Comprehensibility of the Energy Label for space heaters and water heaters and of the new Efficiency Label for old space heaters in Germany

Results of two focus groups and a representative consumer survey

- Summary -

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Part of the project:
“Energy labelling – with the focus on the Energy Label for space heaters and water heaters”

Funded by:
Ministry for the Environment, Energy, Nutrition and Forests of the German State of Rhineland-Palatinate

Mainz, 14 December 2016
Introduction

The consumer association of Rhineland-Palatinate (Verbraucherzentrale Rheinland-Pfalz) mandated the market research institute forsa to conduct a representative consumer survey on the comprehensibility of the EU Energy Label for new space heaters and water heaters and on the national Energy Efficiency Label for old space heaters. The aim of the survey was to obtain more information on the awareness, comprehensibility, usefulness and acceptance of the Energy Label among consumers. Two focus groups with house owners and a representative Germany-wide survey were conducted in October 2016.

The new EU Energy Labels for space heaters and water heaters were introduced in September 2015. They were designed to inform consumers about the energy efficiency of these devices in a similar way as for refrigerators and washing machines. Depending on the type and the characteristics of the heaters, more than ten different kinds of Energy Label were developed. Craftspeople have to include the Energy Labels when they make their offers. Heaters exhibited for sale also have to be labelled.

The energy efficiency of the products is rated on the Energy Label for space heaters and water heaters. Due to the different prices for heating oil, natural gas, wood or electricity, however, conclusions about the running costs of the different heating systems are virtually impossible to make. Also, the assessment does not include the question as to whether the heating system is suitable for the building or not. To ensure the efficient operation of the space heater, therefore, it is important to dimension it to match the building. Several studies show that, after insulation of a building, the power of the central heating boiler usually exceeds the heat load. For these reasons, the new Energy Labels have only limited information value for consumers. Depending on the initial situation, they can even be misleading and promote incorrect decisions. The purpose of this study was to evaluate these aspects.

The national Energy Efficiency Label for old space heaters was introduced in Germany in January 2016. Since that date, chimney sweeps, craftspeople and certain energy consultants who have a contractual relationship with the owner of a building (for example a maintenance contract) are permitted to attach the label to old oil or gas central heating boilers. As of 2017, it is obligatory for district-authorized chimney sweeps to label space heaters which are more than 15 years old. The intention is that a bad rating on the label will motivate house owners to replace their old boiler. House owners are obliged to tolerate attachment of the label, which generates no extra costs or obligations. The Energy Efficiency Label assesses the energy efficiency of the old space heater on the basis of a list of space heater models. The rating does not assess whether the boiler is optimally adjusted or for example whether the heating pipes are insulated well. For this reason, those filling in the label are to give house owners a flyer with additional information.
Summary of the results

Socio-demographics, home ownership und heating system

The participants in the survey were all house owners who do not use district heating. Nearly all participants live in their own house. One percent is currently in the process of building a new house. 15 percent are (also) landlords.

About 80 percent use an oil or gas central space heating, five percent use a heat pump space heater and one percent a cogeneration space heater. For these types of space heaters, an EU Energy Label for new devices was introduced in September 2015.

42 percent of the installed space heaters are more than 15 years old. For oil and gas space heaters, the rate is as high as 45 percent. Since January 2016, these devices have successively been given an Efficiency Label for old space heaters.

15 percent of the house owners interviewed (also) heat their water using local boilers or flow heaters. For these persons, the new EU Energy Label for water heaters is relevant when these devices are replaced.

Modernization of space heaters and water heaters and the Energy Label

About eleven months after its compulsory introduction, the Energy Label for new space heaters and water heaters still has a relatively low penetration. Nine percent of the house owners interviewed have replaced their space heater in the last 12 months or have solicited the relevant offers. During the (planned) modernization of oil or gas space heaters or heat pump space heaters, only 31 percent were given the mandatory Energy Label. One-third could not remember seeing a label of this kind before, and 43 percent were not given a label.

During the modernization of local water heaters, only 22 percent were given the corresponding EU Energy Label. The number of cases is very small here, however.

Sources of information and selection criteria

For three-quarters of house owners, craftspeople are the most important source of information to help them select a new heating system. Two-thirds of those interviewed give the Internet as their main source of information. Chimney sweeps as well as friends and acquaintances are frequently named here, with about 40 percent each. 15 percent of the respondents obtain their information from the energy advisory service of the municipality or the consumer organization, 13 percent from their energy supplier and 7 percent from an independent energy consultant.

The most important criteria for selecting a new space heater are quality and product reliability (100 percent: very important / important), followed by low running costs for energy and maintenance (98 percent). In contrast, low initial costs are (extremely) relevant for only 72 percent of the interviewees, whereas subsidies and benefits were named in 61 percent of cases. For 64 percent of the participants, the use of renewable energy sources is very important or important.

Awareness of the EU Energy Label

Nearly all respondents are aware of the Energy Label for electrical appliances. 61 percent have used it before to help them select a new device. However, the reliability of the energy consumption information given on the label is increasingly being called into question.

About eleven months after the introduction of the new Energy Label for space heaters and water heaters, a total of 40 percent of the interviewees are aware of the new Energy Label in some form or other or have already received a label of this kind along with offers.
for a new device (3 percent). More than half of those interviewed have not yet heard of the new Energy Label. This share is especially high for house owners of less than 60 years of age (68 to 74 percent: not aware).

**Comprehensibility of the new EU Energy Label**

The results show a strong need to explain the new EU Energy Label for space heaters and water heaters.

With the **Energy Label for local water heaters**, the indication of size ranging from 3XS to XL is not understood by more than 80 percent of the interviewees. However, a suitable size is very important, especially for hot water boilers, as overdimensioned devices work very inefficiently as a result of the high thermal losses. The water tap symbol as a reference to water heating was only comprehensible for around one half of the respondents. The water tap symbol is also displayed on the label for cogeneration heaters as an indication of the efficiency of the water heating function. The dual use of this symbol gives cause for criticism. For example, a water tap is also used on the EU Energy Label for washing machines to display how much (cold) water they consume.

In the case of the **Energy Label for oil and gas heating boilers**, only about half of the interviewees understood the indication of the heat output in “kW” correctly. One-third misinterpreted this information as “energy consumption of the space heater”. However, the suitable dimensioning of the heating boiler is very important for its efficiency in practical terms. In the questions allowing more extensive answers and in the focus group discussions, the fact that the heating labels did not include a reference value for the data displayed on them was frequently criticized. In addition, the different scales for space heating (A++ - G) and water heating (A – G) were confusing for many of those taking part in the survey.

Many of the house owners interviewed had the most problems with the **Package Label**. Only the total rating of the efficiency of space and water heaters was understood correctly by three-quarters of the respondents, whereas the assessment of the individual devices on the Package Label was understood by less than half. The information on additional devices such as solar devices or temperature controls given on the label was comprehensible for less than one third of the participants. The dual use of the symbol for heating devices on the Package Label gave cause for criticism here too. The correlation between the total rating and the rating of the individual devices on the label was unclear for two-thirds of the participants. In addition, there was criticism of the lack of monitoring with regard to the filling in of the Package Label by craftspeople.

In the case of the **Energy Label for heat pump space heaters**, the differing information on the energy efficiency classes is given separately for high- and low-temperature operation and was understood by less than two-thirds of those interviewed. The comprehensibility rate was considerably higher for other types of space heater. Only about half of the house owners understood the information on the different flow temperatures, although this is relevant for selecting the field of application of heat pumps. Only one third of the participants understood the differing information on the heat output depending on operating mode and climatic region. Less than 20 percent were able to decode the European climate map.

**Comparison opportunities and misinterpretations**

The energy efficiency of appliances is rated on the EU Energy Label. 95 percent of house owners would expect an “especially energy-efficient space heater” to have low energy costs. However, this conclusion is not possible as a result of the different energy prices for oil, gas, wood and electricity, and misinterpretation of the label can be the result. Similarly, 95 percent expect an energy-efficient space heater to allow optimal adjustment and
regulation. 69 percent also expect this space heater to be particularly suitable for their house. Neither of these aspects were taken into account in the efficiency rating given on the Energy Label for space heaters. When specifically asked to assess the information value of the label for space heaters, only 22 percent of respondents knew that the efficiency rating only allows different heating systems to be compared. Almost half of the interviewees assume, as they do with other labelled products, that it allows them to compare different space heater models. In addition, 28 percent expect the label to allow them to distinguish what kind of space heater has lower energy costs. These misinterpretations of the information given show that there is a real danger of consumers being misled by the new Energy Label for space heaters.

**General assessment and requests for modification**

Before dealing with the different Energy Labels for space heaters in more detail, 85 percent of the interviewees rated the new label as being on the whole helpful or very helpful. Once they had a more profound understanding of the information value of the label, their rating changed considerably. The label was then only rated positively by half of the respondents, whereas the other half rejected it. Almost all of them made requests for modifications of the Energy Label for space heaters. Half of them in each case would be glad to see the consumer association advocate an improvement of the label for space heaters and/or explain the label. In contrast, the majority asked for more information material or for neutral advice to help them purchase a space heater.

**The national Efficiency Label for old space heaters**

About ten months after its introduction, the majority of house owners (86 percent) are still not aware of the Efficiency Label for old space heaters, whereas only 13 percent of them already know of it. One percent of those interviewed have already received an Efficiency label for their old space heater.

Slightly more than half of the interviewees think that the Efficiency Label for old space heaters is a good idea, whereas 44 percent do not think so. This was explained with the fact that age and condition of the space heater were known by consumers even without a label, and modernization of the space heater instead depended on the financial situation or on defects of the existing space heater. Around ten percent in each case feared that the label would cause more costs and more red tape, and they assessed it as having no link with reality as it is not based on the energy consumption – these respondents stated that they would prefer personal counselling by experts.

The Efficiency Label for old space heaters was implemented on the basis of the results of a survey carried out by the Vaillant Group, a German manufacturer of space heaters. According to its findings from the year 2014, 16 percent of house owners would replace their old space heater if an Efficiency Label were introduced for existing systems. This question was repeated in the current consumer survey. Ten percent of the respondents with space heaters more than 15 years old stated that they would replace their space heater as a result of the Efficiency Label. However, 14 percent of them were currently planning to replace their space heating system anyway. The survey thus did not supply any evidence that the Efficiency Label for old space heaters provided any additional benefits.
Conclusions and requirements

The study clearly shows that the new EU Energy Labels for space heaters and water heaters are only comprehensible to a limited extent and are partly misleading for consumers. Also, when consumers solicit offers, the decision to buy a space heating system has usually already been made, even though this is the only thing which the label can help them with. In other words, the new Energy Labels are not a help for consumers but quite the opposite: the possibility of misinterpreting the information given on the labels can actually make them misleading. The strong simplification of the efficiency rating given on the Energy Label for space heaters does not take the installation situation and the operating conditions into account and does not provide any indication of the resulting energy costs, so it was not considered effective by many consumers. These would prefer information tailor-made for their specific situation as well as independent advice. The great skepticism of many house owners with regard to the EU Energy Label for space heaters could further reinforce their critical attitude towards the EU Energy Label for electrical appliances as a result of the partly unrealistic testing methods.

The study did not provide any evidence for the assumption that the Energy Label for space heating systems encourages house owners to replace their space heater. The plans of owners of old space heaters to replace their heating system anyway were more influential than the effects of the Efficiency Label in this regard. It is therefore questionable whether the outlay of about 75 million euros for issuing these labels up to the year 2020 displays an appropriate cost-benefit relationship.

Demands for modifications of the EU Energy Labels for space heaters and water heaters:

- Prompt substantial revision of the EU Energy Labels for space heaters with regard to the following aspects is necessary. However, it is questionable whether this is possible in a consumer-friendly way at all.
  - Assessment of the space heater model and not of the heating system used.
  - Use of consistent scales without empty classes.
  - Consideration of the installation situation or of information to this effect.
  - Inclusion of a declaration of energy consumption and a reference value.
  - A cost comparison should be enabled.
  - No dual use of symbols (water tap, additional space heater)
  - Inclusion of a legend, etc.
- Revision of the EU Energy Label for water heaters, especially concerning the indication of size (“tapping profile”).
- Critical evaluation of the comprehensibility of the optimized Energy Labels for space heaters and water heaters as part of a consumer survey. If there is a negative result, it would be better to stop using these labels altogether than to use misleading ones.
- Provision and expansion of other facilities such as printed information material or independent advisory services.
- Development and facilitation of financial support for the installation of efficient space heaters (tax reductions).

Demands for modifications of the national Efficiency Label for old space heaters

- Prompt critical verification of the actual effects of the Efficiency Label for old space heaters as part of an evaluation.
- Extension and intensified promotion of the advisory services provided, for example the space heater check provided by the consumer associations. As part of this check, experts assess the installation situation and the potential for optimizing the existing space heater system and give recommendations for measures requiring low investments only.