

# Spreading Myths around Building Renovation: Information Failure Prevails in Germany

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## Abstract

There has been a wide range of policy measures in Germany for overcoming information barriers regarding building energy efficiency. Soft measures, like energy consultation for households, online tools providing information on retrofit options, and energy-saving campaigns are widespread applied policy instruments. Surprisingly though, lack of trust in craftsmen, energy consultants, manufacturers and the stated advantages of energy-efficient renovation is prevalent in the population. Recent studies show that information failure is one of the greatest barriers to exploiting the German residential energy efficiency potential. At present, a negative campaign is running in the German media against building renovation. Well marketed myths like “insulation catches fire easily”, “energy-efficient windows cause mildew” or “renovations make tenants poor” make households step back from improving the energy efficiency of their residents. As a result, building renovation, in general, is becoming less and less popular among German households. This paper gives an insight to current mass media communication in Germany and tries to reveal the reasons for the spreading of myths with respect to the counteracting interests of different stakeholders.

## Introduction

The German Minister for Economic Affairs and Energy said “energy efficiency is the sleeping giant for the success of the energy transition” (so-called “Energiewende“, BMWi 2014a). In Germany, the building sector is responsible for one third of the greenhouse gas (GHG) emissions and 36.7 percent of the final energy consumption (BMU 2010; BMWi 2014b). The government agrees that immediate action is necessary; otherwise, this decisive opportunity for reducing greenhouse gases in the energy sector will remain unexploited. Such statements are not new in the German political debate; the potential in energy efficiency had been recognized by some former governments as well.

A wide range of measures has been already implemented to promote energy-efficient renovations<sup>1</sup>, and the German energy efficiency technology figures are among the world leaders. Nonetheless, the building renovation rate remains low (about 0.8 percent per annum: BMVBS 2013; BEI & IWU 2010) which is far from the government’s envisioned goal (two percent per annum: Bundesregierung 2010). In consequence, the contribution of energy-efficient building renovation to reducing greenhouse gases and tackling climate change remains low.<sup>2</sup> In particular, single-family and semi-detached houses are important targets for the reduction on GHG emissions as these have a tremendous potential for energy saving. These buildings are owned mainly by small private homeowners (Weiß, Dunkelberg & Vogelpohl 2012).

By bringing some light into the actor constellation and the image transported by the mass media, this paper seeks to contribute to the current political discussion in Germany on how to find a way out of the renovation stagnation. More specifically, the paper seeks to answer the following questions:

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<sup>1</sup> The paper focuses only on energy-efficient building renovation. Subsequently, when speaking about energy-efficient renovation or energy efficiency, it refers only to the building sector, if not explicitly identified otherwise.

<sup>2</sup> The new constructions rate is not significant. Thus, its overall mitigation effect on climate change remains low in Germany.

- Why, despite the numerous information policy measures, do German homeowners still hesitate to modernize?
- What does the mass media communicate and why does energy-efficient renovation have a negative image in Germany?

The paper proceeds as follows: First, we provide a brief overview on the topic of building energy efficiency in Germany, including the political targets and the implemented measures. Afterwards, we discuss why energy efficiency renovation proceeds at a slow pace. Our paper concentrates on the problem of information failure. We find that there are still deficiencies in the information policy measures, but more importantly, the information flow and the kind of information that reaches homeowners is problematic.

We have reviewed and analyzed the German written and online newspapers, as well as television reporting during the time period April 2013 – July 2014. From the numerous articles and reports dealing with energy-efficient buildings, we singled out the most discussed aspects of energy-efficient renovation and established the most frequently conveyed prejudices. Furthermore, we compiled an actors–map based on information of all significant German interest groups that take part in the German political and media debate on energy-efficient building renovation and examined their positions on recently discussed issues of energy efficiency. (Note that the analysis in this paper has certain limitations, as it does not provide comprehensive media discourse analysis or complete media coverage on energy-efficient building renovations).

## Energy Efficiency Policy in Germany

Recently, energy efficiency policy has been greatly influenced by the climate change policy of the German Government. The Integrated Energy and Climate Program (2007) was aimed at reducing GHG emissions by 40 percent by 2020 compared to 1990 levels. At present, the Energy Concept of the Federal Government (Bundesregierung 2010) provides a long-term overall strategy for energy efficiency<sup>3</sup> and states that the annual building renovation rate shall be doubled compared to the current figure of about one percent. These goals were also adopted by the new government at the end of 2013 (Bundesregierung 2013). Energy efficiency policy in Germany is characterized by a wide range of measures that can be classified into three main categories: regulatory law, financial instruments and information measures.

Regulatory law in Germany is a traditional instrument; it was introduced in 1977 for the first time (Thermal Insulation Ordinance - Wärmeschutzverordnung) in order to raise energy efficiency in buildings. Since 2002, the Energy Saving Ordinance (EnEV – Energieeinsparverordnung) is the main policy instrument that imposes thermal standards for new buildings and renovation for existing buildings.

The CO<sub>2</sub> Energy-Efficient Renovation Program of the KfW Bank<sup>4</sup> (CO<sub>2</sub>-Gebäudesanierungsprogramm) grants either loans or investment subsidies<sup>5</sup> for renovations that go beyond the requirements of the EnEV. Another government-initiated program is the MAP program (Marktanreizprogramm) that was created to stimulate the utilization of thermal energy from renewable sources<sup>6</sup>. Several German Bundesländer (states) established additional subsidy programs for promoting energy-efficient renovations (e.g., Bank of Baden-Württemberg<sup>7</sup>).

<sup>3</sup> The Energy Concept sets a general target for primary energy consumption and a specific target for the energy demand of heating. The primary energy consumption shall be reduced by 20% until 2020 and by 50% until 2050, both compared to 2008. The energy demand for heating shall be reduced by 20% until 2020 (Bundesregierung 2010).

<sup>4</sup> Kreditanstalt für Wiederaufbau – Credit Institute for Reconstruction is a German government-owned development bank.

<sup>5</sup> For further information, see: <https://www.kfw.de/inlandsfoerderung/Privatpersonen/Bestandsimmobilie/>

<sup>6</sup> For further information, see: <http://www.erneuerbare-energien.de/die-themen/foerderung/marktanreizprogramm/>.

<sup>7</sup> For further information, see: <http://www.l-bank.de/lbank/inhalt/nav/privatpersonen/>

A third instrument is information campaigns, mostly through government-sponsored websites and leaflets. A number of information campaigns for consumers and specialists have been implemented by the German Energy Agency (henceforth referred to as Dena). The Initiative Energy Efficiency campaign was launched in 2002 in cooperation with energy supply companies in order to increase the interest and awareness of consumers for energy saving. An internet platform ([www.thema-energie.de](http://www.thema-energie.de)) has been available on this subject since 2011. Ministries and governments of the federal states also issue leaflets and other informational materials targeting private households (BMW 2011). Further information campaigns for specific issues have been launched recently. A Dena information portal ([www.zukunft-haus.info](http://www.zukunft-haus.info)) is aimed at improving the understanding of Germany's energy saving regulations (e.g., EnEV), and another advertises the KfW subsidies (Schettler-Köhler & Kunkel 2011). In March 2014 an extensive information campaign "Building-transition"(Hauswende) was started to inform consumers on subsidies, energy consultancy offers and related companies at the local level.<sup>8</sup> Additional informational campaigns or projects are being carried out by various environmental foundations and think tanks.<sup>9</sup>

There are three types of consultancy offered by public authorities in Germany. First, free energy checks are provided online for citizens in the framework of the Climate Protection Initiative of the German Government ([www.heizspiegel.de](http://www.heizspiegel.de), BMW 2011). Since 2001, Dena has operated a free energy hotline for private individuals. Second, initial low-cost energy consultation is offered in 400 advice centers by the Federation of German Consumer Organizations (Verbraucherzentrale Bundesverband). The personal consultation is carried out by qualified experts on the basis of specific documentation supplied by the customer (heating bills, construction plans, etc.). Third, detailed and standardized on-site energy consulting, the "BAfA-Vor-Ort-Beratung," has been provided for energy-efficient renovations by the Federal Office of Economics and Export Control since 1998.

## Existing Information Barriers to Building Energy Efficiency

Despite the ambitious targets and the numerous policy instruments implemented, the current state of energy-efficient renovation paints a rather unfavorable picture. There are some deficiencies in the policy instruments themselves (e.g., EnEV, KfW Program), as recent analyses indicate (for e.g., Weiß, Dunkelberg & Vogelpohl 2012; Galvin 2012). The analysis of those shortcomings is beyond the scope of this paper. The paper focuses on deficiencies that are related to information barriers. In order to approach the question why the energy-efficient renovation rate in Germany is not increasing, we review the recent studies dealing with the motivation of and obstacles for building owners for modernizing.

The decision on energy-efficient renovation usually results from an alliance of different motives that are determined by everyday needs (e.g., belongings, economic aspects, convenience and status, and living comfort) (Albrecht et al. 2010). Important surveys revealing the incentives of energy-efficient building renovation were conducted in Germany (CPI 2011b; Albrecht et al. 2010; and Technomar 2005). A survey among 1008 households found that the central motivation for homeowners was to reduce energy consumption and energy costs; those economical motives were usually connected to non-economical incentives, such as living comfort and homeowners' attitudes towards technology or climate protection (Albrecht et al. 2010). A study on the acceptance of energy-efficient renovations in rented apartments found out that also for tenants, the most important goal of modernization was to reduce energy consumption and energy costs (IWU 2006).

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[eigenen-wohnraum-ausbau-umbau-erweiterung-und-modernisierung-von-wohnraum-energieeffizienz-finanzierungs-sanie-ren.xml?ceid=115306](http://www.eigenen-wohnraum-ausbau-umbau-erweiterung-und-modernisierung-von-wohnraum-energieeffizienz-finanzierungs-sanie-ren.xml?ceid=115306).

<sup>8</sup> For further information, see: [http://www.bmub.bund.de/bmub/presse-reden/pressemitteilungen/pm/artikel/die-energie-wende-beginnt-in-den-eigenen-vier-waenden/?tx\\_ttnews%5BbackPid%5D=175](http://www.bmub.bund.de/bmub/presse-reden/pressemitteilungen/pm/artikel/die-energie-wende-beginnt-in-den-eigenen-vier-waenden/?tx_ttnews%5BbackPid%5D=175)

<sup>9</sup> E.g., the campaign "Renovate your home and profit" (Haus sanieren – profitieren) led by the German Federal Environmental Foundation (DBU), for further information, see: <http://www.sanieren-profitieren.de/>

Another study of 2000 surveyed households pointed out that building appearance played a key motivating role at all stages of the decision-making process. For households that are not planning any modernization, it was the most important factor. For those that have already implemented energy efficiency measures, building appearance and house decay were less important whereas thermal comfort, poor building performance and high energy bills played a relevant role (CPI 2011b). Households emphasised that retrofits for energy efficiency improvements needed them to be economically attractive. Accordingly, financial concerns ranked highest among homeowners' concerns about renovations (Neuhoff et al. 2011). Financial issues combined with households' economic situation and their aversion to take a loan were important barriers to energy efficiency improvements (Albrecht et al. 2010, CPI 2011b). Also the lack of adequate and reliable information on possible energy efficiency measures and the potential related energy savings was of increasing significance (Dena 2013; ENTRANZE 2012a; Weiß & Vogelpohl 2010).

Researchers agree that information barriers prevail in several aspects. First, empirical evidence shows that more than half of the surveyed households were not sufficiently well-informed about the profitability of renovation measures (Stieß et al. 2010). Also, the assumption that “energy-efficient renovation is not necessary” plays an important role in stopping such investment decisions (Albrecht et al. 2010, CPI 2011b). In conclusion, most homeowners do not see their properties as being due for major renovation.

Second, there is no (or little) awareness on the consumers' own thermal energy consumption. The lack of awareness is related to the fact that the metering and billing of thermal consumption is usually made only yearly, and according to recent findings, every second billing is proved to be wrong.<sup>10</sup> In addition, homeowners lack knowledge on the energy efficiency performance of their buildings, which is related to the fact that energy performance certification still lacks prominence and acceptance and plays only a minor role in the process of letting and selling of dwellings (BMVBS 2010).

Third, homeowners are not familiar with the policy instruments described above, such as financial subsidies, consultation offers and regulative standards (Dena 2013, Stieß et al. 2010, Weiß & Vogelpohl 2010; Hertle et al. 2006). A recent study pointed out that several information centers (e.g., KfW Bank, Dena, energy agencies) are not well known by homeowners (EuPD 2014). Thus, it is not surprising that a professional energy consultant is involved in only one of four cases in the modernization process (Albrecht et al. 2010). According to another survey, the majority of households which renovated their building in the past five years had neither employed a professional energy consultant nor made use of a consumer agency (Forsa 2012).

Approximately 36 percent of home renovators think they are familiar with the subject and that no professional advice is necessary (Dunkelberg & Stieß 2011). In addition, the lack of trust in energy consultants is a possible reason for not seeking such external advice. According to a recent study, almost a quarter of respondents had no trust in energy consultants. This may be due to the lack of transparency of the numerous different consulting services and offers (Dunkelberg & Stieß 2011).

Instead of obtaining professional advice from energy consultants, most of the homeowners turn to craftsmen (Forsa 2012); this mainly happens in the implementation phase (Neuhoff et al. 2011). However, expert opinions and a few studies on this issue indicate that the energy education and training for craftsmen in terms of implementation, coordination and communication for comprehensive renovation projects are insufficient (Neuhoff et al. 2011). Craftsmen usually improve the building only as far as their level of knowledge allows, but they do not carry out renovations in other areas that lie outside of their previous experience. In addition, they often do not work together with other craftsmen, but rather work on their small part of the project without regard for the other craftsmen involved. This results in isolated single measures but not in a comprehensive

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<sup>10</sup> It was the finding of the check of heating bills, conducted by the German Tenants Association (Deutscher Mieterbund) in 2012. For further information, see: <http://www.mieterbund.de/fileadmin/Intranet/Informationsdienste/Orga/ido20120424-2.doc>.

and complete renovation (ENTRANZE 2012a).

In general, the lack of qualified energy experts, as well as craftsmen and consultants trained in energy-efficient renovation measures and programs, is a significant barrier to energy-efficient building renovation (e.g., Deneff 2014; UBA 2011). The lack of expertise also affects the problem of information failure: if there are not enough qualified experts in energy efficiency, households will not be able to receive adequate information.

The positive effects of energy-efficient modernizations are also not well known by the German homeowners. According to one survey, only a minority of households know or have heard about the benefits of energy efficiency, such as CO<sub>2</sub> mitigation potential, environmental benefits, reduced humidity, and healthier living conditions (Neuhoff et al. 2011).

The bottom line is that information failure has multilevel origins in Germany. In general, German homeowners are challenged by the issue of energy efficiency, as they lack knowledge of technological solutions, legal issues, financial and consultancy options as well as the benefits of energy-efficient renovation.

## **Communication of Energy-Efficient Renovation in the Media**

In order to answer the question of why information barriers prevail, it is necessary to take a closer look at the information flow. This section deals with the following questions: Through which channels do consumers receive their information? Which kind of information do consumers receive from these channels? Which actors are there in the field of energy-efficient building renovation and how do they influence the communication of mass media on energy-efficient renovation issues?

### **Information Channels for Consumers**

Scientific research in Germany gives a differentiated picture on where consumers receive their information on energy-efficient building renovation and which sources primarily influence consumers. The studies categorized consumers into groups varying from households who have no intention of realizing energy-efficient modernization to those who are already in a planning phase or have already carried out energy-efficient renovation. The source of information for energy-efficient renovation varies between these groups.

The Climate Policy Initiative (CPI) found that households who already realized energy-efficient renovation most often receive their information from craftsmen and the Internet (CPI 2011a; CPI 2011b; Neuhoff et al. 2011). Households not planning a renovation and the group of homeowners in the planning phase are mainly affected by information from the mass media (press and TV) and from the Internet (CPI 2011a; CPI 2011b; Neuhoff et al. 2011).

Interestingly, information from friends and colleagues has a high impact for all groups (CPI 2011a; Neuhoff et al. 2011). In the residential sector, people primarily discuss their negative experiences with their friends, acquaintances and neighbours which then discourage others to take action (ENTRANZE 2012a). Bad experiences are passed on more often than the good ones and, therefore, some renovation technologies receive a bad reputation. A recent research study found that this is a great barrier to investments because people rather hear about these problems, but seldom about successful experiences (ENTRANZE 2012a).

In summary, the mass media (press and TV) and the Internet are currently the most important source of information for households who are not interested in or who are in a very early phase in the decision process for renovation (CPI 2011b). Returning to the current low building renovation rate in Germany, we have an interesting fact: the group of consumers which has to be targeted most urgently and which yet has to be convinced of the benefits of energy-efficient renovations receives their information from mostly unqualified sources. As a result, non-professional consultancy reaches the skeptical consumers and not the specific, credible and

qualified information through instruments designed by the government and experts on energy-efficient building renovation.

## **Media Coverage of Energy Efficiency in Buildings**

The media can promote public acceptance, but the media can also fuel controversies and even create a negative image, as shown in studies concerning the image of green buildings in the trade press of Swedish building professionals (Gluch & Stenberg 2006) or about the solar power in the Spanish daily press (Heras-Saizarbitoria et al. 2011). How the mass media shape public opinions may manifest in various ways, such as by stressing particular advantages or disadvantages of technologies (Skjølsvold 2012), highlighting opinions of groups against new technology developments (Sengers et al. 2010) or even presenting the technology as a miracle at some times, but with negative aspects in other times (Wright & Reid 2011).

As others have emphasized, the way in which the media portrays new energy technology can radically affect how it is accepted by the public and other stakeholders (Heras-Saizarbitoria et al. 2011; Mander & Gough 2006; Sengers et al. 2010; Skjølsvold 2012). The experiences of the research project ENTRANZE on public acceptance of nearly zero-energy buildings and renewable heating in European countries suggests that the media has an important role not only in raising awareness of energy issues and the need for renovation, but also in highlighting particular issues and even diminishing the acceptance (ENTRANZE 2012b).

While recent several studies examined the media coverage of renewable energy technologies, there is very limited research in the area of building energy efficiency in Germany.<sup>11</sup> Nor has there been much discussion on media discourse, public perception and acceptance, or on stakeholder views concerning these technologies. Therefore, the analysis in this paper has certain limitations, as it does not provide comprehensive media discourse analysis or complete media coverage on energy-efficient building renovation. Furthermore, no detailed analysis of texts has been conducted, and the influence of media ownership, advertising and other vested interests in news content has not been taken into consideration.

Recently, reporting on energy-efficient renovation in Germany has been rather negative. Previously, critical comments were published primarily on the Internet (e.g., on blogs and internet forums), but lately the issue has been taken up by the mass media (newspapers, television) (FIW München 2013). For example, FIW München found that the media coverage of thermal insulation in the period of 2011-2012 significantly changed and showed an increasing frequency of negative keywords. The study noted that this trend referred primarily to national media, while local press continued to portray the issue positively (FIW München 2013).

The German mass media at the national level often presents energy-efficient building renovation in an undifferentiated manner, enhancing disadvantages or even risks of different technologies without accounting for scientific evidence on technical or financial issues. Arguments which have long been disproved occur repeatedly in the daily news, creating an ambivalent and rather negative image for building renovation. The public debate on thermal insulation in television and press reports has mostly been very emotional. Heavy criticism was directed, for example, against the further tightening of the Energy Saving Ordinance (FIW München 2013).

A list of the most reported “myths” from the German media news surrounding building renovation is presented below; the list is not exhaustive but provides a general overview. The prejudices or myths against energy-efficient building renovation can be classified broadly into two categories; first, there are those related to financial concerns and profitability, and second, there are those that reflect technical uncertainty.

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<sup>11</sup> A short description on media coverage of thermal insulation is provided in a recent study of FIW München (2013).

**“Energy-efficient building renovation is not worth it financially.”** The German mass media continuously spreads the assumption that building renovation is not profitable.<sup>12</sup> In contrast, there is wide evidence that undertaking energy-efficient renovation at current energy prices often does pay for itself (i.e., it has negative investment costs). In Germany, several studies were published on this issue providing scientific findings about the financial benefits of energy-efficient renovation. For instance, energy savings resulting from thermal retrofit often do not only cover the energy related renovation measures, but also partially cover the additional modernization costs (e.g., modernization of the bathroom) (Prognos 2013). In this respect, the importance of detailed cost analysis is widely stressed in the literature (e.g., Dena 2010; IWU 2011; IWU 2013). For example, when calculating the profitability of an energy-efficient building, it is important to separate costs that would arise due to house decay or other problems (e.g., painting of facade) compared to those related to energy efficiency (e.g., thermal building envelope insulation). This approach is also supported by policymakers. However, media news often neglect this differentiation, as well as the dramatic increase in energy costs.<sup>13</sup> In addition, other benefits (e.g., the improvement of the market value of the building, better living conditions, less air pollution, better indoor environment), though they are very difficult to monetize, are usually not mentioned.

**“Building renovation makes tenants poor.”** “Building renovation leads people into poverty,”<sup>14</sup> or “Poverty due to house renovations”<sup>15</sup> were typical headlines of newspaper articles reflecting the prejudice in regard to the cost-benefit issue.<sup>16</sup> It reflects the fear that energy-efficient building renovation may cause large increases in rent and, thus, leads to segregation of poor tenants into non-modernized areas. In the case of optimal regulation, the contrary should be true; although fixed costs might increase after energy-efficient building renovation, variable costs, such as energy expenditures, should decrease due to energy savings. As a result, tenants should be less exposed to the risk of higher energy prices.

The above criticism is rooted in the landlord-tenant dilemma (“split incentives”). In brief, the landlord has to pay the additional investments for energy-efficient renovation, but the tenant receives the benefits of the lower energy costs; as a result, the landlord has no incentive to invest in energy efficiency (IEA 2007). This problem has been addressed since 2001, when a new provision was introduced into the German tenancy law in order to increase the landlords’ interest in investing in modernization.<sup>17</sup> However, since then, several studies have shown that the landlord-tenant dilemma still prevails in Germany (Ekardt & Heitmann 2009; InWis 2011; IWU 2008; SRU 2008), and the rent increase permitted by law does not satisfactorily fulfill its intended incentive function (IWU 2008; UBA 2009).<sup>18</sup> As a result, this regulation has contributed to higher rent increases in economically dynamic regions. In April 2013, a new tenancy law came into effect<sup>19</sup> which further aggravated the situation for tenants in the economically most dynamic regions. This led to further rent increases and resulted in heated political and social debate. According to the prevailing interpretation of the mass media, the dramatic rent increases are primarily due to energy-efficient

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<sup>12</sup> For instance, see “Haussanierung - Die große Lüge von der Wärmedämmung“, Die Welt 29.03.2013; “Energetische Sanierung macht wohnen teuer“, Frankfurter Allgemeiner Zeitung, 27.08.2013; “Gebäudesanierung wird Armut nach sich ziehen“ Frankfurter Allgemeine Zeitung, 26.08.2013; “... Öko-Gebäudesanierung gefördert werden sollte?” Handelsblatt, 24.04.2014

<sup>13</sup> The costs for electricity and heating for German households have doubled since 2000 (SBA 2013).

<sup>14</sup> “Sanierungskosten - Gebäudesanierung macht Menschen arm“, Berliner Zeitung, 25.08.2013

<sup>15</sup> “Arm durch die Haussanierung“, Die Welt, 27.08.2013

<sup>16</sup> See also e.g. “Mieten könnten durch Energiewende rasant steigen“, Westdeutsche Allgemeine, 06.02.2014

<sup>17</sup> According to the Article 559 of the German Civil Code (Bürgerliches Gesetzbuch), the landlord is entitled to increase the annual net rent (excluding heating and other utilities) by up to 11 percent of the investment costs of modernization.

<sup>18</sup> According to the findings, the apportionment of 11 percent of the investment leads to additional costs for the tenant that are generally not compensated for in the rent including heating and other utilities by savings in energy costs (IWU 2008). Whether and to what extent consumption costs are reduced essentially depends especially on the type and quality of the improvements – which are often insufficient in practice (UBA 2009). In addition, the rent increase refers not only to energy-related, but also to other costs of the modernization (e.g., new balcony, modernization of bathroom).

<sup>19</sup> The rent increase has remained at 11 percent of the renovation costs per year. The new government intends to lower this quota to ten percent (Bundesregierung 2013).

renovations. As an example, panic-mongering reports warn against building modernization because it leads to the mass eviction of tenants.<sup>20</sup> Since the majority of the German population lives in rented homes,<sup>21</sup> the current regulation has to be urgently addressed in order to enhance energy efficiency in buildings and to change the negative attitudes of tenants towards modernization.

**“Thermal insulation is highly dangerous: easily combustible.”**<sup>22</sup> After some mysterious fires, short documentaries and newspaper articles concluded that thermal insulation was responsible for the fires, although no scientific evidence could support this assumption. On closer analysis of the fire cases highlighted in the mass media, it became evident that none of the reports described the details, special circumstances, or the real causes of the reported fires. Details are significant: for example, in one case of combustion, the building construction was not finished and combustion protection measures had not yet been completed, thereby increasing the risk of fire.<sup>23</sup>

**“Energy efficient building renovation promotes mold growth.”** Another widespread allegation in the German mass media is that renovation measures, primarily thermal insulation and energy-efficient windows, cause mold growth.<sup>24</sup> Articles about this issue neglect the proven benefits of thermal retrofit which are contrary to this claim. Modernization can be a powerful preventative tool against indoor mold growth if it is carried out properly and if the ventilation behavior of the residents is adequate (e.g., a ventilation unit may be installed if necessary) (FIW München 2013).

**“The energy performance certificate is an unnecessary bureaucratic instrument.”** An energy performance certificate has been mandatory for the rental, sale and leasing of houses and flats since 2009 in Germany. It aims to inform prospective buyers or tenants about the level of energy efficiency of a particular building compared to other buildings of the same kind. An energy performance certificate is an important means for making energy use visible, thus raising awareness about energy saving potentials. Several stakeholders do, in fact, agree that there is room for improvement regarding the current design and content of energy performance certificate.<sup>25</sup> However, the German news media often goes further and presents this tool as an unwanted governmental intrusion into the sale of property.<sup>26</sup>

## Further Explanations for Information Failure

Due to the large number of stakeholders, the landscape of actors is complex and characterized by strong heterogeneity. This is not surprising, since energy efficiency in the building sector is a cross-cutting issue influenced by many actors who do not deal with energy or environmental issues directly. Only in exceptional cases are the stakeholder positions on key issues of political debate the same; more often, the different interested parties have different opinions on key matters.<sup>27</sup>

The most obvious conflict of interest emerges between tenants and landlords regarding the issue of “who should pay the costs of modernization”, being one of the most relevant topics in the

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<sup>20</sup> For example, see “Die brutale Vertreibung aus dem Märchen Viertel”, Berliner Kurier, 16.08.2013, “Fluch und Segen der energetischen Sanierung“, Deutschlandfunk, 24.01.2013

<sup>21</sup> Germany has the highest proportion of rented flats within the European Union. According to the latest available data 58.5 percent of the German households rent their homes (SBA 2006).

<sup>22</sup> See “Wärmedämmung kann Hausbrände verschlimmern“, Spiegel Online, 28.11.2011; “Wärmedämmung: Ignoranz der Brandgefahr,” short documentary at NDR, 10.12.2013, “Brandgefährliche Fassadendämmung: Das falsche Spiel der Lobbyisten”, Short documentary at WDR, 09.01.2014

<sup>23</sup> For example, see the case in Frankfurt am Main, 29.05.2012, [http://brandwende.com/files/enev\\_03\\_2013\\_seite\\_08-13\\_einzel.pdf](http://brandwende.com/files/enev_03_2013_seite_08-13_einzel.pdf).

<sup>24</sup> For example, see “Giftige Schimmelpilze - Sanierte Häuser massenhaft von Algen befallen“, Die Welt. 15.05.2011; “Schimmel-Dämmplatten können krankmachen“, Welt online, 21.07.2011

<sup>25</sup> For example, see Deutscher Mieterbund, Zentralverband des Deutschen Handwerks, Deutsche Städte und Gemeindebund

<sup>26</sup> For example, see “Der Energieausweis für Gebäude ist ein Flop“, Die Welt, 29.08.13; “Volksgängelung“, Frankfurter Allgemeine Zeitung, 30.04.2014

<sup>27</sup> In 2013, the Deutsche Umwelthilfe e.V. analyzed the landscape and position of stakeholders in the field of building energy efficiency.

current political and media debate (see earlier in this paper). Furthermore, conflicts may arise between different technology sectors in the construction industry (e.g., thermal insulation, glass and window insulation, and heating suppliers). As private homeowners usually lack the resources for complex renovation, partial refurbishment is carried out in many cases. This results in competition between technology sectors for attracting the priority measures in individual investment decisions.

Similar but somewhat hidden competing interests exist between small private and professional homeowners<sup>28</sup> for financial subsidies, due to the strongly limited budget of governmental KfW programs. Additionally, interest conflict can occur between professional energy consultants and craftsmen about who provides advisory services for homeowners. The following issues have also been proved to be relevant in policy debates: strengthening the law on energy performance for buildings (EnEV) (Galvin 2012), improvement of the energy performance certificate, the need for increase and optimization of governmental subsidies and introduction of tax incentives for renovators.<sup>29</sup> Taking a closer look at the positions of relevant actors (e.g., from statements in press articles and position papers) on these issues, one can observe that most of them deal with one or two questions and their positions reflect mainly general statements. Specific political requirements or proposals were rarely made. It is probably due to the high complexity and heterogeneity of the whole topic on the one hand, and the existing information deficit on the other hand. Exceptions can be found primarily by actors playing dominant roles in policy debate, as noted below.

There is a particularly dominant group in Germany: the private housing company associations. This well-organized group of companies<sup>30</sup> represents, in principle, a relatively conservative point of view, as they are often skeptical or even negative regarding regulatory policy measures (e.g., they are against strengthening the regulation on standards of existing and new building stock, as well as energy performance certificates). This group can also successfully use the press to get its message across to the public. Representatives of private housing company associations are often quoted in articles that portray energy-efficient renovation negatively.<sup>31</sup> For example, in the last amendment to the Energy Savings Ordinance (adopted in October of 2013), the private housing company associations expressed their concerns regarding the planned tightening of building energy performance standards and warned the public about its dramatic social consequences for tenants. This view was picked up and emphasized in the mass media.<sup>32</sup>

The attitude of private housing company<sup>33</sup> associations is remarkable, since this group has a particular interest in energy-efficient building renovation. For example, a recent study found that private housing companies perform significantly higher energy-efficient renovation activity than individual landlords in Germany (InWIS 2012). Comparing the level of barriers that private landlords and housing companies face, this is not much of surprise: the latter generally have professional personnel to plan and conduct complex modernizations. They are also aware of energy saving potentials and financial benefits of energy efficiency since their most important motivation is the making of profit (ENTRANZE 2012a). Transaction costs resulting from research, selection and decision-making processes are relatively less important for them. Furthermore, they can more easily access financial subsidies because they have better credit standing than private households. In

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<sup>28</sup> In Germany 77.4 % of the dwellings are owned by small private homeowners, while only about 22.6 percent of dwellings are in the hands of professional owners (i.a. private housing companies, associations of homeowners, publicly owned buildings) (BBR 2007).

<sup>29</sup> It is based on the analysis made by the Deutsche Umwelthilfe e.V.

<sup>30</sup> In Germany, several associations of private housing companies exist with the aim to represent and put across the interests of their members.

<sup>31</sup> For example, see “Die große Lüge von der Wärmedämmung”, Die Welt, 29.03.2013; “Die unterschätzte Brandgefahr bei Wärmedämmung”, Die Welt, 12.10.2012; “Sanierte Häuser massenhaft von Algen befallen”, Die Welt, 15.05.2011.

<sup>32</sup> For example, see “Die Energiewende wirkt sich brutal auf den Immobilienmarkt aus“, Manager Magazin Online, 21.10.2013; “Schärfe Regeln für den Bau neuer Wohnungen“, Handelsblatt, 05.02.2013; “Allianz für den Wohnungsneubau einigt Weg zum Ziel“, Der Tagesspiegel 29.06.2013

<sup>33</sup> In Germany, about 10 percent of all dwellings are owned by private housing and real estate companies and other private sector companies. Those are rental apartments in multi-family buildings (BBR 2006).

general, this group is significantly less influenced by information failure and financial barriers than individual landlords (ENTRANZE 2012a). As a result, the building stock of professional landlords shows a significantly higher energy performance than that of individual non-professional homeowners (InWIS 2012).

In conclusion, the heterogeneity of the actors and the resulting complex structure of political positions and public communications in the field of building energy efficiency are relevant factors that fuel uncertainty and information failure. The conflicts between stakeholders and interest groups represent a possible source of mistrust for consumers, who do not receive a precise recommendation on which kind of energy-efficient renovation measures should be employed or whether they should be implemented at all.

Finally, there are other aspects contributing to information failure originating from the nature of “energy efficiency.” As a generic subject, energy efficiency is very complex and extensive and does not sound particularly attractive to the end user. Energy efficiency applies to buildings, technologies, appliances and human behavior, and its heterogeneous character presents a communication challenge for media. A low level of understanding of energy efficiency issues can be observed when taking a closer look at current reports in mass media. This applies not only to technological aspects but also to the financial side of modernization. For instance, the media discourse on increasing costs of heating is generally missing. Currently, the political and medial debate in Germany focuses on rising electricity bills resulting from the regulation on energy. High thermal energy costs for heating, however, do not appear in the public debate, although those are much higher for consumers than the cost of electricity (Hamburg Institut 2013). The climate change mitigation benefit of energy-efficient renovation is also missing from the media coverage. This benefit might not be well-known to the general public or be considered marginal from the perspective of building renovators. To examine this issue, further investigation into this matter is needed. As some authors noted, there has been positive coverage regarding renewable energies by linking these technologies to climate change mitigation and economic issues (Boykoff 2009; Skjølsvold 2012). For example, Bogdan Vasi (2010) highlights that the mass media played a crucial role in Germany in boosting renewable energy. He claims that the German mass media presented the global climate change issue as a substantial threat to humankind and as a chance to strengthen the German leadership in renewable energy technology. Through the positive formation of the public opinion, the media played a major role in achieving extremely high social acceptance for renewable energies.<sup>34</sup> However, in regard to thermal retrofit, there is a huge potential for positive coverage by associating the technology to climate change mitigation and economic advantages. This could be exploited to generate broader and better public understanding of this issue.

## Conclusion

This paper provides an insight into the current state of German energy-efficient building renovation and analyzes some aspects emphasizing one of the major challenges to renovation, the information failure. Despite the wide range of policy instruments available, the energy-efficient building renovation rate is still low, and a large part of the German society is still hesitant to renovate. Scientific research found that the information barrier is one of the major obstacles to building energy efficiency in Germany. This primarily affects small private homeowners.

This paper has shown that the group of consumers who have not yet decided on renovations are mostly informed and influenced by the mass media. However, an analysis of recent German press and TV indicates that this industry has produced a negative image of energy-efficiency building renovation. Mainly negative news were found with special focus on prejudices regarding profitability and technical uncertainties, indicating that that German consumers are being influenced by low-quality, and often, false information from media news. In addition, there is a huge

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<sup>34</sup> According to a recent representative survey, 93 percent of Germans support the expansion of renewable energies and 72 percent of respondents think that renewable energy protects the climate (TNS Emnid 2013).

heterogeneity of actors involved (either directly or indirectly) in building renovation, and they often take up contradictory positions. The differing opinions and interests often lead to false or inadequate information (myths) in the press which confuse and discourage consumers to renovate. This situation is intensified by the complex nature of the topic in question, and the possible lack of knowledge by media authors. In addition, energy-efficient building renovation has not benefited from its positive connotation to climate change mitigation nor from its economic advantages.

Our analysis raises the questions "what can be done to overcome of the described situation of information failure" and "what can be done to battle prevailing prejudices about energy-efficient building renovation." Researchers agree that policy instruments should be strengthened and developed further in order to systematically address information barriers to energy-efficient renovation (Weiß & Vogelpohl 2010; Neuhoff et al. 2011). More incentive information should be provided to households: for example, detailed and frequent heating bills, advanced energy performance certificates and an expanded energy consultancy system (CPI 2011a). Energy consultancy is mainly made use of by homeowners who are already convinced energy savers or who have already carried out energy efficiency improvements, while hardly perceived at all by other owners. An active marketing of energy consultancy and the integration of counseling elements in communication tools and strategies could promote the willingness for energy-efficient renovation (Deffner et al. 2012). Personal communication with qualified energy consultants should be strengthened by policies as it can mitigate tangible fears and concerns (Weiß, Dunkelberg & Vogelpohl 2012). The education, training and qualification of craftsman influence the quality of the energy renovations and determine the trust level of households.

In addition, improvements in communication should urgently be enforced. For example, objective communication on possible difficulties with building renovation should be pursued on the one hand, and the "invisible" benefits of energy efficiency (e.g., energy savings as well as climate change mitigation potential) should be presented on the other hand. Energy-efficient renovation should also be communicated differently to different target groups.

Finally, energy efficiency policy affects a wide range of actors. Its success could be enhanced if the full range of actors is brought into the policymaking process from the beginning. Policies should create trust and promote cooperation between different actors. The exchange between multiple interest groups should be intensified and a more unified "common goal of increasing the building renovation rate" should be pursued. We hope that by concentrating on the information flow and the related knowledge gap in society, policy makers will further develop existing policy instruments, find incentives to diversify communication structures and finally promote a positive image campaign on the issue of energy-efficient building renovation.

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