

EHPA position on the review study on space and combination heaters (Lot 1) and water heaters (Lot 2)



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Introductory note: EHPA would like to thank the study team for the work already carried out and welcome the opportunity given to comment on the options proposed in the draft reports. Please find below EHPA's comments on several options and recommendations made from the perspective of electrical heat pumps. Comments related to the options and recommendations concerning gas-driven heat pumps will be submitted separately, due to the specificity of the products.

Comments to the Review study on space and combination heaters (Lot 1)

System temperature

Comment: The Review Study on Boilers - Task 6 Draft recommends that for existing buildings the heat pumps should be rated according to the High Temperature (rated $T_{\text{supply}} 65^{\circ}\text{C}$, $\Delta T=10\text{K}$) regime and not the current Medium Temperature regime (rated $T_{\text{supply}} 55^{\circ}\text{C}$, $\Delta T=10\text{K}$). However, we do not consider that the demonstration provided in the report can support the proposal for the increase of the temperature supply.

In view of the implementation of the Directive (EU) 2018/844 on the Energy Performance of Buildings Directive (EPBD), insulation of buildings will be significantly improved. To that end, the EPBD has mandated individual room or zone thermostatic controls in new buildings when replacing the heat generator. EPBD's higher energy efficiency targets will lead to better insulated buildings, which in turn will also require lower-temperature heating systems. This will help to moderate the concerns mentioned in the Review Study regarding the lack of appropriate temperature controls. A move to requiring a High Temperature regime for all heat pumps will pre-empt any benefits from the new requirements of the EPBD, such as higher air tightness and better indoor temperature controls.

High temperature heat pumps able to supply 65°C water temperature can be found on the market; however, these products are dedicated to a niche market and do not represent the vast majority of systems and applications.

Additionally, a high proportion of existing heat pumps combination heaters will only be declared as low temperature space heaters (35°C) because they cannot follow this high temperature (65°C) application profile in heating mode. This will dramatically harm the heat pump market in private households and even endanger the renovation of existing buildings.

Proposal: EHPA recommends keeping the 55°C test temperature, which corresponds to the medium temperature application as specified in the existing standard EN14825.

Testing methods – the dynamic test method

Comment: The Review Study on Boilers – Draft Task 6 recommends the introduction of the dynamic test method. This method, suggested by a report from BAM, was analysed theoretically and experimental investigations are still ongoing with the aim to develop an optimized test procedure with improved feasibility and reliability. The new method should be quicker, repeatable, easy to use, accepted by laboratories and manufacturers. It should be applicable to all products in the scope of EN14825.

So far, laboratories that have experienced the compensation method have found that the measurement was very time consuming, and thus cost-intensive, due to the difficult adjustment of the measured parameters and within allowable deviation under steady state conditions. Also, it is uncertain whether the compensation method makes it possible to fully avoid circumvention.

It is mentioned in the BAM report that only one air source heat pump and one ground source heat pump have been tested so far. As this is a limited number of tests, we support the conclusion that further evaluation of the method is required. The report also did not investigate the accuracy of the test, only reproducibility was evaluated. At present, EHPA members find the compensation method not mature enough to be considered as a suitable alternative to the existing practised method. Accordingly, the dynamic method should not be included as part of the current revision of Ecodesign Lot 1.

Last but not least, it is important to note that the dynamic method was presented by the BAM at the TC113 WG7 meeting in Stockholm on April 23rd-24th. The method was then discussed with the participants. The discussion revealed the importance and necessity to continue the work on the method, but further development – including round robin tests and drafting a standard for the method - is needed to complete the BAM study.

Proposal: In order to avoid the conveyance of uncertainty among the industry, EHPA recommends maintaining the current test method to ensure reproducible and accurate test results. In this perspective, EHPA supports the Review Study Task 7 recommendation to dedicate more time to the evaluation of the readiness and effectiveness of the dynamic method.

We would support that a robust work-plan is set up to investigate the feasibility of using dynamic testing and evaluate whether yes or no it can be applied. All European laboratories should be involved

in developing this method. In case the conclusion is that it can be applied, then this method can be included in the next revision. TC113 could be used as the platform to do this.

The introduction of a 20% bonus for H₂-ready boilers and biogas boilers

Comment: Within the energy efficiency calculation methodology, the Review Study on Boilers - Task 6 Draft proposes to apply a 20% bonus, i.e. similar to the pef-correction (2.5/2.1-1) where the boilers are using carbon-neutral gaseous or liquid energy sources like biogas, e-hydrogen and –if appropriate—other e-fuels. This aims at higher label rating, e.g. A+, setting them apart from the fossil fuel versions.

Scientifically, it is incorrect to assume that hydrogen increases the energy efficiency of boilers as the use of hydrogen is not correlated to the increase of the efficiency of the appliance. Such a provision would therefore not provide realistic and valid information to the end-user. End-users could be misled into believing that H₂-ready appliances can reach the efficiency that is set according to the label, even though the use of hydrogen does not improve the efficiency of the product.

The following recommendation is in contrast with the readiness of these technologies to enter the market. In this perspective, the Review Study reveals a lack of technology neutrality as it recommends to award bonuses on products that are far from reaching the market and are still in the state of R&D.

Finally, there is a high risk that boilers which are awarded this bonus never actually use these low carbon fuels, as the maturity of these technologies is still at an early stage of demonstration. Neither hydrogen boilers nor biogas boilers would reach the Ecodesign market threshold of 200,000 units or the necessary environmental impact, which are required before a product is regulated.

Overall, the articulation of such a bonus is not in line with the direction and the technological neutrality set by the 2050 Long-term strategy defined by the European Commission.

Proposal¹: EHPA recommends avoiding the application of a bonus for H₂-ready and biogas boilers in order to ensure the validity and consistency of energy labels for the end-user. Such a revision should not lead to a potential multiplication of bonuses that would alter the purpose of the energy labelling, which is to provide an indication of the energy efficiency of the product.

¹ Note: Vaillant abstains from supporting the following proposal.

Energy labelling classes

Comment: The Review Study on Boilers – task 6 Draft recommends adjusting energy labelling classes for space heaters. Such adjustment is proposed in order to take into consideration the new conversion coefficient of 2.1 instead of 2.5 (factor 1.19).

Nevertheless, the aforementioned proposals (the increase of testing temperature, the introduction of a new testing method, etc.) are most likely to have an impact on the efficiency values of the appliances and the declared performance. In this regard, EHPA cannot assess the impact of the overall Review study on the adaptation of the energy efficiency values featured on the label.

Having said that, the current regulation introduces an A+++ to D scale from September 2019 and a full rescaling to an A-G scale is planned in 2026. Additional changes to the label scale would, therefore, result in confusion among the end-users and the manufacturers, who would be submitted to multiple revisions in a short period of time.

Proposal: EHPA recommends keeping the products' classification as it is now, in view of the revision planned by 2026.

Increase of the threshold for low-temperature heat pumps

Comment: The Review Study on Boilers – Task 6 Draft, suggests increasing the low temperature heat pump efficiency threshold from 150% (with CC updated value) to 170 or 175% (which correspond to 143 or 147% based on CC=2.5).

The Review Study claims that there is a relatively small difference between a default space heater and a low-temperature heat pump. Besides the lack of definition of a “default space heater”, the report does not provide any clear scientific basis supporting and justifying the increase of the threshold.

Proposal: EHPA recommends not increasing the threshold for low-temperature heat pumps.

Refrigerants - GHG emissions calculation

Comment: The Review Study on Boilers - Task 7 Draft GHG emission calculation, largely exaggerates the emissions from heat pumps. This is due to the fact that the report bases the assessment on the assumption that the industry will continue to use high-GWP refrigerants until 2050.

However, the F-gas Regulation (EU) No 517/2014 is already addressing direct emissions of F-gas. Therefore, the effect of direct emission of F-gas should not be part of another regulation.

The phase down in the F-gas regulation already pushes manufacturers towards lower GWP refrigerants, such as R32, R290, R454B, R454C and many others. This results in strong price increases of refrigerants and pushes towards further reduction of charge volumes, improvement of leak tightness and better recovery of the refrigerant at end-of-life – resulting in lower direct emissions.

Assuming an equal share of all 4 above-listed refrigerants by 2030 would lead to average GWP of 322 (15% of today's). Assuming that R410A (non-flammable) keeps a share of 1/5th of the heat pump market – the average of all 5 refrigerants named here would be a GWP 675 instead of 2088 (32% of today's).

With a heat pump lifetime of 20 years and just considering the change in refrigerants used in HPs the direct GHG emissions in 2050 should be something between 15-32% of what is claimed as 24Mt of direct emissions in the study (Figure 5 of Task 7).

Considering, in addition, a reduction in direct emissions due to lower charge sizes, better recovery and improved leak tightness would decrease this number even further, possibly down by another 50%.

Proposal: As the heat pump industry strongly supports the European Commission's energy and climate targets for 2030 and beyond, EHPA recommends adjusting the GHG emissions calculation methodology according to the provisions of the F-gas Regulation (EU) No 517/2014.

Comments to the review study on water heaters (Lot 2)

Overall, EHPA highlights the fact that within the task 6 reports, no suggestions are made in regard to the heat pump water heaters.

EHPA also notes that above-mentioned comments to the bonus and the pef-correction proposal for H2-ready and biogas-ready boilers also apply to the Review Study on water heaters - Task 6 draft (paragraphs: 2.2, 2.3, 2.4, 5.2.1, 5.2.2 and 5.2.3).

Finally, EHPA would like to raise the fact that in the Review Study on water heaters - Task 6 draft (paragraphs 3.5 and 5.3.5) it is reported here that the testing conditions for sound power level are ambiguous. However, these sections are not relevant to the domestic hot water heater. The issues raised about sound power level only concerns heat pumps for space heating. Such a statement should, therefore, be deleted.

About EHPA

The European Heat Pump Association (EHPA) is a Brussels based industry association which aims at promoting awareness and proper deployment of heat pump technology in the European market place for residential, commercial and industrial applications. EHPA provides technical and economic input to European, national and local authorities in legislative, regulatory and energy efficiency matters. All activities are aimed at overcoming market barriers and dissemination of information in order to speed up market development of heat pumps for heating, cooling and hot water production. EHPA coordinates quality initiatives: including the HP KEYMARK, a Quality label for heat pumps and Certification standards for heat pump installers. The association compiles the annual heat pump statistics and organizes a number of events, among them an annual heat pump conference.