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Position of the European Heat Pump Association on the draft documents on the implementation measure on Lot 1

In the light of the recent modifications to the draft document on the implementing measure for lot 1 (boilers) to the Directive on energy using products (2005/32/EC) the **European Heat Pump Association would like to provide its position.**

The association and its members welcome the proposed measure. EHPA is aware of the energy using nature of heat pumps and supports any effort towards increased efficiency and towards greater transparency on the performance of heat pump units. **The association strongly believes that heat pump technology can contribute meaningfully towards reaching the EU's energy and climate targets.** Expected contribution depends on strong growth of heat pump technology in the market place and as such on consumer decisions.

Consequently, EHPA stresses the need a set of sensible requirements and for a transparent and understandable efficiency label. As such we welcome the improved usability and documentation of the calculation model as presented. We believe that an efficiency label that compares products with equivalent functionality is appropriate to channel purchasing decisions towards energy efficient devices.

However we feel that some issues require more consideration to contribute towards a powerful Directive prepared to really change the market place.

1. Focus of the Implementing measure (system boundary)

While EHPA is convinced that eventually, the system needs optimization to deliver appropriate and efficient comfort to the consumer, we believe that the whole energy use related legislation can benefit from a clearer focus. The current working documents on ECODESIGN WD Lot 1 associate "heat-generator" with "system" and defines "boiler", "product" and "specific energy efficiency (eta)" in a misleading manner.

As the working document is part of the implementation of Directive 2005/32/EC, it is worthwhile to reflect on initial demand of this Directive: Referring to Article 15, as well as Annex I (Part 1 and 3), it is quite clear that requirements should be set on ECODSIGN for manufactured products (self-contained, assembled by one manufacturer, to be installed by others, in one building, in one locality, in one system).

The installing-contractor of the product is not the “manufacturer of the product”, but the assembler of the system in the building. As the manufacturer of the product is responsible for the environmental impact of the product the manufacturer should only be made responsible for that phase of the product production and installation process, that he can influence!

Ecodesign requirements on the installed system are thus beyond scope of the Ecodesign Directive and are misleading. While the real-life Seasonal Performance of the EuP heat-generator, is predictable and therefore it can be CE certified, the real-life Seasonal Performance Factor of the installed heat-generator with system (EuS) is not. Any calculation will in the end be only an estimation of real life performance.

Proposal

In consequence, EHPA recommends to set requirements only for the product as manufactured in series and not for a larger system. Only such approach justifies the CE Marking of the product.

2. Heat sink side

Heat distribution via radiators vs. heat distribution with under-floor/wall heating systems

The maximum temperature in the heating system has a major impact on the efficiency of a heat pump. A heat pump functioning at 65°C flow temperature consumes roughly two times more electricity than if it was functioning at 35°C flow temperature. In practice when installing a heat pump, wherever possible a low temperature heat distribution system (low temperature radiator or under-floor heating) will be preferred to a high temperature system.

For a good and real evaluation of energy performance of HPs, their seasonal performance shall be calculated with the correct conditions of operation, i.e. floor heating system (flow temperature 35°C), fan coil units (flow temperature: 45°C), or low temperature radiators (flow temperature : 55°C). It is rather unusual to connect heat pumps to high temperature radiators as industry is aware of the fact that in this case the technology can not be operated efficiently!

Proposal

EHPA strongly recommends taking into account different heat sink temperatures in the evaluation of heat pumps seasonal efficiency.

3. Primary energy conversion factor and indirect carbon emissions

The values retained in Document 3 for the “Primary energy conversion factor” and the “indirect carbon emissions” of respectively 2,5 (page 11) and 0,43 kg/kWh (page 10), are seen as suitable from today’s perspective.

However, both values are most certainly going to evolve over the next years, due to technical improvements and a change towards more renewable energies in the electricity production mix.

Proposal

EHPA suggests that both values for the “Primary energy conversion factor” and the “indirect carbon emissions” should be reviewed in regular intervals and should be based on EU average values.

In order to harmonise the calculation method for all type of energies, EHPA recommends taking into consideration primary energy factors not only for electricity, but also for fossil fuels.

4. Load profiles

EHPA members are not convinced that the concept of different load profiles is appropriate. This approach seems difficult to explain to consumers across Europe and even professionals will not automatically understand what is meant. Furthermore due to differences in EU building stock, the same label (i.e. M) may apply to different types of buildings. With regard to our comment on the system boundary (point 1) we believe that the use of load profiles based on the buildings energy demand may be outside the scope of the Directive. Reference to the buildings energy demand sets a system boundary that is much too broad to be useful in executing the implementing measure.

Proposal

EHPA suggests to reconsider this approach and to evaluate, whether other options, for example an evaluation based on the nominal capacity of the heat pump unit or generator system, could be better suited to reach the aim of the implementing measure.

5. Test conditions and calculation method

The EHPA welcomes the introduction of a “degradation factor” in the model, but the working document does not mention any reference to the standard prEN14825, which is on its way to become the reference for testing and rating of heat pumps at part load conditions.

EHPA suggests to make a reference to the prEN14825 for part load efficiency calculations.

EHPA welcomes the integration of different climatic conditions using the BIN method. While the association has general doubts about the scope of the current implementing measure, it would like to stress the advantage of using established

standards over the development of new methods. As such, we would like to point out that a standard for SPF calculation exists already in EN 15316. From our perspective, this standard should be adhered to when aiming at calculating Seasonal Performance Factor. Input to this calculation should be based on measurements according to EN 14511 and according to prEN14825 (once finalised). For the moment it is unclear whether the standard has been fully integrated in the foreseen calculations.

Question and proposal

Consequently EHPA would like to raise the question whether the standard EN15316 has been strictly followed in the calculation model. From the associations perspective a strict adherence to this standard is necessary to avoid further complexity/confusion for heat pump manufacturers, system designers and installing contractors.

6. Leakage of refrigerant

The value taken in the Document 3 for the annual leakage of refrigerant during the use phase (set at 3%/year) is acceptable.

However, EHPA believes that there is a need for an additional product class of hermetically sealed appliances. The F-Gas Regulation sets the leakage limit for these so-called “hermetically sealed systems”, to a maximum of 3g/year. Actual measurements show leakage rates as low as 1g/year, for a total refrigerant charge of more than 1 kg and less than 6kg.

Proposal

Consequently EHPA suggests to establish the product class of hermetically sealed systems, and set a maximum leakage rate of 0,3%/year. The leakage rate of 3%/year would apply for all other appliances.

7. Minimum efficiency requirements

The implementing measure foresees to set minimum efficiency requirements for heat pumps. For large heat pumps this requirement is set as reference to the requirements foreseen for promotion of heat pumps (Article 13, paragraph 6 of the RES Directive (2009/28/EC)). This Directive encourages Member States to **promote those heat pumps that fulfil the requirements of the Ecolabel for heat pumps (Directive 2007/42/EC)**. As the “Ecolabel for heat pumps Directive” applies only to heat pumps up to 100kW, the requirement as set would exclude all heat pumps above 100kW from the market.

Proposal

EHPA requests to remove this reference. EHPA would also like to point out that the calculation of SPF as set in the RES Directive is not defined yet but will with high probability be based on a different method than that

proposed in the Ecodesign Directive. As such, the reference is not appropriate and the calculation of RES as it might result from the implementing measure is not applicable for use in the RES Directive and vice versa.

We trust that these comments are of value and would appreciate their consideration. EHPA is looking forward to future developments of this implementing measure and would gladly support the finalisation of the working documents by providing input where deemed necessary.

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The European Heat Pump Association

EHPA was established in the year 2000 as a European Economic Interest Group to promote awareness and proper deployment of heat pump technology in the European market place for residential, commercial and industrial applications. EHPA aims to provide 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.

The association has currently 73 members from 21 countries representing all stages of the heat pump value chain.