



# EHPA Position Paper

EHPA's written comments on the draft Regulations (EU) 813/2013 & (EU) 811/2013 for space heaters and combination heaters – Review ENER Lot 1

## Executive summary

EHPA would like to thank the European Commission and the study team for the work already carried out and welcome the opportunity given to comment on the proposals part of the review of the Ecodesign Regulation 813/2013 and Energy Labelling Regulation 811/2013 for space heaters and combination heaters. Please find below EHPA positions and recommendations on the different requirements and information defined in the draft regulations.

## Chapter 1: Ecodesign Regulation

- **Definition:** EHPA would like to clarify some definitions further below in this paper.
- **Ecodesign minimum energy efficiency limits:** We do not understand the increased values for low temperature heat pumps, and thermally driven heat pumps. We also find that the proposed minimum efficiency requirements for hybrids are not ambitious enough. We would like to propose a two tiers approach for hybrid units: 110% in a first tier and then increase to 125% in a second tier, this based on a PEF of 2,1 and according to EN 14825 test methods.
- **Sound Power Level:** EHPA would like to highlight that the limit should be defined on the reference capacity  $P_{designh}$  and not on the heat output of part load condition C and should only apply to units below 70 kW.
- **Requirements on Material efficiency:** EHPA supports the inclusion of material efficiency requirements but has several comments and recommendations. In line with the revision of Lot 12 or Lot 10, EHPA would like to suggest an exhaustive list of spare parts to be defined, referring to the most critical parts. This list of spare parts should not be displayed on the public website and should only be accessible to professional repairers. Professional repairers must be defined. Finally, on the maximum delivering time of spare parts, EHPA would recommend limiting the scope to appliances  $\leq 70$  kW. Please read our detailed comments.
- **Requirements related to monitoring:** Since this is a completely new proposal from the Commission and has never been studied beforehand, EHPA will share only preliminary comments. As proposed by the European Commission during the Consultation Forum meeting, we would welcome to have a separate detailed and technical meeting to discuss in further details the concept, practicalities and our concerns on the scope and requirements of this proposal.
- **Compensation Method:** While we welcome and support BAM investigations on the compensation method, EHPA strongly disagrees with the assumption that the compensation method is ready to



be employed, and not even with the optional approach proposed in the draft regulations. The compensation method is still not fit for short-term introduction.

- **Calculation methods & T<sub>peak</sub>:** EHPA does not support the proposal for heat pumps regarding the peak temperature. Heat pumps would be penalised for not reaching a temperature (55°C) which is not realistic. We would like to reiterate our compromise on peak temperature sent to the European Commission in July 2021, in which we proposed to reduce the peak temperature to no more than 50°C with the current load profile. This would create a level playing field for all technologies, while delivering the necessary sufficient hot water to meet consumer needs today.

## Chapter 2: Energy Labelling Regulation

- **Rescaling of the label:** EHPA fully supports the single step rescaling as proposed in the draft working documents. We support the introduction of the new conversion coefficient 2.1, a rescaling to A-G, a definition of energy classes boundaries in a way that increases the differentiation between boilers and HPs, the display of the seasonal energy efficiency ( $\eta_s$ ) for average climate on the label, and the provision of a full 2-year transition period.
- **Energy efficiency classes:** EHPA suggests widening the B class width for medium temperature (MT) to ensure sufficient differentiation of heat pump technologies and questions the thresholds for low temperature (LT), which have increased significantly. In the current proposal the difference between the LT and MT energy efficiency class jumped to an average of eighty percentage points compared to 25 percentage points in the previous regulation. We are also concerned by the water heating efficiency with a very ambitious target for profile M and above and very different approach to class width that we doubt could ensure a fair competition between technologies. Finally, EHPA believes that thermally driven heat pumps and hybrids should have capability to be declared as low temperature as well as it is the case for electric heat pumps.
- **Temperature regime heat pumps:** EHPA would like further clarifications on the proposal for the HT temperature regime. It is not clear whether the indication of performance data at 65°C in the product information sheet is mandatory or not. EHPA does not support the mandatory introduction of the HT temperature regime and proposes an alternative approach.
- **Energy Label:** The energy label should be as simple, clear, and understandable as possible for the end-user. We believe that there are too many symbols which are not self-explanatory. For this reason, we would recommend that all symbols should be described so that they are clearly understood. Finally, EHPA supports the proposal to display the seasonal energy efficiency  $\eta_s$  on the label.



# CHAPTER 1: Ecodesign Regulation

## I. MAIN ACT (ARTICLES 1 TO 10)

### Definitions

EHPA would like to clarify the following definitions. We would like to recommend aligning the terms in the draft regulations and avoid alternative definitions of the following categories.

- **Definition of design load:**  $P_{designh}$  is declared at one temperature ( $T_{designh}$ ) and not at a combination of the reference design temperature, the maximum bivalent temperature and the maximum operation limit temperature as defined in reference design conditions. EHPA proposes the following: “‘design load’ of a heat pump or hybrid heater ( $P_{designh}$ ) means the space heating output at  $T_{designh}$  as given in Annex III table 2, and as declared by the manufacturer, expressed in kW”.
- **Definition of  $P_{rated,HP}$ :**  $P_{rated,hp}$  is not clear, as it can be declared at a TOL temperature in the range of  $-7^{\circ}\text{C}$  to  $-10^{\circ}\text{C}$  depending on the product. This would not allow a comparison of the products on the same basis.  $P_{rated,hp}$  shall be at the same temperature for all products, as it is used to compare and choose the relevant size of products on the market. Furthermore, it is not understood whether the heating capacity provided by the back-up heater is included in  $P_{rated,HP}$ . For these reasons, EHPA recommends correcting the definition as followed: “‘rated heat output of a heat pump’ ( $P_{rated, hp}$ ) means the declared heat output of the heat pump at  $T_{designh}$ , in average climate conditions, in kW”.
- **Definition of Prated for hybrid units:**  $P_{rated}$  for the hybrid heater cannot be equal to the sum of  $P_{rated}$  of the heat pump and  $P_{rated}$  of the fossil fuel boiler. This definition should be revised because it is not possible to simply add the two  $P_{rated}$ . EHPA proposes the following: ‘ $P_{rated}$  of a hybrid unit is equal to the declared heat output of the hybrid heater at  $T_{design}$ ’.
- **Definition of low-temperature heat pump:** As of today, a heat pump is considered as a low temperature heat pump if it cannot provide  $52^{\circ}\text{C}$  water at  $-7^{\circ}\text{C}$ . This condition on temperature has been deleted. Thus, it is not clear under which condition a heat pump can be declared as a low temperature heat pump and which minimum efficiency requirements to comply with. EHPA asks to reinstate the current definitions.
- **Definition of thermally driven heat pumps (TDHP):** “Thermally driven heat pumps” are not included in definitions under the Ecodesign and Energy Labelling draft regulations. We would propose the following definition: “Thermally driven heat pump means a heat pump using heat or an engine to drive the sorption or compression cycle”. We would like to confirm that GAHP (gas absorption heat pump EN12309) and GEHP (gas engine heat pump EN16905) are both considered as TDHP. A TDHP could be coupled with an auxiliary boiler to become a hybrid system. In the current draft regulations, this hybrid category is not properly included.
- **The definition of heat generator is missing.** EHPA would recommend the same definition as provided in the draft Regulation 814/2013.
- **Definition of ‘switch temperature boiler off’ ( $T_{fb,off}$ ):** At  $T_{fb,off}$ , the fuel boiler is also not operating (and not only above this temperature) Please refer to new definitions agreed with standardization experts:



- **Switch temperature boiler off** (Tfb,off): for a hybrid unit, lowest outdoor air temperature at which the gas or liquid fuel boiler is not providing any heating capacity as it is switched off by the controls and heat is only provided by the heat pump.
- **Switch temperature heat pump on** (Thp,on): for a hybrid unit, lowest outdoor air temperature at which the heat pump starts providing heating capacity and below which the heat capacity is only provided by the gas or liquid fuel boiler.

Before going into further details regarding the different requirements, EHPA would like to highlight that all requirements shall be based on Pdesignh and not Prated as defined in the draft regulation.

## II. ANNEXES RELATING TO REQUIREMENTS (ANNEXES I & II)

### Ecodesign Minimum Energy Efficiency Limits

The Ecodesign minimum energy efficiency limits for low-temperature (LT) heat pump are higher than the PEF/CC correction. It is unclear why stricter requirements are set for an already highly efficient technology that will be needed to move the market towards decarbonisation. EHPA suggests correcting the value to 150%, which is line with previous proposals and takes into account only the new PEF of 2.1.

Furthermore, we do not understand either the increased values for the thermally driven heat pumps for medium-temperature (MT). We would like to add an extra threshold for low-temperature TDHP that would have a threshold between MT TDHP and LT heat pump.

Finally, we find that the proposed minimum efficiency requirements for hybrids are not ambitious enough. We proposed a two tiers approach: 110% in a first tier and then increase to 125% in a second tier, this based on a PEF of 2,1 and according to EN 14825 test methods. A requirement of 125% will ensure that the heat pump contribution is significant and no additional requirement on the HP contribution is needed. We agree with the conclusion drawn during the Consultation Forum meeting to delete this 25% requirement and ask to increase the minimum efficiency requirements in a second tier.

### Requirements on Sound Power Level

EHPA would like to thank the European Commission and the study team for taking into account our comments on the sound power method (Section 6 of Annex III). However, we would like to suggest the following technical corrections to the maximum requirements of sound power level (Section 3 of Annex II).

From [date] the sound power level of heat pump heaters and hybrid heaters shall not exceed the following values when providing space heating.

Pdesignh	Sound power level (LWA ), indoors	Sound power level (LWA ), outdoors
≤ 6 kW	60 dB	65 dB
> 6 kW and ≤ 12 kW	65 dB	70 dB
> 12 kW and ≤ 30 kW	70 dB	78 dB
> 30 kW and ≤ 70 kW	80 dB	88 dB



The requirements for the sound power level must be related to the reference capacity  $P_{designh}$  instead of heat output of part load condition C.  $P_{designh}$  is characteristic of end-user use and comparable for all devices.  $Prated$  cannot be used either because with the definition of  $Prated, hp$  (@TOL ranging between -7 and -10°C), we are not comparing all products on the same basis. For these reasons, the requirements should be defined on  $P_{designh}$ .

Finally, the requirements for the sound power level should only apply to units below 70 kW, as is the case in the current Regulation. No assessment has been done to understand the impact of these requirements on higher capacity units.

## Requirements related to emissions

EHPA welcomes the proposal on NOx emission requirements. Please consider the alignment in definition of the four categories of thermally driven heat pumps.

## Requirements on material resource efficiency

EHPA supports the inclusion of material efficiency requirements but has several comments and recommendations:

- **Scope limitation:** The scope of Lot 1 is wide and includes different capacity limits products. Spare parts for larger units are not always in stock as there are fewer numbers sold. These products are often custom-made and rely on maintenance contracts for repair. EHPA would therefore recommend limiting the scope to appliances  $\leq 70$  kW.
- **Availability of spare parts:** In line with the revision of Lot 12 or Lot 10, EHPA would like to suggest an exhaustive list of spare parts to be defined, referring to the most critical spare parts to repair the function of the heat pump. Manufacturers, importers or authorised representatives of heat pumps shall make available to professional repairers at least the following spare parts for units  $\leq 70$  kW: compressors, heat exchangers, pressure and temperature switch and sensors, printed circuit boards, fan motors, circulators/circulation pump, expansion devices and four-way valves. For thermally driven heat pumps below 70kW, we recommend the following list of spare parts: heat exchangers, pressure and temperature switch and sensors, printed circuit boards, fan motors, circulators/circulation pump, expansion devices and four-way valves, burner, gas valve, electrodes, and combustion control (if present). Please note that it is a generic list, some parts are required for GAHP and others for GEHP.
- **Access to repair and maintenance information:** The references/ parts numbers and purchases procedure should not be displayed on the public website. Together with the repair and maintenance information, it should be only accessible to the professional repairers. It should be on a secured platform of the manufacturer and handled as confidential data by the recipient.
- **Acceptance and refusal criteria to obtain the data information:** There should be no immediate access to the information. A clear set of rules and procedures need to be established between the manufacturer and the professional repairers registering to get the repair and maintenance information and the list of spare parts: i.e., eligibility status, creating user accounts, verification procedure, acceptance, and refusal criteria (manufacturers should have the possibility to grant deny



request based on fulfillment of defined criteria). Manufacturers should have the possibility if certain criteria are not met to deny the request.

- **Professional repairers must be defined:** For safety and quality insurance reasons, only partner, duly trained and qualified, are allowed to maintain and repair heat pumps. We do not want to see that any installers can have access to spare parts and repairability information and thus claim to be in the position to be able to maintain and repair the heat pump. For this reason, the term professional repairers should be defined as proposed in the draft regulation.
- **Maximum sending time of spare parts:** Ensuring availability of all spare parts within 15 working days may be challenging in some cases. We have concerns on potential non-compliance being found in case 'once' spare parts do not arrive within the time defined due to extraordinary consequences or post/shipping services failure or failure not due to manufacturer's behaviour. Additionally, the requirement could be further clarified when it comes to its verification by market surveillance authorities. It is not clear how they will verify compliance with such requirement. Even though these clarifications might not be necessary into the legislative text, it should be further clarified by the Commission in the FAQ afterwards.

Finally, when considering such requirement, the European Commission should take into account that ensuring availability of spare parts within 15 working days will already be challenging; increase the product costs and waste, and is not in line with the principles of material resource efficiency. Manufacturers will have to create more stock locations to be more flexible and be able to react fast, as Europe covers a very large geographical area (from well-connected locations to remote ones). It should be kept in mind that many areas are difficult to access e.g., many islands across the EU or remote Nordic regions. For those reasons, we urge the European Commission not to lower the delivery time obligations as proposed by some stakeholders during the Consultation Forum meetings. We should keep it align with other existing Lots at 15 days.

In conclusion, we support the inclusion of material efficiency requirements. However, we strongly advise to distinguish units by their size (limiting the scope to appliances  $\leq 70$  kW), develop an exhaustive list of spare parts and to contact logistics consultants and experts, who have knowledge on existing logistics models and are able to provide a detailed overview on the complexity on the logistic planning for spare parts and what are the levels of existing key performance indicators commonly used in the industry.

## Requirements for Product Information

Regarding the information requirements for hybrid units, EHPA would suggest the following wording in the Table 1:

- A. ELECTRIC & TD HEAT PUMP HEATERS/ HEAT PUMP PART OF THE HYBRID
- B. FUEL & ELECTRIC BOILER/ COGENERATION HEATER/ FUEL BOILER PART OF THE HYBRID

## Requirements on monitoring

This is a completely new proposal from the Commission and has never been studied beforehand. We would like to share only preliminary comments at this point, namely:

- The data obtained from this monitoring requirements cannot be used to be compared with testing data nor for verification or conformity purposes. Indeed, on-board monitoring and testing conditions do reflect different uses, testing conditions can never be assumed as equal to in-use conditions.



Consumption and efficiency data are significantly influenced by the user behaviour, the climate, and the overall building system, in addition to appliance characteristics.

- Accuracy issues would also make it extremely difficult to compare and/or aggregate reported data. The differences in accuracy and placement of sensors are crucial factors for comparability of monitoring results. In addition to achieve comparability of data for compliance purpose and EPREL uploading, it will require very high metering technologies, which means high costs for consumers. Which precision needs to be achieved? Is it an estimation or real measurement for energy consumption, heat delivered or/and energy efficiency?
- Uploading on EPREL will be confusing and misleading for consumers, not appropriate for the current situation. Indeed, aggregated data will not be representative of the situation in which consumers will find themselves in their homes, leading to misunderstanding. In addition, we doubt that compliance checks on such data can be conducted in a rapid and efficient manner, leaving the door open for an unfair playing field in term of non-fulfilment of these new obligations and thus negating the value of the proposed option. Would not the efforts for compliance checks of such requirements outweigh the benefit for MSAs to indent potential equipment candidate for checks?
- For fair and adequate comparison, EHPA believes that there shall be a distinction made in between the climate zones and the temperature applications (+ water and brine for ground source HP).
- During the Consultation Forum meeting, we understood that the EU Court of Justice will take care of the ePrivacy and GDPR aspects, would it be possible to share their assessment?
- Since the aim is to collect data after placing products on the market, EHPA would like to suggest moving the requirements on monitoring to the Energy Labelling Regulation.

EHPA would like further explanation and more precision on the goal of these requirements. Which precision needs to be achieved? Is it an estimation or real measurement for energy consumption, heat delivered or/and energy efficiency? What kind of data do we need? How can it help the installers and the consumers? As proposed by the European Commission during the Consultation Forum meeting, EHPA would welcome to have a separate detailed and technical meeting to discuss in further details the concept, practicalities and our concerns on the scope and requirements of this proposal.

### III. ANNEXES RELATING TO TEST AND CALCULATION METHODS (ANNEXES III & IIIA)

Before going in more details regarding the test methods, EHPA would like to share some general recommendations. The legal texts contain too many details on measurements and calculations, which should be left to the standards. This may create some unexpected loopholes. Learning from the winter package, it will increase the number of errors and the need for amending regulations. For this reason, we recommend removing the details on test methods/test conditions from the regulation. EHPA has already sent a detailed analysis of inconsistencies and comments on these two Annexes to the Commission and consultant.

#### Manufacturer declaration

EHPA can support the European Commission proposal regarding the manufacturer declaration of the compressor speed and (minimum) flow rate per part load and full load condition with market surveillance



verifying at these settings. However, we would ask that such information is only shared on a platform with limited access, such as the compliance part of EPREL, and not in the product fiche.

## Compensation method

While we welcome and support BAM investigations on the compensation method, EHPA strongly disagrees with the assumption that the compensation method will be ready to be employed for implementation in this Regulation, and not even with the optional approach proposed in the draft regulations. The compensation method is still not fit for short-term introduction. Further work, including finalization of the ongoing round robin test and sharing of the results, additional testing on other heat pump technologies, higher capacity range and then standardization activities, is needed before assessing whether the method can be introduced.

An assessment of the method's reliability, repeatability and reproducibility has to be carried out for all the products under the scope of Lot 1, and all identified shortcomings highlighted in this assessment fully addressed, before considering whether the methodology is fit for introduction, whether optional or not. The method should not only consider inverter driven small capacity HP but all design types of fixed capacity and modulating compressors. For fair approach, the method shall be applicable to all technologies of heat pumps and hybrids, regardless of the capacity control, heat source/sink and capacity range and shall not induce a drastic increase of test duration, complexity and required resources and thus costs.

The compensation method does not allow to test units having other control than the one on the outdoor temperature. This will be a problem in the future where heating load will be so small that heating systems will have to react really quickly and thus could benefit from adjusting the water supply according to the indoor temperature, in particular in buildings equipped with low inertia emitters. It will be difficult to keep the water supply temperature and the delta T within the tolerance, especially for heat pump control systems not allowing to fix the water supply temperature or heat pump only proposing a couple of heat curves and heat pumps having variable flow circulating pump(s). How is the method applicable to conditions where the heat pumps are cycling on/off?

Testing the heat pumps together with their control system means that any change in the control system could lead to a change in the performance of the heat pumps and thus to a change in the declared performance and label. We see this as a main burden for innovation and heat pump improvement. In particular, in the present context where heat pumps are to offer demand side flexibility and to adapt to local energy production, heat pump control systems are often updated to achieve higher efficiency or higher flexibility.

Finally, compensation method presupposes the presence of a system control as part of the heat pump. This is not prescribed for any products in Scope of Lot 1 and can thus not be basis of the performance testing. Mainly large size heat pumps are supplied with basic control of the refrigerant cycle only to open the door for customized solutions (e.g. smart building control).

It is too premature to start fixing a date of introduction of an alternative test method, while the impact of this method on defined MEPS, energy classes thresholds and tolerances is also still unclear. In the draft regulation, it is written that there is a 10% impact on the HP SCOP values. We would like some clarifications: Why is this information included in the working documents? Will it stay in the regulation? How solid is this value? Will it change from HP to HP and manufacturers to manufacturers? In Annex IIa it is made reference to EN 14825:2018 Annex K (informative): how this shall be understood with respect to any alternative method?



Based on preliminary results from the RRT, it seems testing the unit according to the compensation method requires more technical assistance than expected, which is not in line with the intention of this method. The results also indicate potential introduction of requirement for the tests stands size and controls which feasibility, acceptance and necessary time for implementation are still unknown. Such uncertainties will affect the conformity assessment process and market surveillance.

Finally, the new test methods should be introduced by the responsible standardisation committee CEN TC 113 to ensure the maturity of reproducibility and repeatability.

For all these reasons, EHPA strongly disagrees with the assumption that the compensation method will be ready to be employed for implementation in this Regulation, and not even with the optional approach proposed in the draft regulations.

## Measurements and calculation of hybrid space heaters

EHPA is fully in favour of maintaining both separate and combined methods, not just the combined method. We suggest referring to EN14825 for the detailed description of both methods and avoid such details in the legal text, as it can lead to misinterpretations. For example, the reference to the compensation method as part of the combined test method is confusing and should be deleted.

## T<sub>peak</sub>

EHPA does not support the proposal on the peak temperature. Heat pumps would be penalised for not reaching a temperature (55°C) which is not representative of today's domestic hot water usage. Heat pump is a key technology to decarbonise the heating and cooling sector. We need a wide range of heat pump technology and capacity to support the Commission's targets to reduce energy consumption and carbon emissions towards 2050.

### - State of play & Impacts of the proposal on T<sub>peak</sub> on EU market - the French example

The domestic hot water needs are very different across Europe. The European Commission proposal on T<sub>peak</sub> would have a considerable impact mainly on Southern European markets. We can take as an example the French market, and more specifically the new building market with heat pump and heat pump water heaters.

In 2021 in France the Thermodynamic domestic hot water market (combination HP and HP water heaters) was estimated at almost 200 000 Heat pump water heaters and almost 150 000 combination heat pumps (heat pumps producing space heating and domestic hot water). Since 2012 and the entry into force of the French EPBD tool RT2012, 75% of the new houses are equipped with thermodynamic domestic hot water. As RT2012 requires that the heat pumps and heat pump water heaters are certified, most of these appliances are tested according to EN16147 and certified by an accredited certification body. The French heat pump market is the first market in Europe. From an estimation made at the end of 2020, the combination heat pump stock reaches more than 650 000 units and the heat pump water heaters stock more than 680 000 units. We estimate that about 45% of the products put on the market do not achieve a mean temperature of 52°C during the two draw-offs at 55°C and less than 10% of them if this mean temperature is lowered to 50°C.

Today, most of the appliances are set so that the water temperature reaches 50°C over the 2 draw-offs where T<sub>peak</sub> is equal to 55°C and no comfort issue has been reported. Indeed, a peak temperature of 55°C is not representative of today's domestic hot water usage; the majority of today's domestic hot water usages



are around 40°C (kitchen 45 °C and 40 °C for other comfort applications). Combination heat pumps and heat pump water heaters placed on the French market are adapted on technical and economic aspects for a large development as shown by the above French data. These products are necessary to achieve a mass market with replacement of other products.

- **Health aspects**

Health issues in relation with sanitary/domestic/drinking water are regulated by various pieces of legislation which are for most of them established at member state level; it is also important to remind that national health aspects also covers many issues, such like the need to avoid burning at the usage point; in this case the legislation usually recommends (or prescribes) that water temperature shall not overcome 50°C.

The combination heat pumps and heat pump water heaters adopting the water warming method against legionella are equipped with dedicated programs (automatic cycles) allowing for periodical water warming up; the warm up frequency (monthly, weekly etc.) depends on specific national indications. For what here mentioned, EHPA recommends to not include health aspects in the eco-design and labelling regulations

- **Comfort aspects**

Thermodynamic domestic hot water testing method recommended within regulation 813/2013 and 814/2013 is largely inspired from EN16147 testing standard. This testing standard aims as assessing the energy efficiency of heat pump water heaters and combination heat pumps while providing comfort in adequation with the end-user's need. In particular, tapping profiles and their draw-off mimic domestic hot water daily usage and aim at ensuring that both the water temperature is high enough and sufficient energy is available to fulfil the hot water need.

There are two draw-offs where  $T_{peak}$  shall reach 55°C. These draw-off were initially named: bath draw-off and corresponded to dish washing draw-offs which logically occur at 12h45 and 20h30. At the time where EN16147 was originally developed on the basis of Mandate 324 describing the load profiles for all water heaters, it was commonly accepted by experts that 55°C water temperature is not essential to comfort as water at 55°C is generally far too hot to be used without mixing it with cold water. As a consequence, the option for a virtual backup heater was introduced in EN16147 for the dish washing draw-off, and exclusively for the dish washing draw-off.

Water tanks are generally heated up overnight and may be re-heated once during the day. The water temperature where the heating period is completed needs to be high enough so that each and every draw-off of the tapping profile can be successfully completed. Heat losses and a couple of draw-offs occur in between the tank heating period and the dish washing draw-off. As a consequence, in order to achieve an average temperature being 55°C over draw-off occurring at 12h45 and 20h30 the water is to be heated up to 58 or 59°C, or the water tank has to be heated more often. The vast majority of heat pump water heaters and combination heaters can easily reach 55°C while maintaining a high energy efficiency level and unless specifically required by national laws, factory setting of domestic hot water temperature is set to 55°C or below. Increasing the water temperature by 3 to 4°C, or increasing the tank heating period frequency will dramatically reduce the overall energy efficiency of the heat pump water heaters and combination heat pumps without bringing any additional comfort. More evidences have been provided in [EHPA position paper](#) issued on 16<sup>th</sup> July 2020.



- **Environmental & Economical aspects**

A hot water storage temperature higher than 55°C (necessary to comply with a T<sub>peak</sub> of 55°C) generates higher standby losses and lower efficiencies; the consequence will be an increase of CO<sub>2</sub> emissions (in contrast to EU decarbonisation targets) and higher end user energy costs.

Considering the above-mentioned reasons, EHPA recommends that regulations 813/2013 and 814/2013 should not deviate from their primary objectives which are to promote energy efficiency and to help end-users choose the more efficient product. **In that prospective we recommend reducing the peak temperature to not more than 50°C with the current load profiles so that heat pump can achieve the temperature without the virtual back-up heater.** This minimum value to the reference hot water temperature should be the same for all technologies. This option would allow for a fair comparison in between products without destroying the COP of heat pumps.

During the consultation forum meetings, we understood that there are hesitations from Member states, the European Commission, and the consultant regarding the proposed T<sub>peak</sub> reduction to 50°C. EHPA believes that our compromise would be an easy and clear approach which leaves no room for misinterpretation or grey areas of the legislation. All technologies will be able to reach 50°C which would create a fair and level playing field between heat pumps and between all products. The comparability from heat pumps with other technologies will also increase as all products can be tested under same conditions. Secondly, all discussions about technical feasibility and correction calculations will stop. The technology is too complex to come to correction factors which represent all different technology approaches. This huge hurdle is just prevented because it is not needed.

To conclude, EHPA believes that reducing the peak temperature to not more than 50°C with the current load profile is a fair compromise to ensure a level playing field with all technologies.

Please note that if EHPA proposal goes forward, there are two side effects to take into consideration. First of all, the manufacturers will have to re-test all the products which will require time and additional costs. This is why we would kindly ask some flexibility in terms of time to re-test all the products. Secondly, this change might have an impact on the minimum energy efficiency, and we consequently might need to adapt the minimum efficiency requirements. After an assessment of the impact of the agreed new peak temperature, we would come back to you with adapted minimum energy efficiency values.



## CHAPTER 2: Energy Labelling Regulation

### I. MAIN ACT (ARTICLES 1 TO 10)

#### Definitions

EHPA would like to highlight that some important definitions are missing, namely hot water storage tank, back-up immersion heater, and solar hot water storage tank. EHPA would recommend the same definition as provided in the draft Regulation 812/2013

### II. ANNEXES RELATING TO LABELLING CLASSES (ANNEXES I & II)

#### Rescaling

EHPA is supportive to the current process of re-designing the energy label. Within this process, we ask the European Commission and Member States to take into consideration the administrative and operative consequences which this procedure and changes create for the industry, market surveillance authorities and consumers.

EHPA supports a single step rescaling as a result. It should include:

- the introduction of the new conversion coefficient (currently 2.1) giving a positive signal to end users,
- a rescaling from A-G,
- a definition of energy classes boundaries in a way that increases the differentiation between boilers and HPs,
- the display of the seasonal energy efficiency ( $\eta_s$ ) for average climate on the label, and
- the provision of a full 2-year transition period

The implementation of this “all-in-one” relabeling and rescaling should happen at a pace compatible with market reality, considering technical and-commercial processes of the industry and leaving sufficient time to the industry and market, especially consumers, to adapt to all the changes. Therefore, we would like to flag that it is necessary to inform the manufacturers of the foreseen measures as early as possible and to provide a full 2-year transition period between the entry into force and the applicability of the new label.

#### Energy Efficiency Classes

EHPA has the following remarks on the medium temperature (MT) and low temperature (LT) labelling scales:

- MT: The label threshold for the B class is too high to allow for different heat pump technologies to achieve. Air source heat pumps should also be able to achieve the B class. For this reason, we suggest changing the current value of 180% to 166%, which is in line with the proposal from the interim report of VHK and allows for more differentiation in the B class.
- LT: the thresholds for low temperature have increased a lot. In the current proposal the difference between the LT and MT energy efficiency class jumped to an average of eighty percentage points



compared to 25 percentage points in the previous regulation. Due to this, many heat pumps will have a C label for MT and a D label for LT. This might give the impression that heat pumps for MT applications are more efficient than for LT applications. Furthermore, the approach seems to have changed, there is no longer an LT heat pump label. So both MT and LT scales are added on one label, which – with the current proposed thresholds – will send the wrong message.

The water heating efficiency is also quite concerning with very ambitious target for profile M and above and very different approach to class width that we doubt could ensure a fair competition between technologies. It could also result in HP ranking B or C on space heating efficiency and D for DHW especially with the potential modification on Tpeak.

While thermally driven heat pumps (TDHP) do not have a low temperature category in Ecodesign "minimum energy efficiency limits", they are mentioned on the label for space and combination heaters with low temperature. We would like to know the reason behind this choice. EHPA believes that thermally driven heat pumps and hybrids should have capability to be declared as low temperature as well as electric heat pump.

Finally, we would like to highlight several typographical errors, one on the water tank energy efficiency classes, we suggest the following replacements for E :  $mvc + 16,66 + 8,33 \cdot V^{0,4} \leq S < mvc + 21 + 10,33 \cdot V^{0,4}$ . The second typographical error is on the water heating energy efficiency classes, we suggest the following replacements for L-XL-XXI-3XL-4XL:

- B ~~200 ≤ hwh < 160~~    160 ≤ hwh < 200
- C ~~160 ≤ hwh < 120~~    120 ≤ hwh < 160
- D ~~120 ≤ hwh < 100~~    100 ≤ hwh < 120
- E ~~100 ≤ hwh < 90~~     90 ≤ hwh < 100
- F ~~90 ≤ hwh < 45~~     45 ≤ hwh < 90

### III. ANNEXES RELATING TO INFORMATION REQUIREMENTS (ANNEXES III & IV)

#### Packages

The boundary in between product and package is not clear, neither with regards the label nor the product fiche. Clarification is needed for the temperature controls. Do the energy efficiency classes and values of products already include the temperature control bonus as suggested on the label template?

While EHPA agrees with the introduction of package made of space heater and storage tank, we fully disagree with the proposed formula for heat pump:

$$\eta_{wh} = 0.95 * f_{COP,wh} * \frac{COP_{rated} * f_{35^{\circ}C}}{CC} * \frac{Q_{ref}}{Q_{ref} + S * 24}$$

COPrated is not defined. We assume that COP means COPrated. COP shall be measured with sanitary water regime 60/45 for all refrigerants but CO<sub>2</sub>. What does it mean? What are the test conditions (C condition means +7°C on the outdoor temperature)? What is the test procedure to be followed? For low temperature heat pumps, the conditions are 10/35. What does COP at 35°C temperature supply means: inlet or outlet temperature? Which delta T?  $f_{35^{\circ}C} = 0.5 * COP$  (at 35°C supply temperature) + 0.5: what are the conditions for supply temperatures? 35°C does not make sense for domestic hot water. How the load profile is to be chosen? Where COPrated and the load profile can be found? How should the heat exchanger surface be taken into consideration (not only for hps but also for packages of boilers +storage tank)?



## Introduction temperature regime at 65°C

EHPA would like further clarifications on the proposal for temperature regime. It is not clear whether the indication of performance data at 65°C is mandatory or not.

In any case, EHPA does not support the introduction of an additional temperature regime, including optional, for declaration at 65°C. Creating a rating application at 65°C will send the wrong signal to consumer. It could be interpreted as Ecodesign encouraging end users to use higher temperatures and not improve their building to require lower heating temperature supply. It would send the wrong messages to end-users which goes against eco-design basic principles, EPBD and the targets for the renovation wave.

The main goal of the Ecodesign is to make possible for the consumers to compare products between each other. Showing the 65°C regime will not help comparing products between each other or support the uptake of heat pumps on the renovation market. Even though, numerous heat pumps are able to reach 65°C or higher, other heat pump systems are especially designed for medium and low temperatures, only. Heating systems with temperatures higher 55°C are not the standard.

Instead of introducing an optional regime for declaration at 65°C, EHPA would propose to add the following sentence in the regulation: "performance declared for the 45 and/or 65°C application(s), if voluntarily declared, should be measured and calculated according to the conditions defined in the harmonized standard or using other reliable, accurate and reproducible methods that take into account the generally recognised state-of-the-art methods. The measurement and calculation shall meet the conditions and technical parameters defined in the regulation."

## Energy Label

As explained in previous positions, EHPA believes that we should maintain the label as simple, clear, and understandable as possible for the end-user. All information on the label should be understandable by the consumers. There are too many symbols which also are not self-explanatory. All symbols should be described so that they are clearly understood. It is, for example, hard to distinguish a hybrid heat pump and a gas heat pump (same symbols). EHPA also believe that too much information could water down the value of the label for end-users. The QR code is a very easy bridge for customers to retrieve more detailed data when needed.

For combination heat pumps, the water heating and space heating function should be displayed on the same label. This is the case for other combi heaters, there is no reason to do it differently for heat pumps combination heaters.

EHPA supports the proposal to display the seasonal energy efficiency  $\eta_s$  with the rated heat output for average climate on the label. Due to the rescaling, many products will be situated in the same label class. If the  $\eta_{s,HP}$  value is added, it will provide more differentiation for products within the same class and in between classes.

In addition,  $\eta_{s,HP}$  is to be mentioned on the label. As  $\eta_{s,HP}$  is measured at TOL, which can be any temperature between Tdesignh (-10°C) and -7°C the comparison of products cannot be strictly made on the same parameters and the end-user is not aware of that on the label itself.

Finally, EHPA would like some clarification on how to manage the configuration combination heat pump without solar assistance.



## Product Information Sheet

As explained in our position paper on Lot 2, It is understood in both energy labelling regulations that the product fiche template as provided in the drafts shall be used. However, EHPA believes that the design of the product information sheet should be up to the manufacturer.

The information regarding “Sound power level indoor” seems to be missing for both space heating of heaters and water heating of combination heaters.

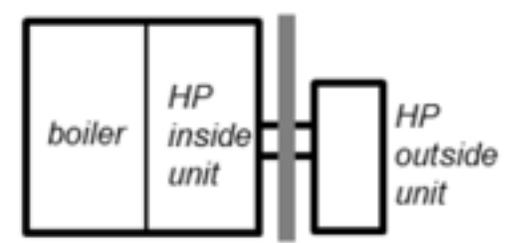




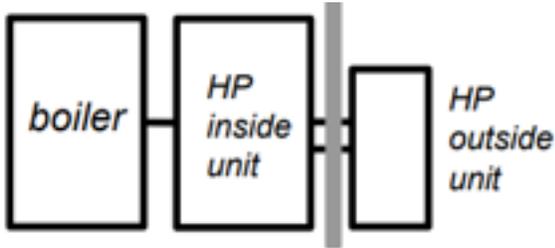
## ANNEX 1: Description of TDHP solutions

EHPA would recommend that the European Commission to clearly include these solutions in the regulations.

- PRODUCT 1 : As an Integrated combination heater : A thermally driven heat pump + an auxiliary boiler



- PRODUCT 2 : As an un-integrated combination heater : A thermally driven heat pump coupled with a separated auxiliary boiler.



- PRODUCT 3 : A thermally driven heat pump

