

European project on consumer response  
to energy labels in buildings



## Deliverable 5.2

# A summary of homeowners' energy efficiency improvements and the impact of the Energy Performance Certificate

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## A summary of homeowners' energy efficiency improvements and the impact of the Energy Performance Certificate

Article 11 of the Energy Performance of Buildings Directive<sup>1</sup> (EPBD) targets dwellings that are sold, newly built or rented. The 'IDEAL EPBD' survey focused on homeowners, as they are a key group affected by this aspect of the Directive. Seventy-three percent of households in the EU-27 member states are owner-occupiers. The energy efficiency behaviour of this group, therefore, has a bearing on the energy saving potential in each country. Previous work carried out by the IDEAL EPBD project team suggests that there is the potential to save 20% of present heating energy consumption of dwellings by 2030<sup>2</sup>. However, homeowners' behaviour will determine whether all this energy saving will be realised. Determining how this group reacts to the EPBD may help to assess the likelihood of countries' reaching their energy saving targets.

### Methodology

A survey of homeowners was carried out in five member states: Denmark, Germany, the Netherlands, England and Finland. Homeowners were asked a range of questions about their home improvement behaviour, the Energy Performance Certificate (EPC) and factors that may influence their decision-making around energy efficiency. The questionnaire was informed by a literature review, stakeholder interviews and in-depth homeowner interviews in ten member states. The questionnaire was in the field during the spring and summer of 2010, in the form of an online survey that was distributed to homeowners by mail, email or via a link from the project website. The samples in Denmark and the Netherlands were drawn from households with an EPC. In Germany, England and Finland, the samples were drawn from homeowners who had bought a dwelling during the previous two years while EPCs were required under the EPBD in their country.

### Objective

The IDEAL EPBD project aims to assess the impact of EPCs as laid out in the EPBD. In particular, it aims to investigate whether EPCs affect buyers' behaviour, or whether they motivate homeowners to carry out energy efficiency home improvements. The key objective of this report is to assess the behaviour and attitude of homeowners towards the EPC.

### The sample

The survey collected responses from 3,207 homeowners as shown in the table below.

#### Percentage of homeowners by length of time since moving into property

|                          | All five countries | Denmark    | Germany      | Netherlands | England    | Finland    |
|--------------------------|--------------------|------------|--------------|-------------|------------|------------|
| Less than 6 months       | 6%                 | 8%         | 5%           | 7%          | 4%         | 11%        |
| 6-23 months              | 57%                | 42%        | 66%          | 51%         | 70%        | 57%        |
| 24 months or more        | 27%                | 20%        | 23%          | 40%         | 25%        | 26%        |
| Not declared             | 10%                | 30%        | 6%           | 1%          | 1%         | 6%         |
| <b>N</b>                 | <b>3,207</b>       | <b>743</b> | <b>1,165</b> | <b>565</b>  | <b>625</b> | <b>109</b> |
| <b>% of total sample</b> | <b>100</b>         | <b>23</b>  | <b>36</b>    | <b>18</b>   | <b>19</b>  | <b>3</b>   |

<sup>1</sup> Directive 2010/31/EU

<sup>2</sup>Tuominen and Klobut (2009)

The majority of the sample consisted of recent homebuyers that had bought a dwelling within two years of the survey. The survey also collected data from homeowners who had bought dwellings earlier, generally because it was assumed that they had an EPC for reasons other than a recent purchase.

The age of the dwellings in the sample varied. A fifth of the sample occupied dwellings built after 2000. Either couples or families comprised the majority (76%) of households in the survey. There were broad similarities in the demographic and housing stock profile of the sample from each country.

### Key findings for all homeowners

#### *Homeowners' attitudes to home-buying*

Homeowners rated the availability of the garden/outdoor space, the price and the location of the property as the most important factors when they were considering purchasing a property. The potential cost of energy and other utilities was ranked ninth in a list of twelve potential home-buying priorities.

#### *An assessment of the dwelling*

The condition of the dwelling played an important role in homeowners' decisions to carry out energy efficiency improvements. Over half of homeowners reported that they purchased a property that was in a good condition, and just over a fifth purchased a property that they described as being in a poor condition. More than half of homeowners lived in dwellings where the living room temperature during the winter months was regarded as comfortable; this temperature was on average 21°C. Fewer than one in ten homeowners lived in dwellings that were uncomfortably hot or cold.

Over a third (36%) of homeowners had problems with draughts, high energy bills, their heating system or the temperature in their home. Less than a third had identified other non-energy related problems with their dwelling after they had moved in; these ranged from general repairs to problems with damp and condensation and pest control.

Thirty-six percent of homeowners who had completed energy efficiency measures rated their current dwelling to be in a poor condition at the time of purchase; this was only the case for 6% of homeowners who had not completed improvements.

#### *General home improvements*

Three quarters of the homeowners surveyed had completed some form of home improvement at the time of the survey. The median number of home improvements was 4; this increased to 5 among homeowners who had carried out at least one improvement. Costlier improvements such as installing or improving a kitchen or bathroom were carried out by 52% (for kitchens) and 46% (for bathrooms) of homeowners who had completed improvements.

#### *Energy efficiency improvements*

Over 50% of households had either installed energy efficiency lighting, or planned to; and 48% of households had installed, or planned to install, some form of insulation. Renewable technologies had been installed by just over 5% of all households. The most common renewable technology installed was a solar water heating system (110 households) followed by a wood-fuelled heating system (50) and solar electricity systems (49 homeowners).

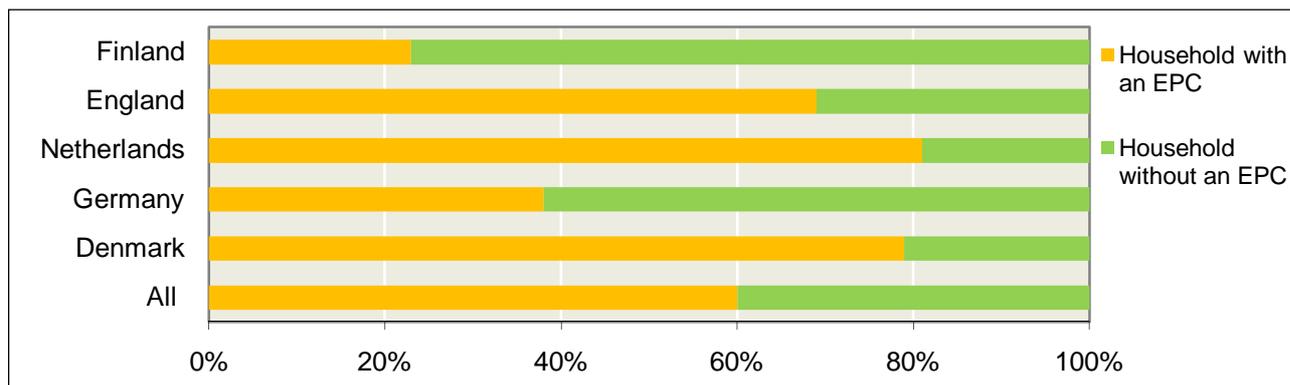
#### *The EPC as a source of information*

The study found that some respondents were unaware of having an EPC for their home. Various questions were used to determine whether a household remembered seeing an EPC. This included images of the energy label available in their country, and questions that linked the label to the home-buying and selling

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process. About 60% (1,912) of homeowners reported that they had an EPC. Over 70% of homeowners with an EPC had one because they had purchased a property, and 17% voluntarily acquired one.

### EPC status of homeowners



There were notable differences in the EPC status of homeowners in the countries involved in the study. More than 70% of homeowners in Finland, and more than 60% in Germany did not have an EPC for their dwelling.

Of homeowners who had an EPC because they had purchased a property, less than half were shown the EPC before they made an offer on that property. Less than a third (30%) saw it after an offer was accepted but before the transaction was completed, and a further 14% saw the EPC after the transaction was completed. Only a third of homeowners who saw the EPC before making an offer reported that it was an important factor in their decision to make an offer on their current dwelling.

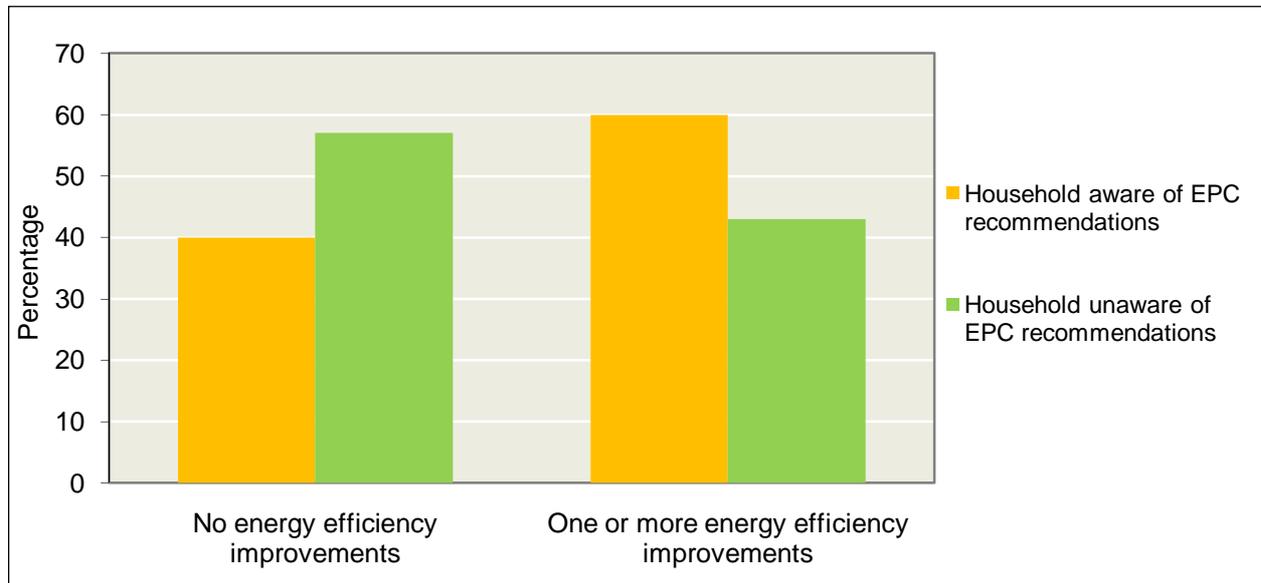
While two-thirds of the homeowners in the sample were aware that they had an EPC, a smaller group of these was aware of some of the details contained in the document, such as the energy efficiency rating and the energy efficiency recommendations. Almost 70% of homeowners who had an EPC for their home could recall its energy efficiency rating, and about 50% could recall the energy efficiency recommendations included with it.

#### *The impact of the EPC on homeowners' energy efficiency investments*

Overall, the EPC was found to influence homeowners' decision-making, although the percentage of homeowners with an EPC, and who had carried out one or more energy efficiency improvements, was only slightly higher than those who had carried out improvements without being aware of an EPC.

The graph below shows notable differences between the percentage of homeowners carrying out energy efficiency improvements, depending on whether they had knowledge/awareness of a full EPC (including recommendations) or an EPC without knowledge/awareness of the recommendations report.

### EPC recommendations and energy efficiency behaviour



Fifty-seven percent of households, in Denmark, Germany, the Netherlands and England, that had an EPC with recommendations had carried out one or more of the recommendations likely to feature on an EPC recommendations report<sup>3</sup>. The percentage of households in the other EPC categories carrying out these type of measures was much lower, 40% (EPC without recommendations) and 44% (households without an EPC).

There were also differences between countries. Almost 70% of homeowners in the Netherlands with an EPC with recommendations had carried out these types of energy efficiency measures. In Denmark, the figure was 52%, but only 29% of Danish households that had an EPC but were not aware of recommendations had carried out one or more of these energy efficiency measures.

#### *The impact of the EPC and other factors on homeowners' energy efficiency investments*

The EPC continued to be a factor that informed homeowners' decision-making, even when it was considered among many other factors. The graph below shows a series of factors that influence homeowners' energy efficiency investments. All the factors are on the right of the dotted line (i.e. 1 and above), which indicates that they increased the likelihood that an energy efficiency measure would be completed.

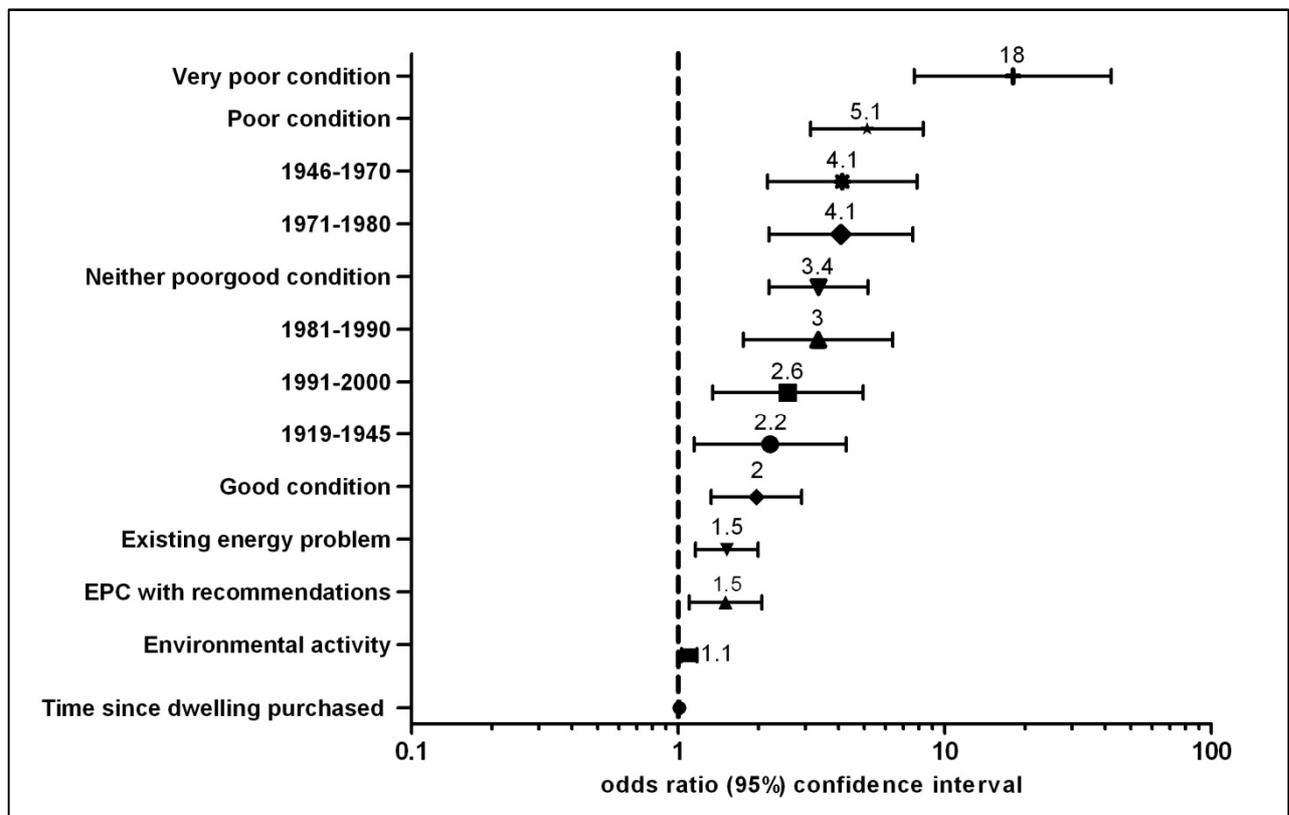
Homeowners with an EPC with recommendations were up to twice as likely to have carried out one or more energy efficiency measures when compared to homeowners without, or unaware of, the EPC for their home. However, other factors had a more striking influence on homeowners' decision-making. These were the perceived condition of the dwelling and the age of the dwelling.

The age and condition of the dwelling affected the likelihood that an energy efficiency measure would be completed. The poorer the condition of the homeowners' current dwelling, the more likely they were to have carried out one or more energy efficiency measures. A homeowner who rated their dwelling to be in a

<sup>3</sup> There were six energy efficiency measures that featured as potential recommendations in all five member states. These were: insulate roof and or loft, insulate walls, improve glazing, upgrade and or install boiler, improve central heating system, and use or install solar energy system.

'good' condition were more likely to carry out energy efficiency improvements than someone living in a dwelling rated in a 'very good' condition. Compared with a dwelling rated in a 'very good' condition, those in a 'poor' condition were five times more likely to be improved, and dwellings in a 'very poor' condition were about 18 times more likely to be improved, and homeowners in older dwellings were also more likely to have carried out an energy efficiency measure. This is notably the case for dwellings built between 1919 and 1970, which are about four times as likely to be improved as dwellings built after 2000.

### Factors influencing the energy efficiency behaviour of all homeowners



#### Potential support mechanisms

More than half of all homeowners thought that 'talking to an energy professional' would help them to decide on the action necessary to improve the energy efficiency of their home. Two-fifths thought that 'better information from my energy supplier' would be beneficial. The media and the internet were the least popular choices.

The majority of homeowners rated monetary issues to be important. The overall cost of making improvements was important for 85% of homeowners, while 51% considered it 'very important'.

More than half of all homeowners were 'very interested' in a grant to carry out energy efficiency home improvements and repairs, in paying a lower level of tax because they had made energy efficiency home improvement, or in a reduction in price of energy efficiency products. A fifth were 'not at all interested' in a low interest loan for energy efficiency home improvements and repairs, and 10% were 'not at all interested' in paying a lower level of tax based on their EPC score.

### Conclusion

The EPC on its own was not the strongest driver influencing whether homeowners would purchase a dwelling or carry out improvements. However, homeowners with an EPC with recommendations were up to twice as likely to have carried out one or more energy efficiency measures, in comparison with homeowners without, or unaware of, the EPC for their home. Therefore increasing the availability of this tool, and creating wider use and understanding of it, may increase the likelihood that more energy efficiency measures will be taken.

The main drivers of energy efficiency investment were:

- The perceived condition of the dwelling
- The age of the dwelling
- The EPC

The main barriers to energy efficiency investment were:

- Lack of awareness of the EPC
  - Lack of awareness of the recommendations received with the EPC
  - Lack of visibility of the EPC at the home-buying stage
  - Reluctance to use the EPC to inform a home purchase decision
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