



## Comments on Tasks 1 and 2 of the preparatory study on the review of Ecodesign and Energy Labelling requirements for Boilers and Water Heaters

February 2018

We welcome the opportunity to provide input on draft Tasks 1 and 2 of both studies. With the Energy Label Framework Revision in 2016, European policy makers have granted boilers and water heaters a deadline for the shift to an A-G scale which is way too long in our opinion. We call on the study team to assess the impact these delays will have on the effectiveness of the boilers and water heaters labels and to draw the appropriate conclusions in their policy recommendations.

### Boilers draft report

#### ▪ Task 1

On page 17, listing the boilers which will be integrated in the EU product database would clarify the question of products used in the package label.

On page 26 of the report, it fails to mention the Ecolabel introduced with the Commission's decision EU 2014/314 and discontinued in 2017, which included both boilers and water heaters.

The inclusion of an evaluation of the impact of the third-party evaluation in place since Directive 92/42/EEC and maintained in Regulation EU 813/2013, would provide valuable information to comprehend the decision regarding its continuation. (p 33ff)

Regarding the transitional method for space heating TM2014sf (p.54ff and p.111ff), the study should include more examples without heat pumps for the differences between the TM2014sh and the standard EN50465:2015 for micro-CHP units. This should be for common units on the market today and for BAT.

Similarly, the report should include a more detailed comparison of results using TM2014sf, explaining in detail the errors reported in interpreting the SOLCAL method and the solar heating standards in EN 15316-4-3 and EN 12976-2 (p.121ff) for solar-assisted heating. The analysis should cover average as well as hot climate zones, in order to evaluate the correctness of the three methods, compared with typical use.

For combination gas boilers, we propose to compare the efficiency calculated with the EN 13203-2:2015 (p.132ff), including winter mode and the efficiency calculated with EM2014 for typical combi-boilers.

For gas micro-CHP combination with gas boilers, we propose to compare the efficiency calculated with the EN 13203-4:2016 with efficiencies calculated with TM2014wh and with EN50465:2015 with appropriate assumptions regarding water heating and a typical product on the market.

For passive flue heat recovery devices (PFHRD), examples of their effects on efficiency according to prEN13023-7 with common boilers and typical usage should be included.

In general, we think that third-party certification should be used for more products, notably heat pumps as it could improve reliability and consumer trust in the energy label, especially for this type of products which presents challenges in terms of market surveillance. We are also interested in any evidence for or against this assessment.

- **Task 2**

The evaluation on page 9 (IX) and the analysis on page 95 (80) should mention the long delays Ecodesign & Energy Labelling requirements for boilers have suffered from and the related impacts on energy efficiency improvements.

Several special heaters are mentioned in Task 1 report, such as gas engine heat pumps and gas sorption heat pumps. To assess the interest of regulating these, data (notably sales data) should be gathered and included in the report.

The solar heater statistics p.45 (31) lack precision. For instance, most of the Danish solar heating installations are not on buildings, but in fields and are used for district heating.

It is stated on p.48 (34) that an average solar water heater can only save 31% of hot water heat demand. This seems well below other estimates, especially for the warmer parts of EU. This statement should be deleted or explained.

Regarding heating controls, p.50 (36), during the January 2018 stakeholder meeting it was explained that many condensing boilers are not condensing sufficiently. This is due to lack of controls that can adjust boiler temperature according to heat demand, and because of the lack of proper adjustments to existing controls. This could reflect a serious issue and should be investigated as part of this study.

Regarding electricity prices, in Denmark low electricity taxes apply for heat pump users for a total household consumption above 4000 kWh/year. The tax reduction reduced consumer prices with 0.61 DKK/kWh (0.08 €/kWh incl. VAT for these consumers.

The Ecodesign regulation has an exemption for B11 boilers that can be sold in non-condensing versions to meet the needs of those homes with many boilers connected to a common chimney. The sales data should include an estimate of the number of non-condensing boilers sold, how many of these are B11, and the share of these used in houses with common chimneys.

During the stakeholder meeting in January, Germany reported that C4 boilers were used in installations with collective chimneys. We propose to include an estimate of the number of C-type boilers that are installed in settings with collective chimneys in EU.

- **Expectations**

We look forward to the findings of the study team with regards to:

- Appropriateness of introducing requirements for heat pumps using F-gases to have lifecycle CO<sub>2</sub>-eq. emissions lower than alternatives with refrigerants with lower GWP, as foreseen by the F-gas regulation EU 517/2014
- Development of a procedure/method for the verification of the declared load profile with regards to the water function of a combi-boiler. Currently, regulation 813/2013 requires a declaration of the maximum load profile that can be delivered, but there is no method in EN 15502-1 on how to verify this declaration.
- Appropriateness of setting stricter NOx requirements
- Appropriateness of supporting European standards which subject NOx requirements to conversion factors depending on gas type (as in EN 15502-1)
- Appropriateness of supporting European standards in which, in the case of combi-boilers, NOx emissions are only considered in space heating mode and not water heating mode (e.g. in EN 15502-1)
- Amending the Ecodesign and Energy Labelling measures for boilers to adapt to a possible new Primary Energy Factor
- Evaluating the realised efficiency of condensing boilers and proposing measures to improve efficiency with increasing boiler condensation
- Evaluating the feasibility and interest of indicating boiler efficiency on the label
- Proposals to limit the use of non-condensing boilers to houses with collective chimneys, and their installation in general
- Suggesting improvements for the package label for boilers
- Evaluating the effects of expanding the use of PFHRD, as well as possible adverse effects of other solutions such as solar heating
- Possible resource efficiency requirements. The study should notably look at parts/components Ecodesign rules could ensure the accessibility of. Moreover, the study team could discuss how frequent annual maintenance contracts are and how these could grant an opportunity to replace some parts that would preserve efficiency over time.

<b>Water heaters draft report</b>
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- **Task 1**

On page 26 (15), listing the water heaters which will be integrated in the EU product database would clarify the question of products used in the package label.

An important issue for solar water heaters is to determine which are included in the scope and those which are not. Solar water heaters with back-up (electric or not) that is started manually and is stopped manually or automatically with a timer will show large non-solar energy inputs with the test according to the Ecodesign regulation and transition method compared with actual, typical use. This is because the non-solar heat source is only turned on when the user decides that it is needed. Thus, these solar water heaters will be penalised if included in the scope of the regulations because they will indicate a higher energy demand than in actual use. Other solar water heaters will benefit from their inclusion in the regulations because of the increased information and comparability with other water heaters. These issues should be considered and described in the description of the Ecodesign and Energy Label regulations for water heaters, p.42(31)ff.

The graph on p. 66 shows the ratio between different household energy uses and that space heat demand is 5-6 times larger than water heating demand. With the improvements of buildings, the relative importance of water heaters' energy demand is increasing considerably. According to statistics from the Danish Energy Agency, the ratio between space heating demand and water heat demand was 4:1 in 1990 and decreased to 3:1 in 2009 and further to 2,9:1 in 2016. This is actual heat demand for space heating and water heating. It does not include losses in boilers, water heaters or heating systems, (calculated from Danish Energy Statistics 2016, figure "Hushold").

The description of test standards for water heaters in chapter 4 should specify if each standard conforms with the Ecodesign and Energy Label regulations, to determine if it can be used for conformity checks.

#### ▪ **Task 2**

On the graph and table on p. 26, only solar thermosyphon systems are considered as solar. We would like to see other solar water heaters included as well. For this purpose, the study team should estimate how many of the multi-valent storage tanks and other separate storage tanks are used in solar applications.

The use of the package label should be described, including the number of labels and an estimation of the number of installations with a package label, given that one package label can be used for many installations. The analysis should also include explanations for the low use by installers of the package label, as presented at the stakeholder meeting in January.

For the realised water heater energy efficiencies described on page 39ff, we propose to include variations in efficiencies for the different models of heat pump water heaters, including for the models with the highest efficiencies.

It is also important to include efficiencies for gas water heaters and solar water heaters, including their variations and according to climate zones for solar. We propose to include this based on models on the market, not on sales if this is deemed too sensitive. We imagine that the solar suppliers will be happy to provide this information for solar water heaters.

For losses from storage tanks, described on p.42, information should be available via Solar Keymark for tanks used in solar applications. Also, the upcoming EPREL database on energy labelled products should include the information, which can be added later in the study.

#### ▪ **Expectations**

We look forward to the findings of the study team with regards to:

- Reducing the number of standards to test standby losses of water tanks from the four mentioned in the Transitional Method for water heaters (TM2014wh)
- Proposals to improve TM2014wh regarding solar water heaters or replacing this part with standards
- As for boilers, appropriateness of introducing requirements for which ensure that heat pumps using F-gases have lifecycle CO<sub>2</sub>-eq. emissions lower than alternatives with refrigerants with lower GWP, as foreseen by the F-gas regulation EU 517/2014

- Development of a procedure/method for the verification of the declared load profile with regards to the water function of a combi-boiler. Currently, regulation 813/2013 requires a declaration of the maximum load profile that can be delivered, but there is no method in EN 15502-1 on how to verify this declaration.
- Appropriateness of setting stricter NOx requirements
- Appropriateness of supporting European standards which subject NOx requirements to conversion factors depending on gas type (as in EN 15502-1)
- Appropriateness of supporting European standards in which, in the case of combi-boilers, NOx emissions are only considered in space heating mode and not water heating mode (e.g. in EN 15502-1)
- Amending the Ecodesign and Energy Labelling measures to adapt to a potential new Primary Energy Factor
- Suggesting improvements for the package label
- Possible resource efficiency requirements.

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