

Making energy visible in domestic property markets: The influence of advertisements

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Abstract:

Increased political attention towards the built environment and its relationship to climate change has resulted in stricter building codes and mandatory energy labelling of dwellings. How is this issue reflected in the marketing process? Based on a study of online housing advertisements in Norway, Sweden and the UK respectively, the article analyzes which qualities dwelling advertisements emphasize, and how energy issues are addressed. Informed by theories of markets and the performativity of economics, the article aims at providing insight into how advertisements frame dwellings as objects of transaction and to what extent energy is made a subject of concern.

The analysis demonstrates that the housing advertisements represent “qualculation devices” (Cochoy, 2008), specifically inviting consumers to engage in quality based considerations about the dwelling. Dominant “modes of qualculation” are: “Aesthetics”, “Comfort” and “Convenience”. Energy is only visible as comfort and convenience, while issues concerning energy conservation or low energy performance are omitted as qualculation possibilities. By analyzing advertisements through the concepts of “framing” and “qualculation”, the article provides insights into the performativity of advertisements and the challenges of making energy saving or low energy performance visible in the marketing process.

Keywords: Housing advertisements, Qualculation devices, Performativity, Energy Consumption

Words: 6710

Introduction

The problem of invisibility of energy and its subsequent demand has been part of the political, as well as, the scientific discourse for some time. Providing effective policy instruments in order to reduce private energy consumption is a challenge facing policy makers, since consumers do not perceive their use of energy as such, but rather via goods and services which require it (cf. Wilhite *et al.*, 2000; Shove, 2003; Southerton *et al.*, 2004). Increased political attention towards the built environment and its relationship to climate change has resulted in stricter building codes and mandatory energy labelling of dwellings (EU directive, 2002/91; EU directive, 2010/31). Hence, energy considerations are making their way into the real-estate business. Has this made energy a more tangible object for potential buyers? Based on a study of online housing advertisements from three countries this article analyzes how dwellings are presented in advertisements. Informed by theories of markets and the performativity of economics (Callon, 1998; Fligstein and Dauter, 2007) the aim is to provide insight into the framing of an energy demanding artefact, and show how energy issues are presented, discussed or even omitted in this marketing process. A more general ambition is to bring the real-estate market into the scientific and political discussion of private energy consumption, since this sector may be significant in making energy a matter of concern for the general public.

Socio-cultural analyses of energy consumption and everyday life have demonstrated that households have been, and still are, challenging targets for energy policy (Wilk and Wilhite, 1985; Lutzenhiser, 1992; Shove, 2003; Godbolt *et.al.*, 2009; Gyberg and Palm, 2009). One of the problems is that economical instruments, which have been important for the formation of energy saving measures towards households, are insufficient in understanding the rationality of everyday life. By focusing on practice and the socio-technical network of everyday life this body of research show that energy policy instruments needs to communicate with routines and cultural preferences, especially requirements of comfort and convenience (Shove, 2003; Linden *et.al.*, 2006; Gram-Hansen, 2010; Aune *et.al.*, 2011). However, it is essential also to understand change, as both comfort requirements and user motivation vary in time and amongst individuals and groups (Shove *et.al.*, 2008). A recent Norwegian survey shows for instance that there has been a transformation in how climate issues affect households` perceptions of their own energy use. As stated by Karlstrøm and Ryghaug (2012): "(w)e observe that a majority of the respondents take a joint responsibility to see the use of electricity within a framework of environmental concern" (p.121). This indicates that policy instruments needs to be flexible and dynamic.

For households space heating is the most important source of energy consumption (IEA, 2008) therefore, it has been important for social sciences to also focus on buildings and the material and organisational networks buildings are part of (Lutzenhiser, 1994; Guy and Shove, 2000). The real-estate business, however, has not been included in such research, which is

surprising since it represents a link between material infrastructure and social interests. Whether and how this business can be a relevant actor in influencing energy consumption in households will be addressed in this article.

Since 2002 Europe has had a common building directive in order to instruct the building industry in developing more energy efficient buildings (EU directive, 2002/91). Moreover the Energy Performance Building Directive (EPBD) requires mandatory labelling or energy performance certificate (EPC) of *all* buildings within the EU to provide tenants or buyers with information about energy consumption and technical standard (EU directive, 2010/31). The EPC has to be delivered at the time of advertising the building, which implies that energy labels will be included in future dwelling advisements (IEA, 2010). The effect of the certificate is, however, not straightforward. An evaluation of the building labelling system in Denmark found that the energy label not necessarily resulted in lower energy consumption (Hansen, 2008). Moreover, a study of voluntary labelling of pre-used dwellings demonstrated that it was problematic for consumers to understand and follow up this system (Gram-Hanssen *et al.*, 2007). This suggests that the energy label needs to be: “(s)upported by other measures in order to become efficient” as phrased by Peter Bach from the Danish Energy Authority (IEA, 2010, p. 19).

The real estate industry could be relevant actor in making energy performance a visible part of dwellings through other means than energy labelling. Although the real estate agencies approach its customers in many ways, this article focuses on one part of this business - the marketing of dwellings online. This choice is related to both access and content. First, internet advertisements are accessible sites for customers to gain information about housing, and second, the advertisements provide potential buyers with an image of the potential purchase through graphics and text that highlight qualities considered important. Hence, these advertisements are a logical vehicle to convey preliminary information regarding sustainability, energy consumption, and standards, since in later stages of the transaction potential consumers are provided with a greater level of detail from the broker. However, it is critical to note that the analytical aim within this article does not explain: 1) the details of a transaction process, 2) the scope of the additional information provided, 3) how national regulations affect the sale and the negotiation processes between brokers and customers or lastly, 4) customers' motives for purchasing the dwelling. The scope of this investigation is to develop a clearer insight into how customers are approached at this early stage of a possible transaction process, as well as, if and how energy plays a role in this presentation. Moreover, the article will look into how the dwelling is constructed through advertisements as a consumer product.

The next section will give a short description of the theoretical basis of the analysis followed by the presentation of the empirical data. Subsequently, online dwelling advertisements as

“qualculation devices” (Cochoy, 2008) will be analyzed, and the article will close with a general discussion.

Dwelling advertisements as market objects

Guided by theories of the performativity of economics and markets, this article aims at investigating how internet advertisements frame dwellings as objects of transaction and looks at the implications of this framing (Callon 1998; Fligstein and Dauter, 2007). Labelled the performativity approach, this theoretical perspective has been critical of the abstract models and linear explanations produced by mainstream economics, and alternatively elects to unpack “the black boxes of exchange, competition and production” (Fligstein and Dauter, 2007, p.113).

According to Michel Callon (1998), the process of framing implies defining, selecting, evaluating and ranking the qualities of a product or a process. By constructing a context and a set of opportunities for processes to potentially follow, framing contributes to which options are suggested as choices. Using concepts from the field of economics, Callon argues that a specific framing enables a given set of calculations, when selected, to necessarily exclude, or externalize, others. These “overflows,” as Callon labels the omitted conditions, represent exceptions in economic theory that one should theoretically seek to avoid. However, recognizing the complexity of real-world problem framings, he acknowledges that overflows are inevitable. However, by identifying overflows, it should be possible to provide new and improved foundations for framing (1998).

While economics, economic markets, and market devices have been subjects of significant research within performativity studies (Callon *et al.*, 2007; MacKenzie *et al.*, 2007), the objects of consumption have received less attention. Callon *et al.* (2005) have approached consumption more directly in a study of the “qualification” of products through marketing processes. This “economy of qualities” (p.44) emphasizes the roles of a critical and competent consumer and involves a continuous effort to create and recreate products to differentiate between more or less similar products. Callon *et al.* (2005) did not elaborate on how this process of differentiation was conducted, but showed how it involved establishing forums for facilitating collaboration amongst actors in the market, like consumer organizations, producers, advertising agents, and politicians.

Similarly, internet housing advertisements are the first step in generating a dwelling transaction. The specific advertisements define, select, evaluate and rank information about the artefact and accordingly, contribute to framing the dwelling as the object of a transaction. However, many of the qualities characterizing the dwelling are not numerically quantifiable. To supplement the understanding of calculation practices, Franck Cochoy developed in the article “Calculation, qualculation, calculation: shopping cart arithmetic, equipped cognition and the clustered consumer”, the hybrid concept of “qualculation” (2008). This concept adds a “quality

based rational judgement” (p. 17) to the calculation processes. In his study of supermarkets and shopping carts, Cochoy demonstrated how consumers displayed their calculation skills when transporting groceries through a store. In addition to economic considerations consumers made considerations about family needs, product qualities, market information and shopping equipment. Consequently, they engaged in varied *processes of qualculations* rather than actual calculations (p.17).

Advertisements represent a message from the “producers” and do not, as in Cochoy’s analysis, reflect consumers’ practices. A dwelling advertisement is designed to inform potential buyers about the product as well as make the product attractive for purchase. The concept of qualculation which provides a possibility to characterize the mix of calculable properties and quality based considerations is in that manner useful in understanding the performativity of a specific framing.

Empirical data

The content of 1710 online housing advertisements of properties located in three developed Northern European countries (Norway: 680, Sweden: 515, and the UK: 515) were analyzed. These countries have a comparable temperate climate with climatic variation between the South and the North. The winters in Norway and Sweden are, however, generally longer and colder (weatheronline.co.uk). Regarding energy consumption and everyday life, several studies have demonstrated significant similarities between the three countries emphasising preferences for comfort and convenience (Aune 1998; Shove, 2003; Carlsson-Kanyama and Linden, 2007). On the other hand the countries diverge in terms of national energy production systems, energy prices and heating systems (NVE, 2010; SCB, 2008; DUKES, 2010). This is likely to be reflected in the sales process of an energy demanding product such as a dwelling which will be discussed in greater detail later in the analysis. Essentially, the purpose of looking at internet dwelling advertisements in three nations is to preliminarily explore the character of similarity and variation in how dwellings are marketed in countries which all have implemented policy instruments as the EU building directive (EU directive, 2002/91) and the Energy Performance Building Directive (EU directive, 2010/31).

Despite obvious challenges in comparing advertising across different nations (Albers-Miller 1996) the similarities in “energy cultures”, legislations and political ambitions should make a simple comparison of the content of online dwelling advertisements, valid. The empirical material presented here is not, on the other hand, sufficient to robustly *explain* national differences which would require a comparison of the respective housing markets in general and a more thorough empirical basis involving interviews and documentation from real-estate companies, participant observations at viewings, and an overview of national legislations and regulations.

The empirical material consists of four datasets from three comparable sized towns which all host a university: 1) A dataset of 665 dwelling advertisements in a Norwegian housing website for dwelling transactions in a large Norwegian town of 175 000 inhabitants (www.finn.no/eiendom). The data collection was done during spring 2008, with a weekly review of new advertisements up till 2011. Hence, observations were made through and after the financial crisis. The only difference that was recorded in this period was a reduction in the amount of advertisements. 2) A dataset of 500 dwelling advertisements from an area comparable in population to the Norwegian case from a Swedish website (www.hemnet.se). The data collection was done during spring 2010. 3) A dataset of 500 UK dwelling advertisements, sampled from a town with approximately 300 000 inhabitants (www.homes24.co.uk), was collected during spring 2010.¹² 4) Lastly, a supplementary dataset of 45 advertisements (15 from each country) was collected in March 2011 to look at potential effects of the EU legislation from 2010 (EU directive, 2010/31).

Internet dwelling advertisements are a specific marketing genre. The main difference from newspaper advertisements is that only a small part of the total information is visible in the first webpage that appears. To gain more information the viewer must actively select a particular advertisement. The second page presenting the dwelling is the basis of my investigation. The advertisements were registered one by one as they appeared on this page. Inspired from grounded theory (Strauss, 1987) the content is documented and coded (i.e. listed, ranked and categorized). Respective websites presented a mixed selection of primarily resale residential types, including single-family detached houses, row houses and apartments. To grasp how the real-estate businesses construct the sales object, including what, if any energy message the advertisements contain, passages describing the dwelling, and the remodel work done to distinguish one dwelling from another were assessed.

Online housing advertisements as “qualculation devices”

Due to increased political attention towards built environment and its relationship to climate change, it is reasonable to expect the topic of energy to be given broader attention in building marketing, since energy and environmental qualities could be presented as an extra value. Online dwelling advertisements are designed to awaken consumer interest and organize or guide a consumer decision process. Which factors appear as important in this marketing process and how are they ranked? Figure 1 provides (partly constructed) examples of the image and text content, and the layout interface of typical housing advertisements, from the UK, Norway and Sweden respectively. The paragraphs, which are the main focus of this analysis, are marked in italic

¹ The advertisements from Sweden and UK were registered by Eirik F. Swensen

² All websites are large sites, which advertise nationally and are accessible for all real-estate companies.




<p>UK:</p> <p>2 bedroom flat for sale</p> <p>Price</p> <p>Blackhill road</p>	<p>Norway:</p> <p>Canal street:</p> <p><i>Penthouse apartment.</i></p> <p><i>Spacious and charming</i></p> <p><i>apartment with</i></p> <p><i>a sunny balcony, wonderful view</i></p> <p><i>and parking cellar</i></p> <p>Price</p>	<p>Sweden:</p> <p>Alley road 4, Goodham</p> <p>Price</p>
		
<p>Property features</p> <ul style="list-style-type: none"> • <i>Immaculate 2 double bedroom shared ownership apartment</i> • Parking • Communal Gardens • 17ft Lounge • <i>Fitted kitchen</i> • 40% share • Gas to radiator heating <p>Property description:</p> <p><i>A superb 2 double bedroom shared ownership apartment - Close to town centre & hospital - Allocated parking - Communal gardens & patio - 17ft Lounge - Fitted kitchen Gas central heating, double glazing and allocated parking.</i></p> <p>Description:</p> <p><i>We are pleased to offer this immaculately presented two double bedroom shared ownership apartment. Accommodation comprises: entrance hall, fitted kitchen, 17ft lounge, two double bedrooms and fitted bathroom. The property benefits from allocated parking, communal gardens, double glazing, and is close to the town centre and hospital.</i></p>	<p>Price information:</p> <p>Information about price, financing, insurance, municipal taxes, joint dept and costs (if housing cooperative) and transaction costs</p> <p>Facts:</p> <p>Self owned apartment from 1996,85 m2, two bedrooms.</p> <p><i>2nd floor, bedroom: Wooden floor, painted walls, and painted ceiling</i></p> <p><i>Bath/WC: Tiled floor with heater cables, electrical fans, bathtub</i></p> <p><i>Kitchen: wooden floor, newly changed kitchen equipment, painted walls</i></p> <p>-Electrical panel heaters and wood burning stove</p> <p>-Parking cellar, <i>free parking</i></p> <p>Evaluation: <i>Nice, family friendly apartment with great architectural details, located in a popular area, near shopping center and recreational facilities. Newly renovated kitchen and bathroom.</i></p>	<p><i>Fresh and spacious rowhouse, located in a quiet and child friendly area. 135 m2 – kitchen sittingroom with open fireplace facing a roof covered balcony, 3 bedrooms, bath, shower/WC and washing room. The property has a nice garden and a garage.</i></p> <p>Facts:</p> <p>Type: Rowhouse</p> <p>Floorspace: 135m²</p> <p>Lot: 800 m²</p> <p>Number of rooms: 6</p> <p>Operating cost: xx/year</p>

Fig. 1. Examples of advertisements

Except from small variations in how the information was presented in the various pages the advertisement from the three selected countries were quite similar: A heading presenting the address and/or a short description, a picture of the dwelling or a selected room, the address and area, a subjective presentation and evaluation of the dwelling, some information about technical and economic issues, and of course a suggested price and information about additional cost. The Swedish advertisement, which in this example contains less information than the other two, presented facts and technical data, similar to the Norwegian advertisement, on the following web page.

Following Callons (1998) definition of framing, but looking for qualculation possibilities rather than options for plain calculations (Cochoy, 2008), the real-estate agencies general presentations and evaluations were initially documented and coded. Three categories were designed to describe the main content of the advertisements: “Exterior facilities”, “interior and design” and “location”. These categories represented parts of the framing in all three countries. However, unlike the Norwegian advertisements the Swedish and British examples also included some energy related issues in the general presentation and therefore a fourth category labelled “energy comfort and convenience” was added. Figure 2 provides an illustration.

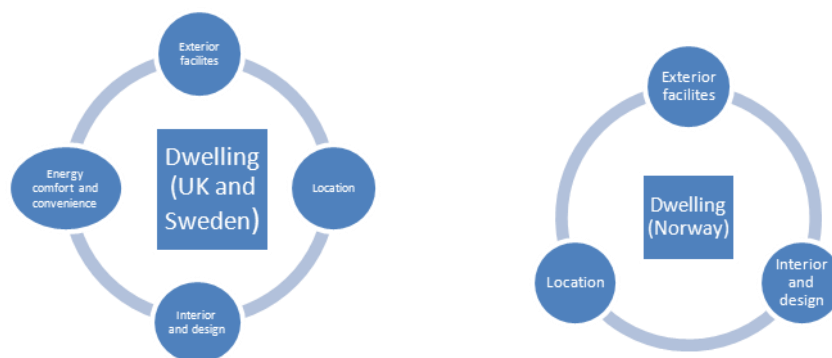


Fig. 2. Framing the dwelling in the UK, Sweden and Norway

These four categories, which constitute the framing of dwellings in advertisements, represented a combination of calculable possibilities (e.g. size) and options for qualitative judgements (e.g. a nice view). One or two paragraphs, in the Norwegian advertisements often also the heading, presented the real-estate agents subjective evaluation of selected dwelling qualities like commenting a beautiful view or describing the design of the kitchen. These representations had a dominant role in presenting the dwelling as a consumer good. Hence, the advertisements represented first and foremost “qualculation devices”, enabling many types of considerations. Price size and material standard are obviously important when choosing a dwelling, however, it was other and “more quality based rational judgements” (Cochoy, 2008, p. 17) that dominated the

message in the advertisements. Through a closer look at the content of each category, the qualification potential buyers were invited to engage in can be investigated further.

“Interior and design” represented the most common category presented in the advertisements. This category consisted of a general and subjective evaluation of material conditions like phrases as “high standard apartment”, “well kept” or “newly renovated”. Renovation was seldom explained in detail and typically the advertisements referred to cosmetic refurbishments like fittings, flooring and kitchen design. Furthermore this category included an evaluation of spaciousness, lighting and general designs as for instance: “Spacious, architect designed”. The review demonstrated that all the advertisements from Sweden and UK contained a passage about interior and design whilst this type of characterization was found in about 2/3 of the Norwegian advertisements. However, this difference is likely due to the style and length of dwelling descriptions in the advertisements rather than a divergent priority. Both in the Swedish and British advertisements the real-estate companies used the first page to present a subjective description of the dwelling, whereas the Norwegian advertisements included this information in the heading (Figure 1). In all the advertisements assessed, the body typically had more concrete information about additional costs, and detailed descriptions of each room.

The second category, “exterior qualities”, included how the building was placed in the landscape, the view from the building, the buildings geographical direction, and the presence of features such as a garage, a balcony, or a garden. For instance: “The apartment contains a large, roofed over terrace, and a sports shed” (www.finn.no/eiendom). This category could include evaluations of how the dwelling was placed in terms of sun, view and direction like: “Great apartment with a fantastic view”, “enjoy the evening sun” or “view towards the sea”. Parking facilities was also mentioned. About $\frac{3}{4}$ of the advertisements in all three countries included qualitative descriptions of exterior facilities.

The third group of characteristics was categorized “location”. This category included specific descriptions of the housing area. Furthermore, it contained a general evaluation of location like for instance: “Original and spacious row house, located in a nice, quiet and child friendly area” (www.hemnet.se), as well as more concrete descriptions like closeness to schools, kinder gardens and town centre. This category appeared most frequently in the Swedish advertisements, more specific in 2/3 of the advertisements whilst approximately half of the Norwegian and British advertisements mentioned location. Whether the specific location presupposed a car was on the other hand never brought up in any of the advertisements.

Assessing the advertisements within the first three categories, “exterior facilities”, “interior and design”, and “location”, gave a picture of a coherent framing inviting customers to engage in quite similar qualifications in respectively Norway, Sweden and UK. However, how energy issues were part of how dwellings were framed was a specific interest of the study. As figure 2 illustrates,

the divergence appeared when analysing the appearance of energy in the general descriptions of the dwellings. Both the British and Swedish advertisements included energy related information in the evaluations of the dwellings. The focus was not, however, energy saving possibilities or low energy performance, but added value, comfort and convenience such as: “The property further benefits from gas central heating, double glazing” (www.homes.24.uk) or “open fireplace for cosy evenings” (www.hemnet.se). Therefore, this group of dwelling qualities was labelled “energy comfort and convenience”. In the Swedish advertisements a reference to this category was found in 39% of the advertisements, while this was the most used dwelling characteristic after “interior and design” in the British advertisements (79%). However, only 26 of the 680 Norwegian advertisements contained evaluations that could be categorized this way (table 1).

Norway is a large producer of hydropower and has a tradition of low electricity prices compared to other nations (NVE, 2010). Even if the country is part of a European energy market, electricity is perceived as an obvious good; there is enough and it should be cheap (Aune *et al.*, 2011; Karlstrøm, 2012). These dimensions could be brought into a potential discussion about why Norwegian advertisements lack references to energy issues, but to fully explain these differences additional data is needed. Accordingly the absence of the category “energy comfort and convenience” in Norwegian advertisements did not necessarily imply that this was of less interest amongst real-estate companies. However, energy was obviously not reckoned a major sales argument.

Performativity studies primarily focussed on economists and economic activity (Fligstein and Dauter, 2007). In order to explain the logic of consumer behaviour, however, the pure economic vocabulary needed to be expanded and Cochoy (2008) developed the hybrid concept qualculation. This emphasis on quality based considerations is also required when it comes to interpreting the objects of consumption. The way internet advertisements frame the dwelling represent, as demonstrated, first and foremost qualculation possibilities. Despite the presence of pricing, building and property information, the advertisements emphasize descriptions and evaluations of properties, which are not easy to calculate. Potential buyers are invited to engage in qualculations, related to for instance bathroom design, view, fireplace, cosiness and a central location as illustrated in this quote: “Well planned rowhouse, 90 m², with a wonderful outdoor space and garden, in a sunny part of the city. Light and delicate interior and a tiled bathroom” (www.hemnet.se).

Online housing advertisements are not objective representations of dwellings. The purpose of advertising a dwelling is to inform about the object of transaction and attract as many interested customers as possible to the showings. The advertisement could, however, be a tool in also making low energy performance and environmental issues matters of concern. As Karlstrøm and Ryghaug (2012) have argued, people seem increasingly interested in relating their energy

consumption to climate change. Accordingly, potential buyers could already, at this stage of the transaction process, be invited to discuss for instance energy conservation, aesthetics and sustainable design. This suggests that energy conservation or other low energy performance characteristics should be included in the object framing. The next sections discuss how such issues were addressed in the advertisements.

The performativity of energy omission

As mentioned, 79% of the British and 39% of the Swedish advertisements raised energy related issues, while this subject was almost predominantly absent in the Norwegian advertisements. However, “energy comfort and convenience” as the category was labelled, did not include comments and discussions about energy consumption, conservation or sustainability issues. Whereas properties like view, design or open fireplace was commented and evaluated, the review demonstrated that energy consumption or performance was hardly ever made a subject for qualculations. Despite a difference between the three countries according to the category “energy comfort and convenience” it was a remarkable similarity of messages between the three countries regarding this issue; neither energy costs nor energy savings, conservation, efficiency, summarized through the category “low energy”, were addressed in the general evaluation of the dwellings. Neither did the advertisements address environmental- or sustainability issues. The only exception, in all the advertisements reviewed before the implementation of mandatory energy labelling of pre-used buildings (EU directive, 2010/31), were advertisements from *one* particular British real-estate agent. These advertisements contained two figures at the end graphically rating the particular house according to an “Energy efficiency” and “Environmental impact” scale. Table 1 provides an overview of how energy issues were addressed:

Table 1. Energy in advertisements

Description	Norway (N=680)	Sweden (N=515)	UK (N=515)
Energy comfort and convenience	0.04%	39%	79%
Energy efficiency and Environmental impact rating	0	0	14%
Low energy	0.001%	0.018%	0.03 %

An explicit emphasis on environment- or sustainability issues, energy saving or low energy performance was extremely rare as table 1 illustrates with a very low percentage in the category “low energy”. Still, the fact that 14% of the British advertisements were followed by a description of energy standard and number indicating the possibility for improvement, suggest a front end of a trend of giving energy conservation and environmental issues a greater emphasis in the advertisements.

According to the Energy Performance Directive (EU directive, 2010/31), the energy performance of dwellings can be presented in two forms: A comparative label ranking the building with similar buildings, or a certification showing that the building holds a specific standard. The directive also adds that it is possible to use the A to G labelling, which is used to categorize white goods and products. Not surprisingly the control study conducted after the implementation of this directive revealed that an implementation process was taking place. The different type of energy labels did not, however, alter the main impression from the original data as energy calculations still were omitted from the advertisements. Neither the A-G system adopted from the labelling of white goods, nor the graphical presentations of energy performance made “low energy” a subject for calculation. The general picture on how dwelling advertisements frame dwellings as objects of transaction is therefore, that these issues are externalized in this specific part of the real-estate market (Callon, 1998).

What are the implications of such externalization? If a great view, a popular location, and the style of the bathroom are highlighted as the valuable assets of a dwelling, this enables specific types of calculations as illustrated in fig.3.

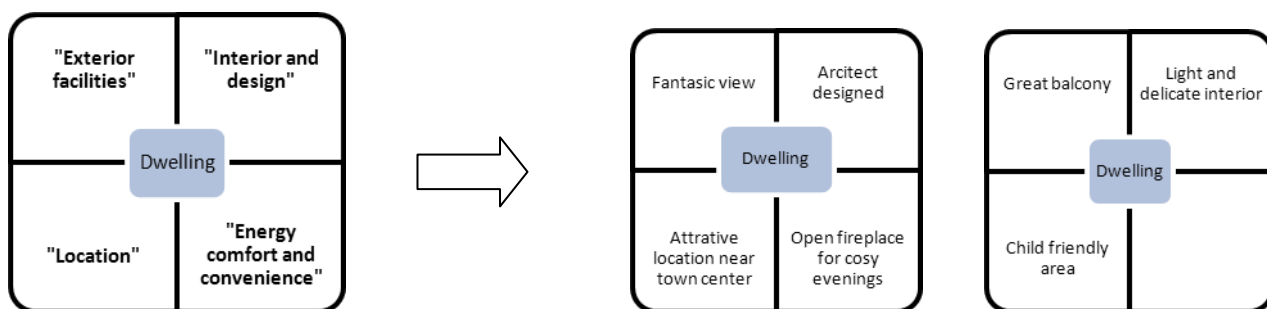


Fig. 3. Framing and calculation possibilities

From a classic economics point of view, a “rational consumer” should use the energy label, even if it represents a minor part of the advertisement’s content, to consider energy standard like for instance insulation and window quality as well as energy costs, and thereby choose the more energy efficient dwelling. This might not necessarily be the case. Firstly, the label provides few

calculation possibilities and presupposes that the customer gets access to additional information. Secondly the energy label and additional information is likely to be compared with more accessible and appealing “qualculations” presented in the advertisements. Thirdly, energy information has to make a difference for the specific customers’ decision. Many buyers know for instance that they will sell the dwelling after some time. They will then have to evaluate dwelling properties in the same way as the real estate company. Accordingly, the externalisation of “low energy” as options for qualculation in advertisements is likely to have a performative effect in influencing the potential inhabitants’ interest in issues like for instance energy consumption and conservation, environmentally friendly heating systems or sustainable design. From a performativity perspective, the advertisement reflects on the one hand the real-estate companies’ visions of what the market demands, while on the other hand contribute in constructing the same market (Barry and Slater, 2005). Omitting “low energy” in advertisements represents therefore, a risk of “de-calculating” this issue from the process of transaction (Cohoy, 2008, p. 21).

Modes of qualculation in online housing advertisements: “Aesthetics”, “comfort” and “convenience”

As the analysis demonstrates there are similarities as well as divergences between the three countries in how online advertisements framed the dwelling as an object of transaction and which qualculations the different framings enabled. All the advertisements emphasized exterior facilities, interior and design, and location in the descriptions and evaluations of the dwellings. In the industry there appears to be a common understanding of “the qualification of goods” (Callon *et al.*, 2005, p. 30). Only the ranking of this information varied between the three countries. When it came to energy issues, however, the analysis demonstrated a discrepancy. While the Norwegian advertisements omitted energy information in the headings and general descriptions of the dwellings and only mentioned the heating system amongst the technical specifications, this information was found in the presentations of the Swedish as well at the British dwellings. This difference can as indicated, be related to the specific Norwegian perception of “energy surplus”, but additional data is needed to provide a sufficient explanation. Moreover, if the same information was to be categorized in more qualitative terms the disparity was much less. Even though the British and Swedish advertisements included some energy related information in the paragraph presenting the dwelling, energy conservation, efficiency, or low energy standard was rarely offered as options for qualculations. The 14% of the British advertisements containing “Energy efficiency and Environmental impact rating” provided rather calculation possibilities and, moreover, this information was never part of the general evaluation of the dwellings. “Low energy” was in other words a rarity in the examined advertisements in all three countries. This is remarkable in a time of

political attention towards private energy consumption, climate change and sustainable development in the EU as well as in Norway. Hence, the externalisation of “low energy” represent what Callon (1998) would characterize an “overflow”. This overflow is not necessarily a problem for the inhabitants. Rather it can be seen as a political overflow as this could impede energy conservation measures. However, by identifying overflows, new and improved framings can be constructed (Callon, 1998). This suggests that the Energy Performance Certificate (EPC) as a policy instrument should cover more than the calculations of energy performance and in addition comprise energy qualities that appeal to, and inform, potential buyers (cf. IEA, 2010, p. 19).

The internet advertisements framed, as illustrated, dwellings as objects of transaction through the four categories “exterior facilities”, “interior and design”, “location”, and “energy comfort and convenience”. How can the calculations, which this framing invited consumers’ to engage in, be characterized? I will argue that potential housing customers at this early stage of the transaction process were guided towards three “modes of calculation”: “Aesthetics”, “Comfort” and “Convenience”. For example could properties like “convenient location”, “aesthetic exterior”, “comfortable interior”, and “aesthetic interior” be subjects of discussion. For the potential buyers from the UK and Sweden these modes were also connected to energy as “energy comfort” and “energy convenience”.

Finding that the real-estate business focuses on aesthetics, comfort and convenience is hardly a surprise. As socio-cultural studies of private energy consumption have argued, there has been a steadily increasing demand amongst households for technologies and space to achieve these qualities (Shove, 2003; Linden *et.al.*, 2006; Gram-Hansen, 2010; Berker and Gansmo, 2010; Aune *et.al.*, 2011). Consequently, the dwelling advertisements can be read as a response to this development. From a performativity approach this is not, however, a linear process of demand and supply (Fligstein and Dauter, 2007). Rather, the advertisements both reflect consumer demand as well as contribute in constructing the same demand. Besides, the notion of comfort is not necessarily stable (Shove *et.al.*, 2008). Therefore, adjusting the lay-out interface and content of online housing advertisements may be a possible instrument in influencing customers’ preferences. Positive and encouraging references to low energy performance or energy conservation possibilities could be included in the framing and accordingly consumers’ possible calculations. Moreover, the advertisement could be designed to engage in environmental and sustainability calculations.

In the market of so called “eco-friendly houses”, “green homes”, or “sustainable dwellings” there are examples on how the framing of dwellings have integrated such calculation

possibilities. The following two quotations illustrate how for instance energy saving, sustainable design, and technical standard are presented as sales arguments:

“Built from premium materials, this German-made, sculptural living space meets the highest standards in design, craftsmanship and sustainability. It is unique at every turn, offering maximum insulation and durability, cutting-edge technologies and compliance with some of the toughest energy-saving standards across the world” (www.christiesrealestate.com).

“This immaculately maintained 5 bed farmette is equipped with a first rate solar tracking system, wind turbines, and battery backup system to significantly reduce your overall energy costs. It is code compliant and can be expanded to a larger setup or even to sell energy back to the power company. In 2006, an annual savings of \$783 was realized per the seller. (...) Amenities include a gas fireplace, central air, deck, sunroom with 6 person hot tub, hardwood floors, master suite, covered front porch, oak cabinetry in the kitchen, and more”. (www.greenhomesforsale.com)

Obviously most of the equipment listed here is rare in traditional dwellings. Nevertheless, advertisements from this niche market can serve as an inspiration for the traditional real-estate market as they demonstrate how energy saving and environmental concern can be presented positively. Such changes in content and lay-out can, however, not be the responsibility of the real-estate businesses alone. As argued by Callon *et.al.* (2005), the qualification of products requires collaboration amongst various market actors. Hence, the process of changing housing advertisements and reframing the dwelling should be a multidisciplinary task involving amongst others architects, advertising agencies, designers and social scientists.

Concluding remarks

Energy is an intangible object of consumption. It does not show and becomes significant only through other products and services. Private energy conservation will in other words be mediated through goods and services in everyday life. Because the dwelling generally is the biggest investment of a lifetime and the standard and size important for the running energy costs, this article has aimed investigating whether energy had, or possibly could be given a visible role in the dwelling transaction process. Inspired by the perspectives of economics and the performativity of markets, which opposes the mainstream economics' understanding of supply and demand, and seeks to “open the black box” of economic processes (Fligstein and Dauter, 2007), the article demonstrated how the dwelling was framed through the advertisements with a specific focus on the calculations this framing promoted.

The significance of the price cannot be ignored. However, like the shopping cart becomes a space for de-calculation and re-calculation (Cochoy, 2008), dwelling advertisement are sites for displaying attractive dwelling qualities and encouraging consumers to consider and compare these qualities. By mapping the content of the advertisements, the analysis demonstrated how dwellings were framed and the exclusion of “low energy” and environmental questions were identified. The omission of important dwelling property discussions in this early stage of the transaction process can influence how consumers value the dwelling qualities and highlight the performative aspects of the dwelling advertisement.

The energy performance directive (EU directive, 2010/31), is supposed to contribute to the visualization of energy issues in pre-owned buildings, since a label will provide the potential buyer with information. However, as these results indicate, this piece of information will probably not be sufficient in making energy a matter of concern in the transaction process. In a market of similar products it is necessary to engage in the process of qualification (Callon *et al.*, 2005) and find a way to distinguish one product from another. Consequently, if new framings are to include the identified overflows, aspects of the dwelling related to for instance options for energy conservation, environmental advantages of conservation, aesthetics, and sustainable design has to be addressed and made part of the qualification possibilities. The current framing seems to highlight “energy comfort and convenience”, while making “low energy” invisible.

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