A Cross-Market Study of Consumers' Attitudes to Green electricity

Fridrik Larsen
Adjunct Professor
University of Icland
Saemundargata 2, 101 Reykjavik
Iceland

Abstract

In the wake of the liberalization of electricity markets, both energy companies engaged in selling household consumers green electricity products, and policy makers wanting to stimulate green electricity products usage share the need to understand green electricity buyers. The paper presents findings from exploratory research on consumers'attitudes towards green electricity. The paper draws on findings from qualitative research where data was collected from five countries. A grounded theory approach was used to analyze the responses from 83 electricity consumers collected via focus groups. Several factors were identified, shared and country specific, which may be considered when promoting green electricity. Among the shared factors are the identical nature of electricity, local production, skepticism and corporate social responsibility. The paper concludes that promoting green electricity requires an in-depth understanding of consumers' perceptions and a realization that consumers perceive the concept 'green' in quite different ways from traditional definitions.

Key Words: Green electricity, marketing, promotion, policy makers, energy companies.

1.Introduction

Electricity markets began to be liberalisedin the 1990s. Only few recent studies have had the objective ofunderstanding and analysingthe options of companies selling green energy in their attempts to attract consumers (Paladino & Pandit, 2012; Salmela & Varho, 2006). It should be noted, furthermore, that relatively few researchers have focused on understandingthe perceptions and attitudes most likely to influence consumer behavior with regard to green energy and its providers(Laroche, Bergeron, & Barbaro-Forleo, 2001). This gap, however, could be filled by qualitative studies such as focus groups (Hartmann & Ibáñez, 2006; Rowlands, Scott, & Parker, 2003).It is of particular importance that policymakers attempting to boost demand for green energy should learn to appreciateconsumers'prevailing mood towards the concept of green electricity, since this is the key to understanding their purchasing intentions and thus an urgent issue to retailers of green electricity who wish to maintain or improve their market share in household electricity.

The paper attempts to respond thisneed for research by presenting the results of a qualitative study where empirical evidence drawn from consumers themselves provides an in-depth understanding of this matter and helps to shed light onwhat green electricitymeansto consumers and which major forces shape their attitudes.Furthermore, the paper looks into the implications of the consumers' own wordsfor policymakers and for the marketing activities of the energy companies. Those questions are best responded to whilemaintaining a cross marketperspective, since research indicates that green power markets have grown differently, depending on location (Markard & Truffer, 2006) and consumers'attitudes. To the author's knowledge, no single study has hitherto combined and compared Eastern and Western European conditions in this respect. Moreover, no research is available from the Eastern countries and only few studies from the Nordic region. Most European research originates in individual Western countries (Arkesteijn & Oerlemans, 2005) which were the first to be liberalized.

Iceland was chosen on the premise that it is the author's home country and consequently a suitable starting point for data collection. Norway was selected as a pioneer in the liberalization of European electricity markets and Iceland's Nordic counterpart. Estonia was included as representing the most recently liberalized European country; so new to the market that their electricity sales were still operating under a monopoly during data collection.

The Czech Republic was seen asa suitable candidate for selection because of unique progress in electricity sales compared toother Eastern European countries and Poland was chosen for comparison with the Czech Republic.No previousstudies are available from the Eastern European countries and only scantresearch from the Nordic region. The first Western countries to gain access to liberalized markets have been most extensively researched(Arkesteijn & Oerlemans, 2005). Adding a new cultural dimension by including areas not previously researched should be of particular interest since research indicates that attitudes to green energy are subject to cultural influence. Nevertheless, this particular selection of countries can lend itself to criticism, a point to be discussedlater in this paper.

The first part of the paperdefines and characterizes green electricity, subsequently describing the methodology used. Next, findings are outlined, followed by a final presentation of discussion and conclusions.

2. Characterizing green electricity

The term "green electricity" normally refers to electricity generated by technologies that do not vent damaging emissions into the atmosphere (Paladino & Pandit, 2012) and originate from environmentally preferable energy sources (Truffer, Markard, & Wüstenhagen, 2001). Green energy or green electricity are generic terms used for electricity produced by using pure, ecologically desirable energy sources collectively known as renewable energy, such as for example wind, water, solar, and bio-mass (Lipp, 2001). Green electricity can be technically characterized by stating that as a result of constrained carbon emission allowances, the production and usage of renewable energy ought to lead to reduced emissions, thereby earning an authentic affirmation of the right to be marketed as an environmental source. If allowances or emission caps are not reduced, environmental claims cannot be authentic (Bird, Holt, & Carroll, 2008).

Electricity contrasts many other consumables due to the possible environmentalimpact resulting fromitsgeneration. Conversely, there is the political importance of encouraging customers to use energy made from green sources. However, selling electricity is a challenging task for marketers as its provision can be classified as both a private and a public good in that the supply of renewable electricity to households constitutes a private good, whilst the usage of renewable electricity affords public benefits (Wiser, Pickle, & Eto, 1998). The reason for its public benefits is that all consumers on the market will be supplied with green electricity via the power grid, irrespective of whether paying for it or not and are, therefore, liable to free ride(Lipp, 2001). Furthermore, the complexity of the environmental impact of electricity generation is hard to comprehend for a multitude of reasons, one being what has been termed the "additionality criterion" which refers to whether purchases are liable to result in further production capacity for renewable energy being built (Menges, 2003). National electricity production structures differ among various European countries, but the structure in each country is a major factor in determining whether an additional production facility needs to be developed (Bird, Wüstenhagen, & Aabakken, 2002). It is, therefore, apparent that validating the impact of purchases of green electricity on the electricity production structure is a complex task for wholly informed choice.

Evidence from the US market establishes that if renewable electricity does not directly reduce carbon, producers or dealers cannot declare that their renewable electricity is ''emission-free'' or ''pollution-free".Only under the guidelines of the National Association of Attorneys General can it be stated that consumer purchases actually result in reduced emissions (Bird et al., 2008) and in that way contribute to preserving the environment; that is, effectively lowering system-wide emissions of carbon as opposed to their purchases merely resulting in neutral system-wide emissions. Although this sounds relatively straightforward, it may not be so for average consumers as their perceptions are not necessarily consistent with technological facts. Furthermore, Cornelissen et al. (2008)suggest that inopportuneness, together with the amount of time and effort connected with pro-environmental behavior is a large factor accounting for consumers not adopting green products. Given this scenario, the commonsense consumer might be turned off buying green products.Moreover, consumers place importance on other factors, such as the visual impression that electricity production facilities have on the environment, as well assustainability or the corporate social responsibility of the electricity provider(Larsen, 2012).

Public energy policy in the form of legislation has proven to be the most effective tool in increasing the use of green electricity sources.

Furthermore, informing consumers by means of marketing is also important and research has indicated that persistent promotion is vital to motivate consumers to reach competent market penetration of green energy sources (Bird et al., 2002).Thus, it is a matter of priority to apply best marketing practices in the electricity sector so that maximum benefits may be reached, although marketing by itself is not going to persuade sufficient numbers towards green sources (Markard & Truffer, 2006). Green electricity can be considered a convoluted good. It is important, therefore, to understand howconsumers perceive green electricity to be able to efficaciously reach them on their perceptual level.Qualitative research serves well for this purpose,and is used in this research and explained in the next chapter.

3.0 Method

Grounded theory was chosen as a methodology in light of the distinctiveness of the research subject, but the method is pertinent when existing theory is rarely congruous and the topic under researchedor hasonly been given "superficial attention" (Goulding, 2002, p. 55). In such circumstances, the method is better suited for engendering innovative and truthful information than a dependence on previous research or field experiments (Glaser & Strauss, 1967). Moreover, grounded theory is advantageous for uncovering and describing social phenomena (Haig, 1995) in its ability to identify,by focused probing, what is happening and why(Douglas, 2004). In this research, Straussian techniques are followed.

Data was collected by focus groups which are suitable foracquainting researchers with a new field and forgenerating propositions based on assembled insights(Krueger & Casey, 2000). Focus groups are valuable"when it comes to investigating *what* participants think but they excel at uncovering *why* participants think as they do" Morgan (1988, p. 25)byencouragingcommunication and stimulating diversity among participants. Thus, focus groups are a useful and insightfultechnique which maximizes theuse of group dynamics(Wilson, 2003)by the way participants convey their beliefs and experiences on a particulartheme as they simultaneously describe to others the basic premises on which their beliefs are founded(Oates, 2000).

3.1 Sample

The selection criteria for theparticipants were that theymust becurrentclients of electricity companiesfor domestic use, were of diverse agesand income groups and came from various size households. Table 1shows a breakdown of participants.

Table 1Participants

It was a requirement,furthermore, that participants should have adequate command of English as all the focus groups were conducted in that language.In the event that participants wanted to answer in their native language, a translator wasavailable. Thus, the participants were able to communicate without the hindrance of a language barrier which may constitute a serious disadvantage in cross-market research (Marschan-Piekkari & Welch, 2004). English, however, was mostly the preferred language and participants seldom had to make use of the translator's service. It should be kept in mind, nevertheless, that since English was not the native language of the participants some of the merit of a qualitative approach may have been lost; that is, the contextual awareness which adds richness to the process (Bryman & Bell, 2007). Thiscould have skewed the sample.

The qualitative method allows the researcher to focus on participants with qualities considered significant for the research objectives (Malhotra & Birks, 2006), so caution was taken that the participants exemplified a cross section of the researched countries, in so far as possible. There were 83 participants, divided into two focus groups in each country, except for Poland where the groups were three. The size of the sample is satisfactory(Creswell, 2007; Kvale & Brinkmann, 2009), but could be seen as a limitation. Lunt and Livingstone (1996) suggest that new focus groups should be added until the additions start echoing previous discussions. Judging by recurrences in all countries, the numbers of groups appeared to be adequate with regard to those identified factors which mattered most. Some factors, specific to individual countries, emerged, however, reflecting the cross-market nature of the research. If the study had been confined to one country, those factors would have been seen as deserving further investigation to reach theoretical saturation. Because of the way this research was orchestrated, however, significant obstacles would have arisen with regard to such an arrangement.

Two focus groups comprised only students, one in Poland and one in Estonia. Roughly one third of the participants were administrative staff at local universities andthis large ratio of university staff might have affected the findings. However, by running queries in the qualitative data analysis software (QDA) *NVivo*, it was established that the university groups did not yield results differing from those of others. Furthermore, queries where run to check whether age, gender and number of household members affected responses but no notable differences were found.

The focus group discussions lasted from 60 to 70 minutes. They were recorded and typed, generating 1,080 pages of transcribednotes. A serial code was assigned to identify each participant, consisting of an abbreviation where the first initial represents the country of origin (Mertens, 2005). Collection of data started in August 2009 and ended in November 2012.

3.2 Analysis

The analysis was carried out in fourphases. A detailed account of each step follows.

Phase 1. Primary analysis, initial identification of codes, integration of field notes

The original set of transcribed data was open-coded in the first phase to unearth insights and generateconceptual categories. Initial analytical comments were added to the transcripts(Creswell, 2003)counting nuances (Marschan-Piekkari & Welch, 2004) of how participants conveyedspecific statements (e.g. serious, laughing etc.). Theoretical codes and live codes (in-vivo codes) were identified whilst breaking up the data by analysing the text line-by-line. The former originate from the literature and the latter from particular words appearing in the data (Creswell, 2003; Kvale, 1996). New codes were invariably added as new occasions arose and no limitations were placed on their number. The data analysis approach is defined by Glaser and Strauss (1967) as the technique of uncovering a theory grounded in the data itself. Furthermore,in this phase previouslyrecorded notes were added to the transcripts,includingany unusual remarks or activities worth noting after each focus group had been completed. Morgan (1988, p. 63)refers to this technique as 'field notes' and recommends that they should serve as an initial stage of analysis, constituting an indispensable aspect of focus groups in their contribution to data gathering.

Phase2.Continued analysis, combination of codes, initial model development and factor identification

In phase two, the data was processed by means of aqualitative data analysis (QDA) softwarewheremore selectivecoding was carried out to identify associations between previously identified codes for the purpose of constructing a theory based on abstractreasoning. Similar codes were combined, general codes assigned (Creswell, 2003)andadditionalcodes supplied, as the data was examined in detail in search of new insights. New codes were assigned according to similarities between countries; a search for links between existing individual codes; and/or any major divergences. The analysis was also based on a supplementary literature review,andas the research progressed the literature was continuallyconsulted, for the purpose of seeking contextual material which could be related to findings from primary data gathered by the researcher. This process helpeddevelop theoretical sensitivity and attain a viable understanding of the research topic(Glaser & Strauss, 1967; Lincoln & Guba, 1985).

Phase 3. Mental mapping and factor confirmation

In phase three, relevant codes were transferred into final factors, whose influence wasascertained by systematic re-readings of each individual factor and maps created for eachcountry.The factors werefurther analysed and direct quotes assigned from participants. Directly quoting participants is appropriate, because, as Maykut and Morehouse (1994, p. 18) write: "words are the way most people come to understand their situations; we create our world with words". Thus, qualitative researcher searches for patterns within those words andsimultaneously remainstrue to the structure of the world originally experienced by the participants. In addition, as another aspect offactorprocessing, the researcher's comments were inserted in the maps to ensure their relevance to the data and subsequentlythe impact strength of the factorswas ascertained. This was accomplishedby counting how many times the participants referred to the relevantfactors and the intensity of the discussion wasassessed from a) the conduct of individuals addressing the issue (e.g. strong choice of words, raised voice, body gestures and strong emotional reactions) and b) the group's response (e.g. general consensus by nodding and exhibiting other signs of silent agreement without necessarily articulating responses).

Phase 4. Factor validation

The final stageof the analysis was conducted by means of the QDA software. After high impact codes had been identified, the transcripts werereread to verify the actual impact of thefactorsunder consideration. Various word frequency and matrix coding queries were also conducted before writing this paper, with a similar aim in mind.Thus, a wide-ranging analysis was implemented, the results of which will be outlined in the next chapter.

4. Findings

The purpose of the research is to gain improved awareness of participants' perception of green electricity in the researched countries. The qualitative research method helps in identifying both*what* participants think and also in understanding*why* participants think as they do (Morgan, 1988). Gaining such insights on a country specific level is important from the point of view that certain countries have attained better results in selling green energy although using comparable promotion instruments (Reiche & Bechberger, 2004).

Thus, findings are presented on a single country basis to reflect the discussion in each country, beginning with those from the Nordic countries.In this context it may be noted, however, that the participants from the three Eastern European countries had stronger opinions on green electricity than those from the two Nordic countries, particularly Iceland.

4.1 Iceland

A vast majority of households in Iceland uses electricity made from renewable sources. Speculations on the exact definition of green electricity, therefore, appeared rather distant to the Icelandic participants, but there was a consensus that it was undesirable to use electricity made from fossil fuels; cf. "from oil or coal or such" (I4). They realized its importance but were unsure of the what exactly would constitute as green electricity, for example whether nuclear energy was considered green or not. Some claimed nuclear energy to be greener than electricity produced in hydro power plants in Iceland since those have caused much controversy in the past years due to their environmental effects on pristine nature. The visual effect of renewable electricity generation facilities was closely connected to the environmental impact, because a recently built geothermal plant in the vicinity of Reykjavik had prompted their awareness of the visual pollution that energy plants can have. For the same reason, windmills were disliked due to their "visual pollution" (I18)

For the most part, however, the Icelandic participants did not think much about green issues. "I'm just not that green" (I16) resembles their sentiments, but most claimed that they would, like to, and should be, greener, although they were distrustful of the issue at the same time. Particularly since it did "not matter whether electricity comes from this source or this source" (I6) because the "electron cannot be chased through the grid" (I14) and therefore everyone would be receiving the same anyway. Furthermore, to some it was either a matter of intermediaries making unjust wealth or a marketing matter. However, there was a consensus that electricity could be considered green if the company that sold it adhered to general CSR principles.

4.2 Norway

Like in Iceland, most of the electricity used by Norwegian consumers is green anyway and therefore not a "relevant problem" (N10) to them nor of major importance since. They considered electricity produced in Norway to be "clean" (N11), but imported electricity was considered to be "dirty" (N8) or "brown" (N14). The participants, however, placed great importance on electricity being produced locally and agreed on fossil fuels being undesirable for producing electricity. The Norwegian participants were extremely price conscious and considered price of electricity to be a far more important variable then how green it was. They were furthermore skeptical towards green electricity. Some claimed they could "see through it" (N5) and that it was not real but more of a political issue that helped the energy companies to make a "quick buck and huge underserved profits" (N4). The Norwegian participants did not trust most of the energy companies and thought it plausible that those businesses would not hesitate to green wash their product by simply making appealing green advertisements.

They even indicated that the energy companies would "just basically lie to people" (N1) in an effort to make their products appear greener than they actually were. Adding to their skepticism was the notion that the same distribution system delivered the same electricity to all consumers so that they would "not really know" (N6), or rather had "no idea" (N16), whether the energy that they received was actually green.

As they were unsure of electricity's origin, they had no "insurance for clean energy" (N12). CSR and sustainability matters were important to the Norwegian participants and closely tied to green issues. They wanted the energy companies to be "serious about the future" (N4) and use the newest technology to minimize negative effect on the environment. In that sense, they considered a company green although it was not necessarily producing electricity from renewable sources. The participants placed strong emphasis on the energy companies' support of their local communities. The participants were willing to direct their business to local energy companies in the assurance that they would invest their profits back into their respective communities. Furthermore, they saw a company's image as greener if the organization concerned channeled part of its "profit to UNICEF or some humanitarian organization" (N12) or "a good cause like the Red Cross" (N16).

The visual pollution associated with electricity produced from renewable sources was of concern to the participants, particularly large power line masts carrying energy from hydro dams and windmills. However, the participants did not oppose windmills as strongly as their peers in other countries researched. There was also a consensus that considerably hypocrisy surrounded the issue of green electricity, as people were willing to accept that electricity was green if they did not see any visual pollution associated with it and only started to think about it "when they hear the noise and see the smoke" (N12).

4.3 Czech Republic

A concrete result from the participants in the Czech Republic was their interpretation that nuclear energy is the greenest electricity. The participants felt that the average person should adopt a pragmatic approach when defining green energy and since they had observed that the air was cleaner in the towns that use electricity from local nuclear power plants, they reasoned that nuclear energy was green. To them this was a direct benefit, cf. "I was born in Tranve where they built the first nuclear power station in Czech Republic and that is the best air in the Czech Republic" (C13); "In Ostrava it's bad air [because it does not have a nuclear power plant], and I think that nuclear energy is best and green" (C16).

The participants knew that their view was "not correct" (C14) in defining what green energy was and accepted that an environmental activist would favor electricity produced from renewable sources and oppose nuclear power stations. They acknowledged that renewable sources were greener, but their pragmatic approach overwrote those notions. Besides, the concept of green was relative, particularly with respect to electricity produced from coal, cf. "I care [about the source of energy] because I am not a fan of coal and I, would rather prefer atom energy because it is better for the environment" (C12); "it's much more clean than the coal stuff" (C9). Furthermore, the Czech participants considered environmentally responsible behavior not only to be about buying electricity produced from green sources, but, more importantly, to save energy and in that way "acting green" (C2).

The participants from the Czech Republic further identified undesirable factors that they associated with green energy. Most frequently mentioned was that green electricity was considered a deception, or fake, that caused them to be skeptical towards it. The perception of green being a deception was mainly based on the uncertainty that they were actually receiving green energy; cf. how could they "know that it's green energy. If you cannot check, then you cannot be sure" (C7). It was further identified as an undesirable factor that electricity generated from wind and solar power was thought to cause unjustifiable visual pollution. Windmills were thought to harm the landscape and cause "destruction of farming land" (C3); or more intensely stated: "windmills cause "horrible destruction of agriculture land" (C11). Lastly, unfortunate experience in the past with the government's initiative concerning electricity generated from photovoltaic power stations was identified as an undesirable factor. The participants disliked the initiative, which they perceived as green issues being pushed down their throat by corrupt politicians. This had caused a reverse halo effect in the sense that the participants perceived other green energy sources to be bad as well.

4.4 Estonia

The Estonian participants considered green electricity to be both a multifaceted and a nebulous concept. No one source was considered superior to another, but most participants agreed that an energy source should be considered a green one if it was produced locally, produced efficiently, and that the company producing it behaved responsibly towards its employees and its environment. The Estonian participants cogitated that "somehow taking care of nature or doing something good" (E8) for the environment would mean that companies were behaving in a green manner.

Traditional definitions of green electricity are predominantly based on the generation source. The Estonian participants, however, were more concerned with production method. That is "producing it wisely" (E5) and relying on the best available technology. Overall it can be stated that the Estonian participants firmly challenged traditional notions of what should be classified as green electricity. Although admitting that the generation of electricity could be considered green to varying degrees, this was considered largely irrelevant by many, since all the consumers would receive the same electricity anyway cf. "electricity is kind of a phenomenal for physics and we don't know exactly what flows from the wires to all our houses" (E10). A purchase of green electricity, an intangible product, would therefore be based on trust between buyer and seller.

Furthermore, the participants felt that being green was a question of a governmental stamp or an indistinctly defined agreement between a buyer and a seller that what was being purchased was actually green although both parties knew that it was not, since everyone received the same electricity. Viewed from that perspective, buying green electricity was a theoretical argument for the Estonian participants that they were reluctant to join; particularly since to many of them the only differentiating factor between green energy and conventional energy was a matter of marketing. For that reason, the participants were skeptical towards the concept. They knew that it was politically correct to be green, cf. "probably I should make the green propaganda but I will not" (E4), but politically correct from a Western point of view. That did not mean that it was correct from their Eastern perspective point of view, especially since they did not "believe that CO2 changes the world climate" (E1) and, furthermore, that their Estonian "scientists [have shown] that CO2 is a political issue" (E7).

In addition to challenging research on green electricity, the Estonian participants also questioned whether environmental arguments actually applied to Estonia since the country was small and consequently not able to pollute much on a global scale. For that reason it would not really have to be green, cf. "maybe two factories in Germany emit same amount of the CO2 as Estonia" (E1). Additionally, it was stated that since Estonia is largely covered with forest, the amount of trees would already mean that the country is greener than most Western ones. The trees would mean that their air was clean and since they did not feel the impact of pollution they did not really feel the need to be any greener.

From the Estonian participants' point of view, "green energy is not very real" (E11) but more of a "game" (E119) being played. They also rationalized that a considerable amount of hypocrisy was associated with the green debate and that their government's initiative to promote green was more in the interest of the companies to help them make excessive profits from the consumers. There was, however, not a consensus on this point as some participants thought it should be the responsibility of the government to enforce more usage of green electricity because it should not be up to the average citizen to contemplate philosophical issues, one of which they considered to be the concept of green energy.The last observation to be made with regard to the Estonian participants is that not only did they challenge the notion of green electricity but also distrusted it due to its association with renewable production methods. In that respect, windmills were frequently mentioned and it can be stated that the participants strongly opposed them because of their environmental impact, cf. the windmills are "really noise and you can't live there anymore and you just need to move away but you have to live there" (E12).

4.5 Poland

The Polish participants were unsure of the definition of green electricity, and claimed that "people in Poland are not aware of things like ecology" (P2) and in some respects they claimed to be "in the Middle Ages" (P1). That did not seem to bother them, nor that the electricity they consumed was mostly produced by coal. Majority was in favor of nuclear energy and considered it an environmentally desirable source, cf. "nuclear power is very environmentally friendly" (P7).

A small number of participants, however, was less sure of nuclear energy benefits, but all found it unfair that their neighbor, the Czech Republic, produced electricity in nuclear power plants, whereas they did not. A majority objected to the idea of green electricity being sold in general and was cynical towards it, partially because it was "not a reality" (P6) but "just in people's minds" (P7). Some considered it more logical to be green by "just turning off TV" (P11) or preserving energy in comparable ways.The majority of the Polish participants were skeptical towards the concept of green electricity. Their skepticism was largely based on lack of information about what green electricity actually is, but also on their distrust towards suppliers and the fact that all electricity is supplied through the same distribution system.

Furthermore, buying and selling green electricity was considered a "political question" (P10). The participants required proof of electricity actually being green and complained about not being supplied with adequate knowledge about green electricity., cf. "those suppliers don't really inform us where the energy comes from or maybe they do but, they don't do it in an accessible way" (P17). However, although adequate information would be provided, it would hardly matter since price was always the most important factor. Paying a higher price for animprecise concept like green electricity was considered more or less unacceptable. There was a strong consensus on this, since the need for a low price superseded any notions of liking electricity to be produced from particular sources.

A large stumbling block for the participants was having to trust that they were actually receiving green electricity, should they decide to purchase it. They needed proof and they did not think anyone could give them that proof, cf. "if someone would be able to prove to me that it's really green and it's really good for ecology then sure, if I can afford it, I would do it but just, I don't believe it's true because they cannot check if this is eco energy or something else" (P11). The only way to be certain was if they produced the electricity themselves with solar panels. One participant thought the concept of green electricity was "just kind of stupid" (P3) and overall there was a great deal of distrust towards electricity suppliers. To the Polish participants, green electricity was more about marketing than being a real issue and they thought that the companies in the market were behaving in their own best interest, but not thinking about their customers. Furthermore, the participants claimed to "have such problems with energy, electricity, gas and everything that ecology problems are not on their minds" (P2). For them, the idea of green was therefore "connected with income because if someone has enough money he will care if it's green" (P9). Coupled with distrust was their perception of feeling powerless and, therefore, not having an impact on whether the electricity they received was green or not. There were numerous examples of this, cf. "in our country it's coal and we can't influence it" (P6); "We cannot interfere and say I want to be ecological, I don't want the energy from that source" (P8); "They would not listen" (P18). So even if green was a factor for them, they did not perceive that they had a choice in purchasing it.

Although it can be said that the Polish participants did not identify with green electricity on the basis of factors already mentioned, they did associate green electricity with sustainability, CSR and the connection of the two, cf. "they are socially responsible by re-foresting our forest" (P2); "the green thing is somehow included in a very broadly understood idea of social responsibility if the company makes us believe they do something for the society" (P18). For them, knowing that their energy provider was making an effort mattered, but they did not require the provider to be "100% eco" (P1) to be considered green.

5. Discussion and conclusion

Promotion plays a part in the effective adoption of energy(Bird et al., 2002). As far as green electricity is concerned, however, it is not evident which aspects are important enough to consumers to form a basis for successful promotion. For the purpose of more efficient marketing,this research aims to gain an insight into the participants' minds on how they perceive green electricity. Thisaim is best served by providing a detailed account of findings from thefive countries. It is not the objective of this chapter to discuss each factor in detail, but rather to present a model, draw empirical support from the findings chapter and the above tables and then conclude with general implications. Figure 1 presents a model of country specific and shared key factors, identified in this research,which influence consumers' perception of green energy.

Figure 1 Factors influencing consumers'perception of green electricity

In the top right box in the figure, factorsshared among all the researched countries are presented. The top middle and top left boxes contain factors shared in four or more of the countries, and country specific factors are presented in the boxes at the bottom.

The findings chapter contains discussion and quotes in support of the model, as well as further outliningfocal factors from each country by providing ample quotes from participants. For enhancedvalidation of the identified factors, additional participant quotes are provided in the following tables. Table 2 and Table 3 contain selected quotes in support of factors found to have an impact in all of the researched countries.

Table 2Participants' quotations on shared factors

Table 3Participants' quotations on shared factors

Table 4 contains factors found in four countries or fewer. Specific quotations are not provided in the tables on country specific factorswhich have been thoroughly presented in the findings chapter or are well represented as components of other factors.

Table 4Participants' quotations on four or less shared factors

Consumers commonly haveimperfectknowledge of diverse green alternatives since they use, more or less, the broad heading of green energy or renewable energy, largely omitting technical characterizations of those concepts. Furthermore, the definition of green electricity is not an either/or phenomenon, but can be a combination of numerous factors and their positioning relative to one another (Markard & Truffer, 2006). This comprisessubstantialinvolvement on the consumers' behalf as they need to be knowledgeable about a multitude of available sources from which electricity is generated (e.g., hydropower, geothermal, wind etc.) and shouldeven be familiar with technical facets of conversion technologies. This is a vast task for the typicalconsumer, and it means that a promotional approach resting on such a complexbasis would be challenging, regardless of whether the marketing messages originate from energy companies or policymakers.Furthermore, green electricity is a complex, multi dimensional concept with regard to which important questions need to be answered.Should,for example, green electricity be fully green to be vended as such to consumers or does it onlyneed to be greener than prior products from a particular company? Which environmental benchmark should be selected and how should environmental impact be evaluated?

Thus, from a managerial perspective, establishingconsumers' relationship to green electricity is important for its successful promotion. This can be hard in the case of conventional electricity as it is considered a homogenous and low involvement product(Walsh, Groth, & Wiedmann, 2005; Watson, Viney, & Schomaker, 2002)to which consumers experience only limited commitment, seeing it as an undifferentiated commodity (Kwon, Lee, & Kwon, 2008).Green electricity, however, has a stronger differentiation aspect and is considered a high involvement product(Claudy, Michelsen, & O'Driscoll, 2011),particularly because personal values can be connected to it, resulting inincreased engagement to green electricity as a brand(Ashley & Leonard, 2009).

The findings from this research show limited commitment to green electricity;the participants were sceptical towards it, not least due to its identical nature, and felt this was not a real issue, but more of a marketing matter.Accordingly, promotionalactivities would be well served by taking note of this, and, furthermore, by paying attention to identified factors which participants associated with green electricity. A promotional aim could be, for example, to communicate companies' local rootsand,at the same time, neutralize scepticism by underscoring a company's corporate social responsibility. The suitable combination of factors depends on individualcountries. It may also be said that there are several shades of green, which can misleadconsumers. A company, for example, can state that it is green if it is simply greener than it was previously(Lipp, 2001), i.e. by planting trees or upgrading technology. Thus, the green concept can easily be promoted to consumers in a naïve and simplistic manner.The findings support the notion that it is sufficient for companies to become fairly green by engaging in sustainableactivities, (e.g. advanced generation methods or less independence on fossil fuels) or becoming involved inCSR (e.g. good treatment of employees, local job creation, and cleaning up/give back the local environment).

The resultsreveal that although several common factors were found which participants considered to be characteristic of green electricity, factors were also found which were not shared among all the countries. Furthermore, identified factors do not necessarily correspond to official definitions so obviously there is considerable ambiguity as to what green electricity really is, making it hard for many consumers to understand the concept. Policymakers and energy companies are advised to be aware of consumers' perceptionsof green electricity before embarking on promotional campaigns. Furthermore, they need to realize that few electricity consumers care about green electricity, particularly when defined in official and technical terms. However, consumers do care aboutother less obvious factors, some of which have been identified in this research, e.g.about companies conducting themselves in a responsible manner.

Furthermore, it should be realized that consumers are sceptical towards the concept of green electricity, since to many of them it is a question of marketing or a political issue.

Moreover, typical green electricity marketing messages are often based on an impartial evaluation of the environmental impact of green electricity that may not always be understood, nor in accordance with consumers' subjective perceptions. While promoting green electricity, it may therefore, be sensible to find a middle ground between technical descriptions and the layman's perception. This research has attempted to assist in the latter.

6. References

Arkesteijn, K., & Oerlemans, L. (2005). The early adoption of green power by Dutch households: An empirical exploration of factors influencing the early adoption of green electricity for domestic purposes. *Energy Policy*, *33*(2), 183–196.

Ashley, C., & Leonard, H. A. (2009). Betrayed by the Buzz? Covert Content and Consumer–Brand Relationships. *Journal of Public Policy & Marketing*, *28*(2), 212–220.

Bird, L. A., Holt, E. A., & Carroll, G. L. (2008). Implications of carbon cap-and-trade for US voluntary renewable energy markets. *Energy Policy*, *36*(6), 2063–2073.

Bird, L. A., Wüstenhagen, R., & Aabakken, J. (2002). A review of international green power markets: recent experience, trends, and market drivers. *Renewable and Sustainable Energy Reviews*,, *6*(6), 513–536.

Bryman, A., & Bell, E. (2007). *Business research methods* (2nd ed.). Oxford: Oxford University Press.

Claudy, M. C., Michelsen, C., & O'Driscoll, A. (2011). The diffusion of microgeneration technologies – assessing the influence of perceived product characteristics on home owners' willingness to pay. *Energy Policy*, *39*(3), 1459–1469.

Cornelissen, G., Pandelaere, M., Warlop, L., & Dewitte, S. (2008). Positive cueing: Promoting sustainable consumer behavior by cueing common environmental behaviors as environmental. *International Journal of Research in Marketing*, *25*(1), 46–55.

Creswell, J. W. (2003). *Research design: qualitative, quantitative, and mixed methods approaches*. (Vol. 2nd). London: SAGE.

Creswell, J. W. (2007). *Qualitative inquiry and research design: choosing among five traditions*. (2nd ed.). Thousand Oaks, CA: Sage Publications.

Douglas, D. (2004). Grounded Theory and the "And" in Entrepreneurship Research. *Electronic Journal of Business Research Methods*, *2*(2), 59–68.

Glaser, B. G., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for Qualitative Research*. New York: Aldine de Gruyter.

Goulding, C. (2002). *Grounded theory: A practical guide for management, business and market researchers*. Thousand Oaks, CA: Sage Publications.

Haig, B. D. (1995). Grounded theory as scientific method. In A. Neiman (Ed.), *The philosophy of education*. Champaign, IL: Philosophy of Education Society.

Hartmann, P., & Ibáñez, V. A. (2006). Green value added. *Marketing Intelligence & Planning*, *24*(7), 673–680.

Krueger, R. A., & Casey, M. A. (2000). *Focus Groups: A Practical Guide for Applied Research* (Vol. 3). London: Sage Publications.

Kvale, S. (1996). *Interviews: An Introduction to Qualitative Research Interviewing*. London: Sage Publications.

Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the craft of qualitative research interviewing*. Thousand Oaks, CA: Sage.

Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing*, *18*(6), 503–520.

Larsen, F. (2012). Branding as a bridge for commodities towards a liberalised market: A study in the Electricity Sector. *Journal of Economics and Management*, *10*, 42–68.

Lincoln, Y., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: SAGE Publications Inc.

Lipp, J. (2001). Policy considerations for a sprouting UK green electricity market. *Renewable Energy*, *24*(1), 31–44. doi:10.1016/S0960-1481(00)00187-7

Lunt, P., & Livingstone, S. (1996). Rethinking the Focus Group in Media and Communications Research. *Journal of Communication*, *46*(2), 79–98.

Malhotra, N. K., & Birks, D. (2006). *Marketing Research: An Applied Approach* (3rd ed.). Financial Times/ Prentice Hall.

Markard, J., & Truffer, B. (2006). The promotional impacts of green power products on renewable energy sources: direct and indirect eco-effects. *Renewable Energy Policies in the European Union*, *34*(3), 306–321.

Marschan-Piekkari, R., & Welch, C. (2004). *Handbook of Qualitative Research Methods for International Business.* Northampton, MA: Edward Elgar Publishing.

Maykut, P., & Morehouse, R. (1994). *Beginning qualitative research: A philosophic and practical guide*. London: The Falmer Press.

Menges, R. (2003). Supporting renewable energy on liberalised markets: green electricity between additionality and consumer sovereignty. *Energy Policy*, *31*(7), 583–596.

Mertens, D. M. (2005). *Research and Evaluation in Education and Psychology: Integrating Diversity with Quantitative, Qualitative, and Mixed Methods*. London: Sage Publications.

Morgan, D. L. (1988). *Focus Groups as Qualitative Research*. Newbury: Sage Publications.

Oates, C. (2000). The use of focus groups in social science research. In D. Burton (Ed.), *Research training for social scientists.* Newbury Park, CA: Sage Publications.

Paladino, A., & Pandit, A. P. (2012). Competing on service and branding in the renewable electricity sector. *Energy Policy*, *45*(0), 378–388.

Reiche, D., & Bechberger, M. (2004). Policy differences in the promotion of renewable energies in the EU member states. *Energy Policy*, *32*(7), 843–849.

Rowlands, I. H., Scott, D., & Parker, P. (2003). Consumers and green electricity: profiling potential purchasers. *Business Strategy and the Environment*, *12*(1), 36–48.

Salmela, S., & Varho, V. (2006). Consumers in the green electricity market in Finland. *Energy Policy*, *34*(18), 3669–3683.

Truffer, B., Markard, J., & Wüstenhagen, R. (2001). Eco-labeling of electricity—strategies and tradeoffs in the definition of environmental standards. *Energy Policy,*, *29*(11), 885–897.

Walsh, G., Groth, M., & Wiedmann, K.-P. (2005). An Examination of Consumers' Motives to Switch Energy Suppliers. *Journal of Marketing Management*, *21*(3-4), 421–440.

Watson, A., Viney, H., & Schomaker, P. (2002). Consumer attitudes to utility products: a consumer behaviour perspective. *Marketing Intelligence & Planning*, *20*(7), 394–404.

Wilson, A. (2003). *Marketing Research: An Integrated Approach*. Saddle River, NJ: Prentice Hall.

Wiser, R. H., Pickle, S., & Eto, J. (1998). *The Impact of Market Rules on Emerging Green Energy Markets*. Berkeley, California: Lawrence Berkeley National Laboratory.

Table 1: Participants

	Gender:		Age:		
	Male	Female	20-29	30-44	45-65
Czech Republic	6	11	5	11	1
Estonia	8	5	5	3	5
Iceland	9	9	1	13	4
Norway	12	4	2	9	5
Poland	10	9	13	6	0
Total	45	38	26	42	15

Table 2: Participants' quotations on shared factors

	Identical nature	Local production	Marketing
CR	You buy energy from CEZ or from other, but in reality the energy was produced in the same power plant. No difference (C5). There is no difference. The product is the same (C10).	If you are buying from Russia then money go out and people are without work (C2). You know, it's locally produced […] it's gives the local people jobs (C8).	They just care about buying and selling and making profit, nothing else. Doing it in a trendy, fashionable way, in a green way (C8).
ES	You don't have the sense when buying if you use green clean electricity because the electrons are all the same (E5).	I prefer domestic producer not foreign producer, I don't know, it just, as an Estonian person I would like to, the profit goes to the Estonian people (E11).	I think the physical nature of electricity is the same. But, from this question starts marketing. If you produced from wind then the price is like this and its nuclear or coal. I mean it's more a marketing question (E10).
PO	It doesn't matter which provider provides you with the electricity because it´s all in the same lines (P1). They tell that they are using the same infrastructure as other Polish providers, so it's like the same stuff in the new package a bit (P5). It's all the same but the price could be higher (P13). You get the same stuff (P19).	I think it is also the fact that […] the impression of the foreign brand that's always better in Poland (P1). Who is controlling the company, I mean you look at what Russia does with the gas and you start thinking you wouldn't want to be a customer of a Russian or Ukrainian company (P14).	It depends whether someone would be able to prove to me that this so called green energy is really green and not just advertise because as far as I read about it, in the end as a result whether it's called water or even wind, the damage is the same (P3).
IS	The same product irrespective of who is selling it. That is, it is exactly in that way. Electricity is electricity (I8). You get the same (I12). In homes it is the same. Electricity cannot be good or bad (I15).	It is our company and it is company we know. It is a company that has serviced the country and I would still do business with that although a new player would come in (I9). Price matters, but also the origin of the product. It would make a difference for me if it would be a local company (I13).	Intermediaries are trying to make money [with marketing tactics] (I18).
NO	The basic is all the same (N1). It's the same grids, the same networks. You don't really know (N9). You cannot compare it […] there is no quality as such (N10). And so it's basically the same (N12).	I am a patriot and want local. (N3). He is a patriot. He would go for local supplier (N7). A surplus from the local distributor goes back to the owners which are the three municipality here which means that surplus is used in the local environment and that means something to me (N12).	The problem is that, it's very easy to make a very beautiful green commercial (N7)

Table 3: Participants' quotations on shared factors

	Price	Scepticism	Sustainability / CSR
CR	For me price is important (C11). In the Czech Republic it is only about price because all sorts of energy is safe. No problem in the Czech Republic (C15).	You know, I am getting more and more skeptical about all the green stuff because many times all the green technologies turn out to be even worse than the traditional technologies (C3).	The Czech energy companies can behave responsibly by having no connection with corruption (C6). Supporting poor or disabled people (C8). Using ecological production (C9).
ES	If price difference is too much then of course you would chose the cheaper one (E3). Well actually I am connected with green energy but I would buy the cheapest power (E4).	You must charge those [electric] cars from green, but what is this really the green power. So, it's quite not understandable (E10).	Produced in the best way and use good [sustainable] techniques (E1). I will also certainly prefer the company that would be better to the people that are working there (E10).
PO	It is price. It always comes down to price actually because we hurry (P13). We have to remember a lot of people in Poland don't earn a lot of money and environmental friendly energy is more expensive [...] so people would go for the cheaper option (P19).	For example, if I will have to decide what kind of provider of electricity to choose. I don't know if I will have such information, who is the provider of the eco because I don't have knowledge about it that is why I'm so skeptic about this (P4). Because you cannot check it, you won't see if this is eco energy or something else (P11).	Knowing that the company is doing some effort to provide green energy is just making you feel better as a customer (P9). I think maybe the good treatment of people, not only the clients but also the employees (P19).
IS	Presumable so if it is only the price, not the producs as such (I10). So, it matters not only what we say, but I think that the price factor would have a significant input (I3).	You can also trick people to trust you (I18)	You simply tell people that everything will be on the table. All the information will be available to the customers (I11).
NO	The biggest issue is the price (N5). I agree with previoius participant, it [green] is about the price (N15). So, green doesn't matter who you buy from, as long as you getting cheap (N2).	I think I could pay a little more if I knew if I had insurance for clean energy (N8). How could I know where my energy comes from. I have no idea. (N16).	There is so much coal in the rest of the world, we should be using our profits […] to actually find a way of providing clean coal power, which they can do to get the extra carbon out of the gases that come from coal plants (N4).

Table 4: Participants' quotations on four or less shared factors

	Nuclear energy	Saving energy	Trust; Politics	Visual impact
CR	In Ostrava it's bad air [because it It is the only safe [option] for Czech Republic to have nuclear energy because wind – it's sometimes it is windy sometimes no wind (C5). does not have a nuclear power plant], and I think that nuclear energy is best and green" (C16).	Behaving in a sustainable way, behaving reasonable in controlling and consumption doing savings, doing things you really need to do that's the way I would prefer (C3). If you decrease your consumption, it means you will save the environment (C12).	How you know that it's green energy why should you trust them if they are really producing only the green energy from sources or are you able to check? (C7). The new energy companies have no history. That's why all the people don't trust them (C17).	It is a question of effectivity, for instance windmills and others are a devastation of the landscape and [...]devastated a lot of farming land (C13).
ES	Nuclear is fine with me. I do not agree with coal for example. That goes right to Russia (E8). All electricity is not same as and I think the companies that make [electricity] from nuclear are cool [green] brands (E1). Nuclear power yes. It's very serious question for Estonia, we must build that (E11).		Of course [it is a political problem], it's like most of the CO2 markets in central and western Europe, everywhere you can see the effects of humans. Trees have been cut down. Here you can go something like 3 kilometers right you will notice this forest (E5). Because I don't trust (E10).	Windmills cause horrible horrible devastation of agriculture land (C11). It is a question of effectivity, for instance windmills and others are a devastation of the landscape and [...]devastated a lot of farming land (C13).
PO	[Nuclear energy] is less polluting than coal (P6). I would pay more but only when I see that this is for sure [that it is from] a nuclear power plant or from wind farms (P6). Nuclear power is very environ-mentally friendly (P7).	I don't think people like us are being educated. Nobody really tries to make us think of [green and savings]. You leave school and these things came up after we had finished our […] nobody really bothers to educate the society about it (P14).	I don´t trust them. You won't get green elecricity (P6).	As far as I read about it, in the end as a result whether it's called water or even wind, the damage is the same (P3).
IS		You can save with the [energy efficient light] bulb if you start thinking about it (I4). In actuality there is only one way to be green. That is to us less energy (I10). At the same time one is environmentally friendly and saves energy (I13).	Trust is so important for us. You would have to think about what could happen if something goes wrong. This thing cannot go wrong (I11).	I started to think about how this affected the environment when I saw Hellisheiðarvirkjun *(a new geothermal plant close to Reykjavík)* (I12). One cannot put up windmills because of visual pollution (I18).
NO		*Isolated voices regarded saving energy a green behaviour but majority did not see the point in saving due to low price differences, cf.:*So, I leave the lights on at night even the day, the power is cheap (N5). Something that helps me to save energy (N9).	It is a bit irritatating because [...] It is politics (N5).	Visual effect on the environment matter (N1). Diesel engines that produce electricity make a noise and there is smoke and everything. People care about that (N7).

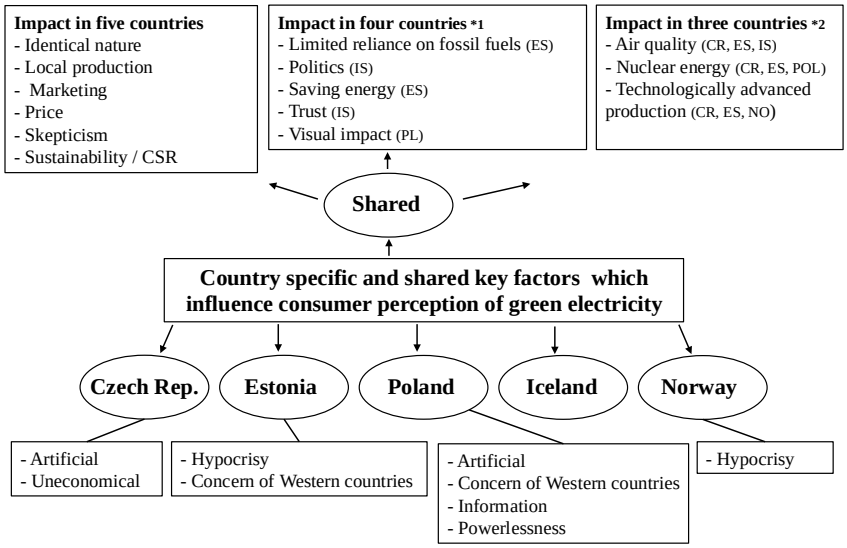

Figure 1: Factors influencing consumers' perception of green electricity