



Brussels, 24 May 2019

Water heaters

Comments on preparatory study (Tasks 1-7)

The current review of the Regulations will be a lost opportunity to save energy and reduce the climate impact of heating, unless all Ecodesign parameters are considerably strengthened, and the rescaling of the energy labels is considered. This is not the case with the proposals put forward so far and we urge the European Commission and the review study authors to align the ambition of these revised regulations for boilers and water heaters with the international commitments of the Paris Agreement and the decarbonisation objectives recently adopted via the EU's Long-Term Strategy 2050. Considering the long lifetime of boilers and their slow replacement rate, stringent decisions need to be implemented now if we want to achieve the 2030 objectives.

On top of this paramount issue of the lack of ambition, we also discuss other aspects of the review reports and present some proposals. The reports for Task 6 and 7 mention that the proposals presented are not final conclusions. We insist to be consulted and have the opportunity to provide our feedback on the final conclusions before these are submitted to the Commission.

Furthermore, these regulations should be complemented by actions taken at Member States level, for example regarding incentives to increase the replacement rate of old inefficient appliances and dimensioning of boilers and water heaters.

Most of the horizontal points covered in the comments on space heaters are also relevant for water heaters, and the following points are specific for water heaters.

Horizontal issues

Rescale label classes

The rationale for early rescaling of the energy label is even stronger for water heaters than for boilers, as currently the lower (E, F and G) classes are empty. In practice we propose to:

- Delete the empty E, F, G label classes.
- Merge the C and D label classes since the D class is almost empty.
- Rescale the classes, making the current class A+++ into class B, A++ into C, etc. Ultimately, the current class C becomes G.

Furthermore, we propose to revise the label in a way that would allow to phase out the least efficient technologies and the technologies relying entirely on fossil fuels by 2030. In practical terms, this means that:

- Electric and non-condensing boilers are in the G class, with a view to phase them out in 2025.
- All other technologies relying on fossil fuels as a main energy source are placed on the F class, with a view to phase them out in 2030.

In the proposal put forward in the preparatory study, we support the proposed upward change of the limit for present A+ label class for size class S fossil fuel and heat pump water heaters. The current limit of 55% could be changed to 80% or higher.

The review study fails to present an overview of the sales data of gas instantaneous water heaters per label classes. The information would be useful to evaluate the opportunity of changing label classes and setting higher Ecodesign requirements.

Different requirements for different technologies

The review clause of Regulation 814/2013 states that the review shall include an assessment of the appropriateness of setting separate codesign requirements for different types of water heaters.

This has not been explored in the preparatory study. We support stricter requirements for gas water heaters of the types S, M, L, XL. They are not limited by the PEF and ought to have efficiencies higher than 40% (47.6% with PEF = 2.1). We propose that this is followed by calculations of the least lifecycle costs (LLCC) of water heaters that barely meet present efficiency limits and of water heaters with higher efficiencies.

Options for Single Products and Packages

Air emissions limit values

The preparatory study must include information on the emissions of hydrocarbons and of NO_x and explore possible requirements. The review clause of Regulation 814/2013 states that the review shall include an assessment of (among others):

- the level of the codesign requirements for emissions of carbon monoxide and hydrocarbons that may be introduced;
- the appropriateness of setting stricter codesign requirements for emissions of nitrogen oxides;

Hydrocarbons emissions (in the form of methane) contribute significantly to climate change. The NO_x emissions are also problematic, and in our view the revised regulation should include proposals for stricter NO_x emissions. This is particularly important for heat pump water heaters with internal combustion engines that have high emission limits of 240 - 420 mg/kWh.

Some stakeholders propose higher NO_x limits for third family gases (propane, butane etc.) in the regulation. We are concerned with the extra NO_x emissions that this will cause, which the review study should estimate.

Package label

The preparatory study concluded that package labels are not always correctly used, or used at all, by installers. We propose, however, to keep the package label with some modifications, as it can be an efficient measure to promote, *inter alia*, solar heating (the heating source with the lowest environmental impact) or the use of heating controls. The proposal should be reviewed after it has been in use in at least 5 years.

Solar heating

We are concerned with the way solar heating is considered in the current Ecodesign methodology, as seen in the example in Task 1 figure 12, and especially regarding the difference between the way solar heating is treated when it is an integral part of a water heater, and when it is included in a package containing a water heater and a solar device. Thus, we support the adjustment of the method for calculating energy savings from solar heating and the introduction of a simplified and improved method for including solar heating in the package label. We find the proposals from Solar Heat Europe a good starting point, but we believe there is a need for further developments in order to represent in the best possible way the gain of solar heating in different climate zones.

We support Solar Heat Europe's proposal for energy labels for solar combined with existing water heaters to be similar with the package labels for solar combined with new water heaters. We also support Solar Heat Europe's proposal to use the three solar climate zones in the package label.

Hybrid solar Collectors

New hybrid solar collectors combining electric (PV) and thermal heat output are being developed, but there is no standard to measure their performance existing yet. We support that such solar collectors can be included in solar water heaters based on their thermal performance in the regulations. The thermal performance shall be evaluated when the electricity production side is active too, in order to give a realistic picture of their performance in use.

Test and labelling of air-source heat pumps

We propose that the energy label for air source HPWHs includes efficiencies at all three climate zones. Air source HPWHs using outdoor air are tested at +7°C outdoor temperature, which does not give the full picture of their performance at different outdoor temperatures, and thereby of their seasonal efficiency. It also only gives an indication of their performance at the average climate zone. To give a more realistic indication of their performance, we propose that they are also tested at -2°C outdoor temperature for cold climates and at +20°C for warm climates. This would allow a more realistic evaluation of their seasonal efficiencies.

Third Party Conformity Assessment

We support the proposal to have third party conformity assessment of water heaters. See also our opinion on the issue in this [document](#), calling for an in-depth review of the issue.

Pilot Flames

We propose to ban the use of pilot flames to minimise the standby losses. The current Ecodesign regulation allows the use of water heaters with pilot flame. While water heaters can meet the minimum efficiency requirements with a pilot flame, the latter consumes more energy than electric ignition. In the many real-life cases where the water heater is used substantially less than what is the basis for the Ecodesign energy efficiency calculation, the energy consumption in stand-by - including from pilot flames - is substantially higher than what can be estimated with the Ecodesign methodology.

Test temperatures for hot water storages including storage water heaters

We do not support the introduction of minimum temperature requirements for water heaters. The review study discusses the possibility of a minimum storage temperature for domestic hot water to prevent legionella. On the one hand it is important that regulation does not conflict with reasonable national regulations to prevent legionella, for instance by setting energy efficiency requirements that cannot be met when temperature requirements set at national level are followed. On the other hand, by setting high temperature requirements, incentives to find design solutions to prevent legionella with other means than high temperatures are discouraged.

Ventilation air for heat pumps

The air volume allowed for ventilation for a heat pump water heater is high compared to the typical ventilation requirements of a dwelling, where the water heater will be used. For instance, an M-size HPWH can use 159 m³ ventilation air per hour. Typical ventilation in a dwelling is 0.5 times the volume of the dwelling. For a 2,5-meter-high room with 80% of air exchange via ventilation system, 159 m³ ventilation air corresponds to a dwelling of 159 m².

According to the Task 2 report, Figure 12, XS, X and M-size water heaters represent together about half of the sale of the water heaters. Thus, it can be expected that these water heaters are installed in dwellings below the average size, or in dwellings containing several water heaters. The average size of dwellings in EU is 96 m² according to Eurostat. This indicates that the allowed ventilation air use for HPWH is too high should be reduced by as much as 40%. This issue should be analysed in the preparatory study and the allowed use of ventilation should be reduced if it is found to be too high.

Storage tanks

In the current regulation, four different standards are allowed to be used to assess the performance of storage tanks. We support that to restrict this to a single standard, eventually with a separate standard for tanks used in solar heating. According to the review study, Task 1 report, work is ongoing to align two of the standards, EN 12897:2016 and prEN 15332:2016. We support that this work is finalised and that the resulting standard is used to measure heat losses from storage tanks. In addition, use of the standard prEN 12977-3:2016 could continue to be allowed for storages for solar heating, as this standard includes a typical use in solar heating applications with a heating period followed by a standby period.

Cookers

We see an increasing market for water heaters that delivers boiling water for domestic use (hot drinks, cooking), in addition to normal domestic hot water. We propose that the review study includes sales figures for the European market for these appliances. If the annual sales approaches 200,000 units for all uses throughout EU, we propose to introduce requirements for these products in Ecodesign and eventually in energy labelling regulations.

Circumvention

In line with the regulatory developments in other product groups under Ecodesign and Energy Labelling regulations, the regulation should include requirements to avoid appliances can be tested in a mode that deviates from the normal, regular use (specific test mode, or appliance programmed to

recognize the test conditions and react specifically to them). Addressing circumvention is important as there can potentially be serious impact, such as compromising energy and environmental savings anticipated from policy and undermining the competitive market and genuine product improvement.

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