seems to reflect households' energy needs. In the following the countries are ordered according to their household's space heating/cooling needs.



**Figure 2: Meteorological information from seven capitals compared to national space heating need measures from our seven selected countries.**

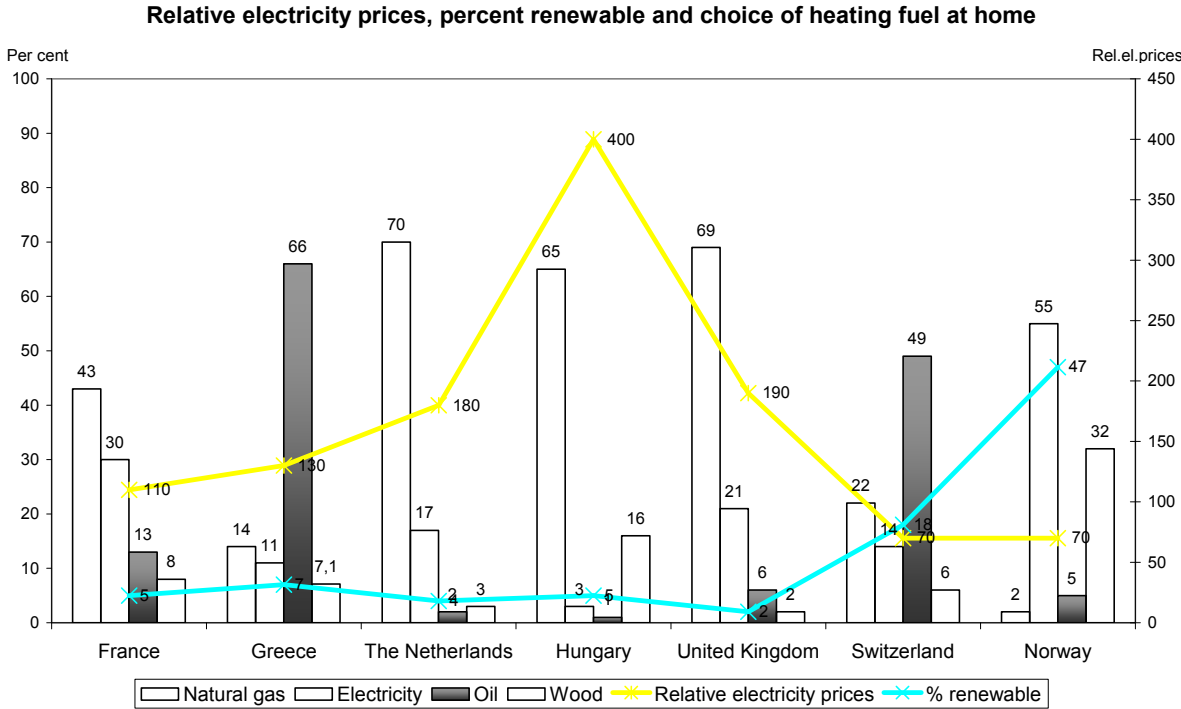
Figure 3 shows what the respondents reports to be their choice of heating fuel at home, compared to the space heating need-measurement:



**Figure 3: Choice of heating fuel in our selected countries compared to space heating need at national levels in our seven European countries. (N=786, 834,750,865,787,840,913,865)**

According to figure 3, it is only in Norway that electricity is the main source of energy to meet households' space heating need. The Greek and Swiss respondents, living countries with rather different space heating needs, report oil to be the preferred heating fuel. The four remaining countries all report natural gas to be the main choice of heating fuel. According to our material, there is no obvious reason to expect there is a connection between space heating needs and choice of heating fuel.

In figure 4 we investigate whether there are signs of co-variation between choices of heating fuel at home on the one hand, and electricity prices and/or percent renewable energy at national level on the other hand:

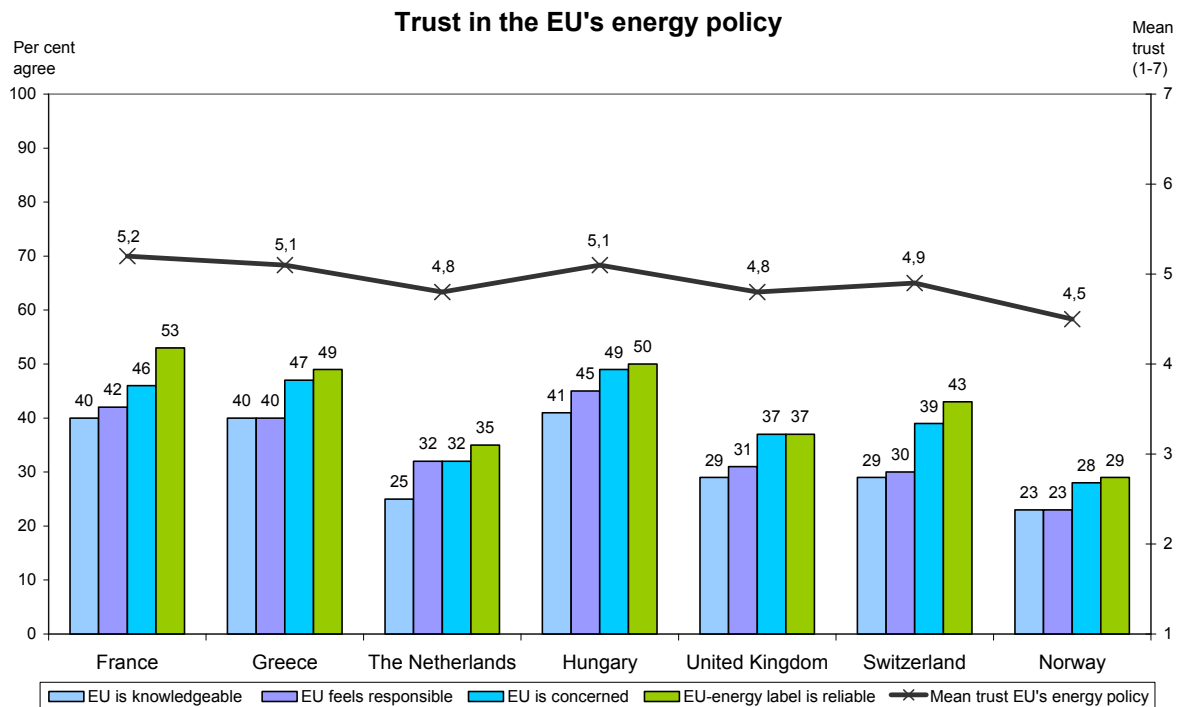


**Figure 4: Choice of heating fuel in our selected countries compared to relative electricity prices (electricity price/relative price levels) and percent renewable energy at national levels in our seven European countries. (N=786, 834,750,865,787,840,913,865)**

If we look at the countries with the lowest and highest tendencies to choose electricity for heating fuel at home; Hungary and Norway, the reason for this is obvious. Figure 3 illustrates that electricity prices in Hungary, compared to all the other European countries are extremely high (almost six times higher than in Norway when we take into consideration differences in price levels. If not, Hungarian consumers still pay 2,8 times more for their electricity than Norwegian consumers). Norwegian supply of renewable hydro electric power – combined with low electricity prices – explain why the majority of the Norwegian respondents report to choose electricity for heating their homes. Probably these results will also affect Hungarian and Norwegian consumers' relations to EU's energy policy and labelling.

Next to the Hungarian consumers, it is the consumers in UK and the Netherlands that pay the most for electricity. Like the Hungarian consumers they prefer natural gas for heating energy. According to figure 3, we would expect that consumers in Switzerland should choose electricity more often that our results indicate. To conclude, electricity prices and percent renewable energy seem to explain some, but far from all variations in what kind of heating fuel consumers in different countries seem to prefer.

### 4.3 Trust in the EU Energy Label

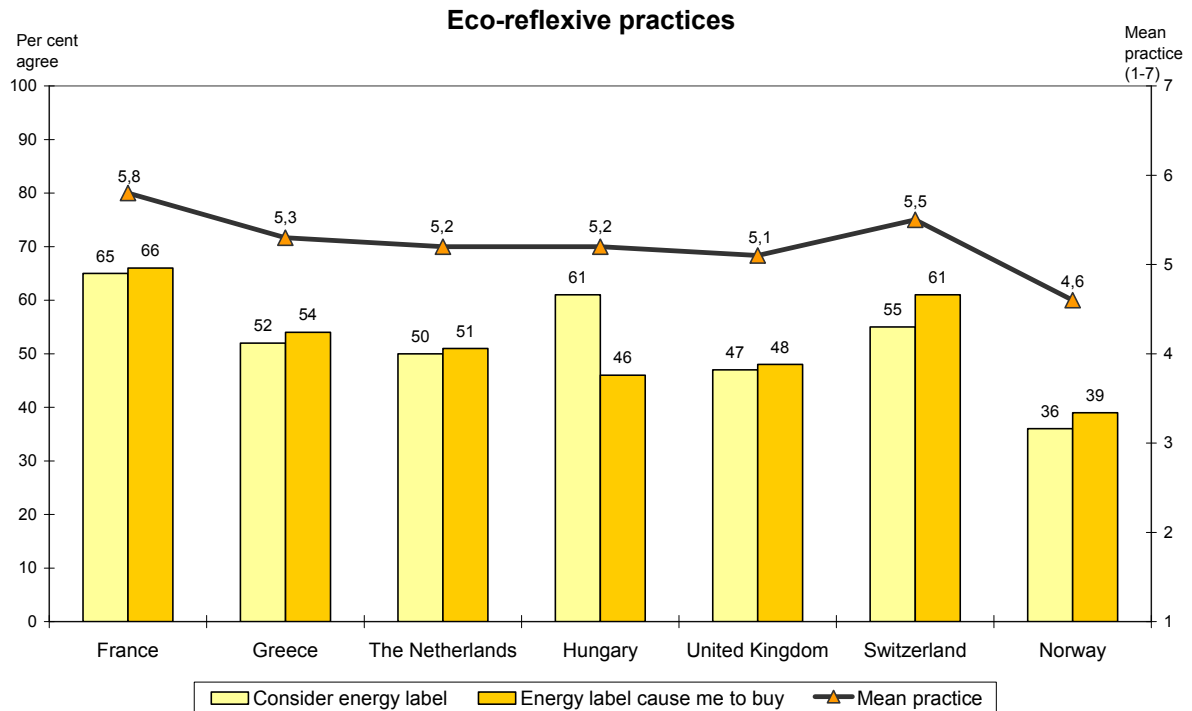


**Figure 5: Percentages expressing that the EU is knowledgeable about the energy use of appliances; EU feels responsibility for reducing energy use of appliances; EU is concerned about reducing energy use of appliances. The EU energy label is a reliable indication of the energy-efficiency of an appliance. And average trust in EU’s energy policy (1-7). (N=5775, 786, 834,750,865,787,840,913,865)**

To make the consumers consider – and follow – the guidance from the EU’s energy labels, one necessary condition is that consumers trust EU’s energy policy, including EU’s energy label. In the questionnaire there were four questions indicating how the respondents judge and trust the EU’s energy policy. As shown in figure 5, in all countries the support for the variables increases similarly, and the last statement ‘The EU energy label is a reliable indication of the energy-efficiency of an appliance’ get the highest number of supporting answers.

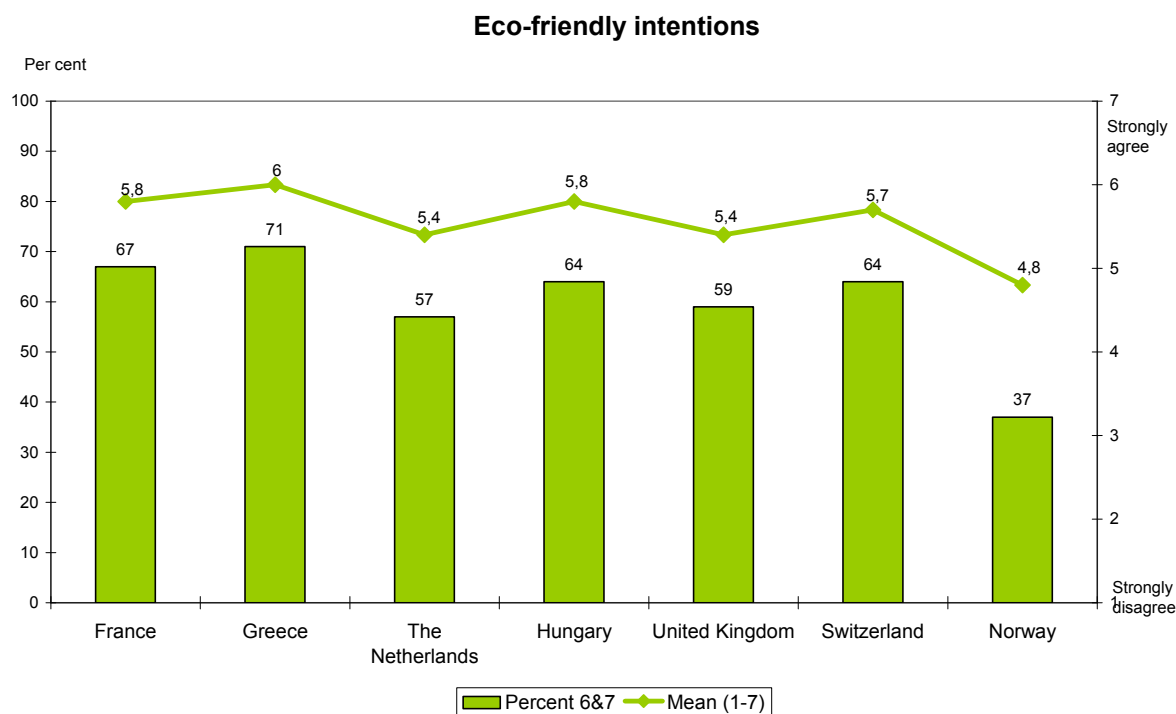
Figure 5 also demonstrates that Norwegian consumers more seldom than the European Union members express trust in the EU’s energy policy in general, including EU’s energy label. It is consumers from France and Hungary who show the highest levels of trust.

In the multivariate analysis, we have combined the four variables into one ‘trust in EU’s energy policy’ $((v1+v2+v3+v4)/4)$ . This is illustrated in figure 5 by the line relating to the ‘Mean trust scale’ on the right side of the figure.



**Figure 6: Eco-reflexive practices. Percentages expressing that they consider energy labels when purchasing new appliances, and percentages expressing that energy labels cause them to buy more energy efficient appliances in seven European countries. (N=5775, 786, 834,750,865,787,840,913,865)**

There were two variables related to whether or not the consumers considered and followed the energy labels. More people report to consider - and follow - the energy labels, than those reporting to trust the same labelling (figure 5). It is also somewhat confusing that in all countries – except for in Hungary – there are slightly more consumers who say that the energy labels cause them to buy more energy efficient appliances, than those who say that they consider energy labels. The Hungarian result might reflect that the decision to buy not only depend on eco-friendliness, but also price. It is more difficult to explain the Swiss result; where 61 percent say that energy labels cause them to buy, while only 55 percent say they consider the energy label. We would have to add that in the questionnaire these were succeeding questions.



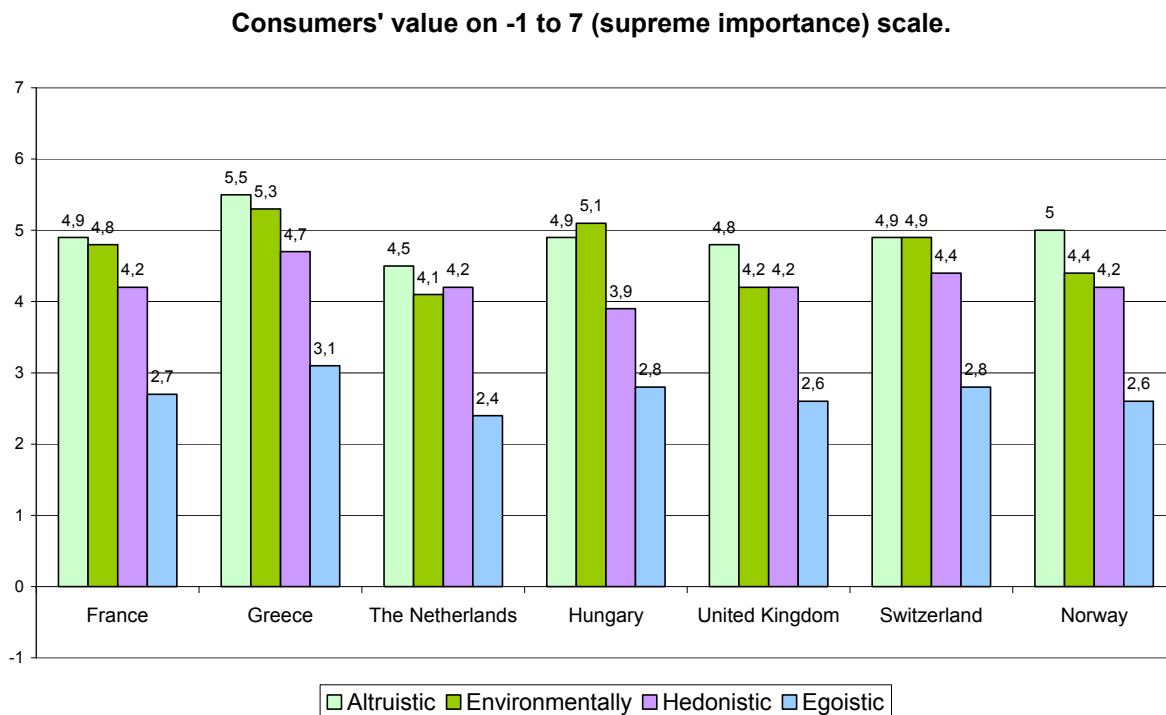
**Figure 7: Eco-friendly intentions. Percentages confirming that next time they need a light bulb, they will purchase an energy efficient one in seven European countries (and mean score on the original 1-7 scale). (N=5775, 786, 834,750,865,787,840,913,865)**

We consider one question that indicates consumers' willingness to act energy efficient, i.e. whether or not they will buy an energy efficient light bulb the next time they need one. On the one hand this is a good question because this is something every household need to purchase quite frequently. On the other hand this question is also quite tricky, because few months after the consumers filled in the questionnaires, it was no longer possible to buy traditional energy wasting light bulbs in Europe (1. September 2009).

Figure 7 shows that quite many consumers report they will be eco-friendly and purchase energy-efficient light bulbs next time. The reason for this, however, could be that the consumers know that there will not be traditional light bulbs available next time, and not only that they really intend to act eco-friendly. While, approximately, two out of three consumers in Greece, France, Hungary and Switzerland say they will buy energy efficient light bulbs, only one out of three in Norway claim this. Either Norwegian consumers are less eco friendly, or they are to a lesser extend aware that next time they will buy a light bulb, only eco efficient light bulbs will be on the market.

Nevertheless: These results, no matter how we interpret them, especially when we look at the case of Norway, illustrate quite clear that regulation (forbid energy wasting light bulbs) is far more effective policy than only to rely on consumers' good eco-intentions.

## 4.4 Value orientations and motives in seven countries

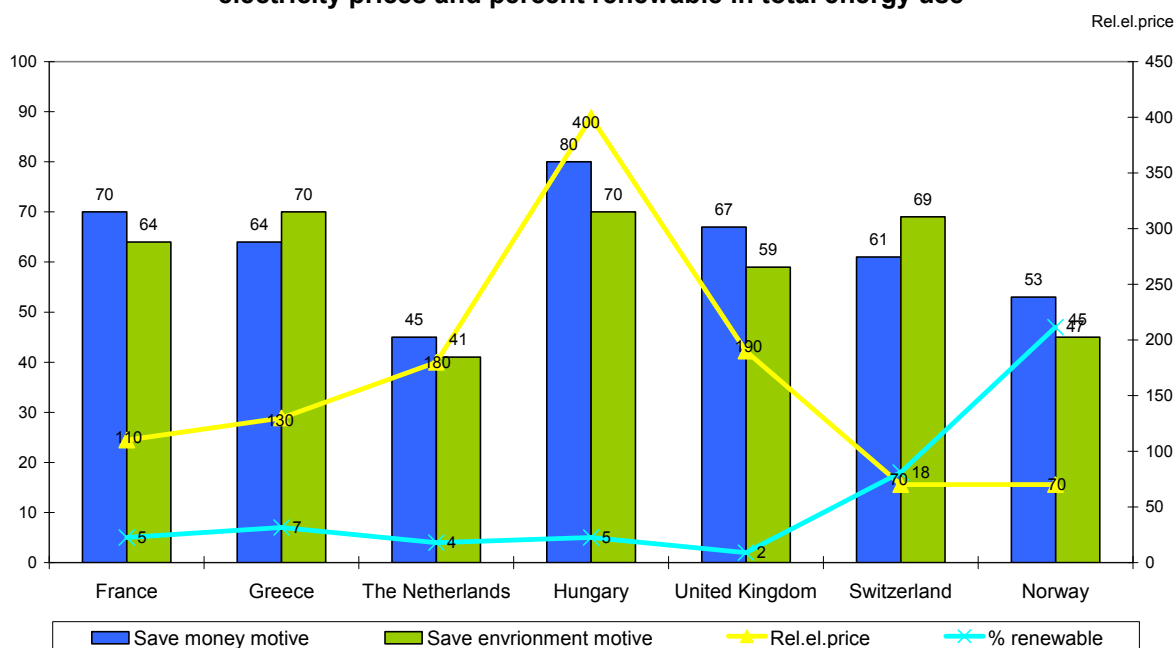


**Figure 8: Average approval to altruistic, environmentally, hedonistic and egoistic values in seven European countries (-1 to 7; the higher the number, the higher importance as guiding principle). (N=5775, 786, 834,750,865,787,840,913,865)**

It is reason to believe that consumers' individual value orientations will affect their eco-friendliness and practices. Based on a set of value statements, we separate between four main value orientations<sup>1</sup> presented in figure 8. As shown, in all countries there are more altruistic and environmental values than hedonistic and pure egoistic orientations. The highest level of altruistic values – on average 5.5 – and environmentally – on average 5.3 – we find among the Greek consumers. However, the Greek consumers also show the highest levels on hedonistic and egoistic orientations. If we instead follow a relative approach, focusing the difference between the levels of environmentally on the one hand and hedonistic values on the other, we find Hungary on the top, while the Netherlands, United Kingdom and Norway show the least community oriented values.

<sup>1</sup> The questionnaire contained a set of 17 statements (considered by the respondents on a scale from -1 to 7), which by factor analysis were reduced to four factors, or value dimensions. Each of the four factors was distinguished by the variables showing high correlation with the factor. One of the variables did not correlate with any of the factors, and were excluded. Each and one of the value orientations presented in figure 8 were constructed by calculating the mean value of the four original variables with high factor loadings  $((Va1 + Va2 + Va3 + Va4)/4)$ (not the automatically constructed factor-variable).

**Motives for reducing households use of energy compared to relative electricity prices and percent renewable in total energy use**



**Figure 9: Proportions saying that *saving money motives* versus *saving the environment motives* affect households’ use of energy in seven European countries. Compared to relative electricity prices and percent renewable energy at national level. Percent/relative electricity prices. (N=5775, 786, 834,750,865,787,840,913,865)**

The respondents were also asked about their motivation for reducing their households’ use of energy. In figure 9 these results are compared to the national variables relative electricity prices and percent renewable energy, factors related to the national energy regimes that could affect consumers’ motivation to save energy.

First, the results demonstrate that consumers in the Netherlands and Norway report to be motivated by money or environment less frequently than the other nationalities, while consumers in Hungary report to be motivated more often than the others by both saving money and saving the environment. For the case of Norway and Hungary, these differences can be partly explained by their energy regimes, while electricity is very expensive in Hungary, it is much cheaper in Norway, and Norwegian electricity comes from renewable hydro-power.

As shown in figure 9, there are relatively small differences within countries, but large differences between countries on these variables. Is it the same persons that are motivated to save energy by saving money as well as by saving the environment? This can easily be tested by trivariate correlation analysis:

**Table 2: How does the saving money motive correlate with the saving environment motive: Pearsons correlation.**

Total	France	Greece	Netherland	Hungary	UK	Switzerland	Norway
.60**	.70**	.53**	.70**	.56**	.60**	.49**	.57**

Table 2 shows a very strong correlation between the two motivational variables, which means that it is often the same persons that are motivated by both the ‘saving money motive’ and the ‘saving environment motive’. In other words, the results show that there are no contradictions between the two motivational factors, rather it is reason to believe that they reinforce each other.

Finally, before the multivariate analysis, we shall summarize how the countries can be described relative to each other on the variables considered:

**Table 3: Countries with higher and lower scores on the variables considered:**

	France	Greece	Netherlands	Hungary	United Kingd	Switzerland	Norway
Trust	+			+			-
Reflexive practices	+					+	-
Eco-friendly intentions	+	+		+		+	-
Value orientations			-	+	-		-
Motivation			-	+			-

### 4.5 What factors affect trust in EU’s energy policy?

In table 4 we include stepwise individual social background variables, individual value orientations, and finally country of origin.

The explained variances ( $r^2$ ) from the three models presented in table 4 show that it is consumers’ value orientation that explain the most of consumers’ tendency to trust EU’s energy policy and labelling. And – not very surprisingly – the more environmentally oriented the larger the tendency to trust EU’s energy policy. However, those with high scores on the ego-oriented scale, also tend to trust such labelling more often than others, perhaps because it is also rational to buy energy efficient appliances seen from an economic point of view?

The results also indicate that women, somewhat more often than men, tend to trust EU’s energy policy. Also older people show a small tendency to trust EU’s energy policy more often than younger people. Neither educational level nor political values give significant results. The income level variable shows a weak tendency that; the richer the more trust in EU’s energy policy.

Even when we control for value orientations, we find strong indicators that Norwegian consumers to a lesser extent than consumers in the selected European Union countries, trust EU’s energy policy including energy labelling. The countries with the highest trust in EU’s energy policy, all other factors kept constant, are France and Hungary. The multivariate approach reflects and repeats the main result from the bivariate approach presented in figure 5.

**Tabel 4: What affect our respondents' trust in EU's energy policy (1-7) the most: individual social background variables, individual values or country of origin. Standardised regression coefficients (beta). (N=5775)**

	Model I 1	Model II	Model III
Explained variance	$r^2 = .01$	$r^2 = .10$	$r^2 = .11$
Women =1	.09**	.07**	.07**
Age (18-80)	.08**	.06**	.05**
Higher education =1	-.02	-.02	-.02
Income level (1-10)			.04*
Political left – right (1-10)		.00	.01
Ego-oriented (1-7)		.10**	.09**
Hedonistic (1-7)		-.01	-.01
Environmentally oriented (1-7)		.24**	.21**
Altruistic (1-7)		.03	.05**
France=1			.16**
Greece=1			.11**
Nether=1			.11**
Hungary=1			.15**
UK=1			.09**
Switzer=1			.08**
Dummy comparison: Norway			

\*\* = sig. 0,01, \* = sig. 0,05.

One way to get a more robust view on how the independent individual variables affect trust in EU's energy policy, is to investigate whether the same pattern is repeated in each and one of the seven selected countries.

**Table 5: What affect trust in the EU energy policy (1-7) in seven European countries. Standarised regression coefficients (beta). Respondents selected to be nationally representative. (N=786, 834,750,865,787,840,913,865)**

	France	Greece	The Netherlands	Hungary	United Kingd	Switzer-land	Norway
Explained variance	$r^2 = .15$	$r^2 = .10$	$r^2 = .09$	$r^2 = .08$	$r^2 = .13$	$r^2 = .10$	$r^2 = .14$
Women =1	.13**	-.01	.04	.16**	.12**	.11**	-.05
Age (18-80)	-.08*	.08*	.05	.10**	-.02	.09**	.08*
Higher ed. =1	-.14**	.01	-.02	-.03	-.02	-.02	.05
Income level	.07	.01	.01	.06	.07	.04	0
Political left – right (1-10)	.08*	.12**	.05	-.02	-.09**	-.05	.03
Ego-oriented (1-7)	.08*	.12**	.05	.04	.03	.20**	.07
Hedonistic (1-7)	-.01	-.01	-.02	.01	.07	-.08*	0
Envir.orient (1-7)	.22**	.24**	.16**	.18**	.18**	.15**	.30**
Altruistic (1-7)	.10*	.02	.13**	-.01	.09	.04	.05

\*\* = sig. .01, \* = sig. .05.

Figure 5 indicate that in all countries trust in EU's energy policy are strongly affected by level of environmental orientation. In France, Greece and Switzerland, ego-orientation also tends to affect trust in the EU energy policy. Gender only gives significant effects on trust in France, Hungary, United Kingdom and Switzerland. Age show contradicting results, so do political values. In neither of the countries income level show significant results.

#### 4.6 What factors affect energy reflexive practices and good intentions?

**Table 6: What affect eco-reflexive practices concerning the EU energy label (1-7). Standardised regression coefficients (beta). Respondents selected to be nationally representative. (N=5775, 786, 834,750,865,787,840,913,865)**

	All seven countries	France	Greece	The Netherlands	Hungary	United Kingdom	Switzerland	Norway
Expl.var.	R <sup>2</sup> = .33	R <sup>2</sup> = .31	R <sup>2</sup> = .27	R <sup>2</sup> = .34	R <sup>2</sup> = .24	R <sup>2</sup> = .36	R <sup>2</sup> = .35	R <sup>2</sup> = .36
Women =1	.02	.05	-.03	.06	.03	.04	.02	.03
Age (18-80)	.08**	0	.03	.14**	.14**	.11**	.07*	.06
Higher ed. =1	.02	.02	.01	-.03	.02	.04	.05	-.02
Income level	.05*	.06	0	.06*	-.01	0	.13*	.05
Political left - right (1-10)	-.03*	.03	-.01	-.05	-.03	0	-.07*	0
Ego-oriented (1-7)	-.02	-.09*	0	.04	.06	-.02	-.09**	-.06
Hedonistic (1-7)	-.02	.02	-.02	-.10**	.02	-.04	-.07*	.05
Envir.orient (1-7)	.21**	.26**	.24**	.16**	.09*	.31**	.20**	.20**
Altruistic (1-7)	-.03*	-.04	-.09*	.04	-.02	-.09**	0	-.06
Trust in EU's energy policy (1-7)	.45**	.43**	.44**	.45**	.42**	.46**	.45**	.51**
France=1	.15**							
Greece=1	.06**							
Nether=1	.11**							
Hungary=1	.05**							
UK=1	.08**							
Switzer=1	.12**							

\*\* = sig. .01, \* = sig. .05.

Table 6 first of all shows that it is trust that affects eco-reflexive practices (i.e. to what extent the respondents report to consider and follow EU's energy labels when purchasing electric appliances) the most. But also attitudes (i.e. to be environmentally friendly) have considerable effects, in all countries, on the tendency to show eco-reflexive practices.

When we control for trust (very strong variable) and the other variables included in the regression equation, gender do not show significant effect on eco-reflexive practices, while age does. Educational level means nothing, and income very little (only in The Netherlands and Switzerland). Citizens with political values on the left are more eco-reflexive in Switzerland, all other variables kept constant, but nowhere else (same result if we only look at the bivariate correlation between political values and eco-reflexive practices).

Consumers in all countries show higher levels of eco-reflexive practices than in Norway. And if we consider the indirect effects from different trusting levels in the countries, differences between Norway and the other countries increases even more.

**Table 7: What affects decision to buy eco bulbs (1-7). Standardised regression coefficients (beta). Respondents selected to be nationally representative. (N=5775, 786, 834,750,865,787,840,913,865)**

	All seven countries	France	Greece	The Netherlands	Hungary	United Kingdom	Switzerland	Norway
Expl.var.	R <sup>2</sup> = .11	R <sup>2</sup> = .10	R <sup>2</sup> = .15	R <sup>2</sup> = .04	R <sup>2</sup> = .07	R <sup>2</sup> = .08	R <sup>2</sup> = .09	R <sup>2</sup> = .08
Women =1	-.01	.01	-.07*	.03	.01	.01	-.03	-.04
Age (18-80)	-.03*	-.01	-.11**	.04	-.08*	-.05	-.05	.06
Higher ed. =1	.01	.01	0	.03	.02	.04	0	-.04
Income level	0	-.03	.02	-.06	.05	-.07*	.03	.07
Political left - right (1-10)	-.02	-.02	-.06	-.03	-.05	.03	-.06	.02
Ego-oriented (1-7)	-.07**	-.10**	-.02	-.08	-.08*	-.06	-.11**	-.05
Hedonistic (1-7)	0	.02	.03	.08	-.07	0	-.03	.04
Envir.orient (1-7)	.18**	.11**	.23**	.13*	.12**	.19**	.27**	.22**
Altruistic (1-7)	.02	.10**	.04	-.01	.11**	-.05	-.05	0
Trust in EU's energy policy (1-7)	.14**	.18**	.21**	.04	.13**	.19**	.11**	.08*
France=1	.17**							
Greece=1	.18**							
Nether=1	.12**							
Hungary=1	.15**							
UK=1	.12**							
Switzer=1	.17**							

\*\* = sig. .01, \* = sig. .05.

‘To show eco-friendly intentions’ is like our other dependent variable ‘eco-reflexive practices’ significantly affected by level of environmental orientations as well as by trust in the EU’s energy policy. Again Norwegian consumers are less likely than consumers in all the

other countries to show eco-friendly intention. Either Norwegians are less eco-friendly, and/or they are more seldom than others informed and aware that the next time they are going to buy light bulbs, only eco-bulbs are available. Or, if equally informed, Norwegians are perhaps more inclined to stockpile (hamstre) old traditional light bulbs?

We can also register that ego-oriented consumers are less likely than others to have eco-friendly intentions, especially in France, Hungary and Switzerland. Again the results from the multivariate and bivariate approach give the same result when comparing how consumers in different countries relate to eco-friendly intentions (figure 7).

## **7. Conslusions: Barriers for change and situation of opportunities?**

European consumers do trust the EU-energy label, and they also to a large degree take the label into account when they buy electrical household appliances. Thus, we may conclude that there is no strong *political, information or social* barriers for change. However, the process and discussion about the revision of the Energy label may have effect on these matters.

At the same time we have also seen significant differences between the counties. Norwegian consumer expresses the lowest trust level among our seven countries. The reason for this is probably that the energy prices and the clean hydro electricity in Norway not have brought this topic on the political agenda at the same degree as in the other countries. It can not be explained by the fact that Norway is not a member of the European Union, since Switzerland – also a non-member – has among the strongest trust in the energy label.

Norwegian consumers show also less eco-friendliness than others. This may also be related to the fact that the Norwegian hydro power electricity is renewable and less expensive in Norway than in other countries, or perhaps because energy policy/information is less pronounced in Norway?

The economic barrier is more problematic. Seen from the consumers there is no contradiction between ‘the saving money motive’ and the ‘saving environment motive’ when it comes to save energy by increasing eco-friendly behaviour.

Furthermore, we may also conclude that regulation is a more energy efficient policy than to depend on consumers’ eco-friendly reflexivity. This means that is it is more important to change the physical and structural barriers than to create windows of opportunities for individuals and households.

The main focus in the BAREENERGY project is the identification of various barriers for change and how these barriers can be overcome by political and economic instruments from political authorities, businesses and NGOs. The perceived barriers to change among consumers are obviously also a part of the context that stakeholders operate in.

The mandatory EU energy label has been a success, in spite of some problems and shortcomings. It has managed to constitute a legitimate platform for technical innovation in the household appliance industry and the label is used in the market communication between producers and sellers on the one hand and consumers and households on the other. Furthermore, there is a common agreement among all stakeholders that it has been a success, but that the label needs a revision, in order to continue the success story.

The energy label fits well several theories about consumption in general and linked to the potential for change more specific. Energy labels help consumers to make rational shopping decisions; they are a crucial factor in the routinised everyday life consumption; and they have relevance for the symbolic aspects of consumption. In the long run you both save money and contribute to save the world. This is probably one of the reasons behind the success.

## References

- Ajzen, I & Fishbein, M (1977): *Attitude-behaviour relations: A theoretical analysis and review of empirical research*, Psychology Bulletin 84, 888-918
- Ajzen, I. and Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ Prentice-Hall.
- ANEC, 2007. *A review of the range activity throughout Member States related to compliance with the EU Energy Label regulation in those countries*. ANEC-R&T-2006-ENV-008
- Baudrillard, J. (1988). *The System of Objects in Selected Writings*. Cambridge: Polity Press
- Bourdieu, P. (1992): *Distinction. A Social Critique of the Judgement of Taste*, London: Routledge
- Carrol, A.B. (1999). Corporate social responsibility. Evaluation of a definitional construct. *Business & Society* 38(3) pp. 268-295
- CECED, 2005. Energy-Efficiency. A shortcut to Kyoto targets. The Vision of European Home Appliance Manufactures
- CECED, 2008. Energy-Efficient Europe. The CECECED solutions
- Clarkson, M.B.E. (1995). A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. *The Academy of Management Review*, Vol. 20, No. 1 (Jan., 1995), pp. 92-117.
- Dentchev N.A. and A. Heene (2003). Toward stakeholder responsibility and stakeholder motivation: Systemic and holistic perspectives on corporate sustainability. Working paper 203/196: University of Gent, Belgium
- Douglas, M, and Isherwood, B. (1996) *The World of Goods. Towards an Anthropology of Consumption*. New Your and London: Routledge.
- Featherstone, M. (1991). *Consumer, Culture and Post-modernism*. London: Sage.
- Freeman. R.E. 1984. *Strategic Management: A Stakeholder Approach*. Boston: Pitman.
- Gronow, J. & Warde, A. (Eds.) (2001): *Ordinary Consumption*. London: Routledge  
Princeton
- Ipsos MORI, 2008 Project Energy, Online Omnibus in 7 markets .May 2008
- Kaiser, F., Wolfing, S. and Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of Environmental Psychology*, 19, 1-9.
- Lüthi, Sonja and Stø, Eivind. *Overcoming barriers to energy efficiency in cooking: A Swiss survey among key players in politics, business, and NGOs* Paper presented at the ecee 2009 Summer Study, June 2-5
- Micheletti, M. (2003) *Political Virtue and Shopping*. New York: Palgrave Macmalian
- Micheletti, M, Follesdal, A. and Stolle, D (eds), (2004) *Politics, Products and Markets*. New Brunswick and London: Transaction Publishers
- Miller, D. (1998). *A theory of shopping*. New York, Ithaca: Cornell University press.
- Rubik, F. and Scholl, G. (ed.) (2002): *Eco-labelling practices in Europe. An overview of environmental product information schemes*. Berlin: IÖW discussion paper Series, No. 162/02
- Reckwitz, A (2002): *Toward a Theory of Social Practices: A Development in Culturalist Theorizing*, European Journal of Social Theory (5)2: 243-63
- Rubik, F. and Frankl, P. (2005) *The Future of Eco-labelling. Making Environmental Product Information System Effective*. London: Greenleaf Publishing
- Scholl, H.J. 2002. Applying Stakeholder Theory to E-Government. Benefit and Limits. Working paper, NY: University of Albany.

- Strandbakken, P. (2006) Produktlevetid og miljø. (Lifespan of products and the environment). PhD. dissertation, University of Tromsø, and National Institute of Consumer Research
- Stø, E (ed), (2004). The involvement of consumers to develop and implement tools for sustainable households in the city of tomorrow. Final report to the European Commission. Oslo: SIFO
- Strandbakken, Pål. (2009). Sociology fools the technicians. Product durability and social constraints to eco efficiency for refrigerators and freezers. *International Journal of Consumer Studies* 33 (2) pp 146 -150
- Stø, E., Throne-Holst, H. And Vittersø, G. (2005). The Role of Consumers in Environmental Successes. In Grunert, K.G. and Thøgersen, J. (Eds) *Consumers, Policy and the Environment. A Tribute to Folke Ölander: 325 - 356*. New York: Springer
- Stø, Eivind, Throne-Holst, Harald, Strandbakken, Pål & Vittersø, Gunnar (2008): Review: a multi-dimensional approach to the study of consumption in modern societies and the potential for radical sustainable change, in Tukker et al eds): *System Innovation for Sustainability. Perspectives on radical changes to sustainable consumption and production*, Greenleaf, London
- Svane, Ö. (2002). *Nordic Households and Sustainable Housing - Mapping Situations of Opportunity*. TemaNord 2002: 523, Nordiska Ministerrådet.
- Throne-Holst, H, Strandbakken, P and Stø, E. 2008 Domestic energy use between opportunity and constraint. Barriers, bottlenecks and potentials for change in consumer behaviour. *Journal of*
- Throne-Holst H., Stø, E. and Strandbakken, P. (2006). The Role of Consumption and Consumers in Zero Emission Strategies. *Journal of Cleaner Production (forthcoming)*
- Veblen, T. (1925) The Theory of the Leisure Class: An Economic Study of Institutions*. London: Allen and Unwin
- Warde, Alan (2005): *Consumption and Theories of Practice*, Journal of Consumer Culture, Vol. 5 (2); 131-153, London, Thousand Oaks (CA) & New Delhi
- Windsor. D. 2001. The future of corporate social responsibility. *The International Journal of Organization*

