

# New Ecodesign regulations from the Commission



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The Ecodesign Framework Directive 2009/125/EC establishes a framework for setting ecodesign requirements for energy-related products. It is a key instrument of EU policy for improving the energy efficiency and other aspects of the environmental performance of products. The Eco-design directive does not set binding requirements on products by itself, but it provides a framework (rules and criteria) for setting such requirements through implementing measures. For products intended to consumer use, binding rules for energy labelling are usually prepared in parallel with ecodesign regulations. In the author's previous articles in REHVA Journal 1/2013 and 4/2013, some main principles and a few processes of preparation were introduced. This article gives some further news on "hot topics" relevant to HVAC, plus brief notes on a few new studies.

**Keywords:** ecodesign, energy related products directive, boilers, solid fuel boilers, space heaters, residential ventilation, ventilation units

The preparation of the implementing measures is a long process - the preparatory work in the "Lots" and other phases are introduced in more detail on REHVA EU Regulations webpages, at <http://www.rehva.eu/index.php?id=79>.

REHVA, as an acknowledged stakeholder, was invited by DG Energy to submit a position paper by end of September as part of the review of the Energy Labelling and the Ecodesign Directives. With contribution of the members and supporters, the REHVA submitted the position paper, which was published in the REHVA News section in the REHVA Journal October issue (5/2013) and at the REHVA website: [http://www.rehva.eu/fileadmin/news/ecodesign\\_labelling\\_rehva\\_position.pdf](http://www.rehva.eu/fileadmin/news/ecodesign_labelling_rehva_position.pdf).

The position paper, generally speaking, supports the main principles of the Ecodesign and Energy Labelling Directives, but also expresses deep concern on many features of the legislation process and gives a few recommendations to improve coordination with other linked legislation, standardization and certification processes, to extend stakeholder consultation to cover the entire regulatory process, to pay attention to health and environmental issues in parallel with energy issues, and to improve the information flow to stakeholders about the rapidly changing and growing EU regulations.

The position paper also states "...Many product groups have already voluntary certifications systems including the performance criteria developed by industry. Very few of these have been acknowledged during the preparation of the regulations. These certification systems are well established in the market and should be used as a starting point when developing new regulations." For a few product groups, however, existing certification schemes are applicable even now and can be further developed to offer a verification programme completely in line with new EU regulations.

## Boilers and space heaters – some highlights from discussions

As informed in REHVA Journal 5/2013, the new Labelling and Eco-design regulations for liquid and gaseous fuel boilers and water heaters have been published in the Official Journal in September 2013. Energy labelling criteria for space heaters are described in an article in the same issue.

The status of the regulatory process for solid fuel boilers and local space heaters was introduced in REHVA Journal 4/2013.

For solid fuel boilers (Lot 15), the upper limit of rated heat output was extended from 500 kW to 1 000 kW, bringing some new manufacturers within the scope. This change has caused some concern among stakeholders, who have serious doubts about the availability of reliable test facilities for large >500 kW boilers.

As a whole, the new proposal received several critical comments before the Regulatory Committee meeting. The most critical comments concerned the changed emission requirements which, according to several national responses, were considered too stringent. Some comments stated also that the required low concentrations cannot be measured with reasonable accuracy. This indicates a need for new measurement methods and equipment, possibly new or completely revised standards and pre-normative research.

Instead of step by step tightening requirements, now all main requirements would enter into force four years after publication of the regulation. This is also one reason of concern, because the stakeholders' feedback indicates major needs for product development and also major changes in production lines.

At the time of writing this article the situation is still open, because no consensus was possible at the scheduled meeting of the Regulatory Committee.

For local space heaters (Lot 20), as in the case of solid fuel boilers, changes have also been made in the proposals, including the scope and the list of excluded products. In the case of heaters using solid fuels, the emission limits were regarded by stakeholders unrealistic as in the case of solid fuel boilers. And it looks also very difficult to give a regulation which treats electrical space heaters in an equal way as heaters using other energy carriers. At the time of writing this article, it looks possible that the regulation will be split into two, one for heaters using solid fuels (possibly merged with solid fuel boiler regulation), and one for electrical local space heaters.

## Ventilation units – approaching the final voting

For Ventilation units, the Consultation Forum was held in October 2012 to discuss the draft regulation. The draft was based on the “Ventilation” parts of ENER Lot 10 and ENTR Lot 6. One key issue there

is that the borderline between “residential ventilation units” and “non-residential ventilation units” has now been defined. Units with fans of less than 125 W power input were regarded as “residential”, and larger ones as “non-residential”. The proposed regulation, however, gives the manufacturer the possibility to decide the category of the unit independently of the size. Labelling requirements are being prepared for “residential ventilation” only.

The main requirements were proposed for the efficiency of heat recovery, which has been proposed to become mandatory in all supply/exhaust ventilation units of all sizes, and for the maximum energy consumption of the fans, expressed in different terms for residential and non-residential units. For residential units, the specific power input (SPI) shall not exceed a given maximum value, and for non-residential units it was proposed to a minimum fan efficiency and a maximum face velocity in the unit, as defined in EN 13053.

In September 2013, a new Working Document was sent to the Member States for comments, in order to prepare the final voting at the Regulatory Committee, scheduled to be held in December 2013. Now the borderline between “residential” and “non-residential” units is expressed in a different way, instead of fan power this is now related to the nominal air flow, as follows:

*“Residential ventilation unit” (RVU) means a ventilation unit fulfilling one of the following conditions:*

- (a) *the maximum flow rate does not exceed 250 m<sup>3</sup>/h;*
- (b) *the maximum flow rate is between 250 and 1 000 m<sup>3</sup>/h, and the manufacturer declares its intended use as being exclusively for a residential ventilation application”*

For residential ventilation units, the main requirement is now expressed as a “Specific Energy Consumption for ventilation per m<sup>2</sup> heated floor area of a dwelling or building” (SEC). The main parameters affecting the SEC value are the recovered heat from extract air and the fan energy consumption, but also many other parameters like the type of control of the unit, the motor and drive type, and possible defrosting are also taken into account. This SEC value was actually introduced already in 2012 but only in the Consultation Forum draft for Labelling, not for Ecodesign. The SEC value actually depends on the climate, which also makes both the definition and the calculation very complicated. So, the SEC value cannot be purely

regarded as a value for a product only, and it is interesting to see how stakeholders in different countries and climates will find it. For most of the parameters, default values are given in the draft Regulation.

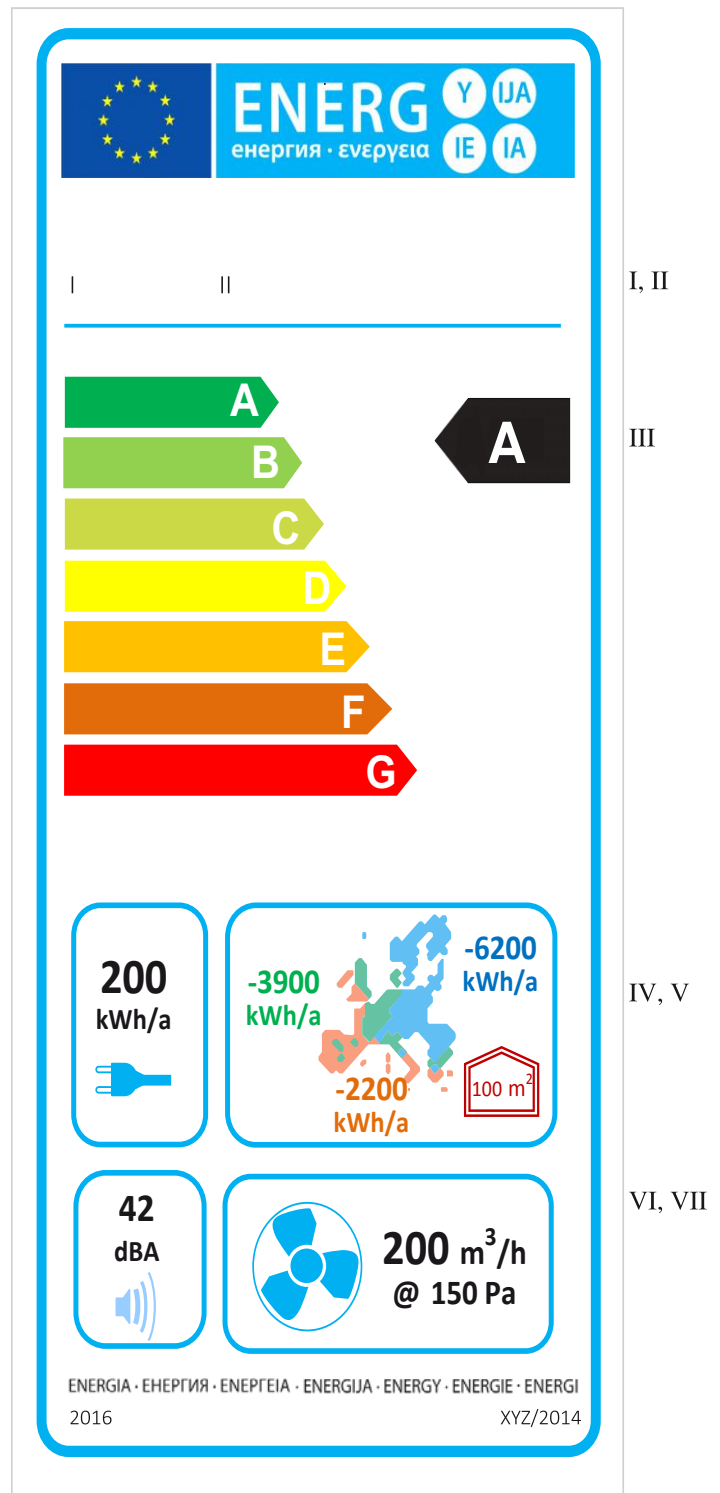
The SEC value also determines the energy class in the energy label of residential ventilation units. The label shall also include the following information, see **Figure 1**:

- annual electricity consumption
- heating energy saved (in “cold”, “average” and “mild” climates)
- sound power level
- maximum flow rate.

The most significant change for non-residential ventilation units was to replace the fan efficiency and face velocity requirement by the Specific Fan Power (SFP). However, the SFP is defined in a new way, different from the definition in the current EN 13779, here as “internal specific power of ventilation components”, taking into account only the filters and heat recovery components and excluding from the calculation all air treatment components. The ongoing revision of EN 13779, however, can give an opportunity to bring the product and system requirements in line with each other.

The proposed maximum internal specific fan power of ventilation components is depends on the nominal air flow and the type of heat recovery unit. In addition, the equation to determine the maximum internal SFP includes an “efficiency bonus” if the heat recovery system has an efficiency higher than minimum, and also a “filter correction” which is kind of penalty in case the ventilation unit is equipped by lower class filters than a “reference configuration”, in which the supply side filter is a clean fine filter F7 and exhaust side filter is a clean medium filter M5. In addition, the maximum SFP depends on the nominal air flow of the unit.

If the proposed regulations are approved at the Regulatory Committee, then the requirements will enter into force in two steps: first in 1<sup>st</sup> of January 2016, and more stringent requirements in 1<sup>st</sup> of January 2018. For example, the minimum efficiency of a non-residential ventilation unit with a run-around heat recovery will be 63% from 1<sup>st</sup> of January 2016,



**Figure 1.** Proposed layout of the energy label for residential ventilation units. The label shall provide the following information: (I) supplier’s name or trade mark, (II) supplier’s model identifier; (III) energy efficiency class - energy efficiency is indicated for an ‘average’ climate; (IV) annual electricity consumption, (V) annual heating saved (AHS) with a map of Europe displaying three indicative heating seasons and corresponding colour squares, accompanied by a ‘house’ symbol with the text ‘100 m<sup>2</sup>’ (VI) sound power level (LWA) in dB, (VII) maximum flow rate in m<sup>3</sup>/h

and 68% from 1<sup>st</sup> of January 2018, for other types of heat recovery system the minimum is 67% (2016–) and 73% in 2018.

### Central heating and cooling products – Consultation Forum

Compared to boilers and ventilation units, these products are “one lap behind”, Consultation Forum in mid-December 2013, indicating the final voting in Regulatory Committee approximately in autumn 2014.

The products covered by the original “Lot 21” are now accompanied by a few groups of cooling products. The entire scope of the draft regulation is the following:

- a) air heating products, with a nominal load or rated heat output not exceeding 1 MW,
- b) cooling products with a rated cooling output not exceeding 2 MW.
- c) fan coil units;
- d) high temperature process chillers.

The Regulation shall not apply to products meeting at least one of the following criteria:

- a) products covered under the scope of Regulation on ecodesign requirements of local space heaters;
- b) products covered under the scope of Regulation No 206/20115 on ecodesign requirements for room air conditioners and comfort fans;
- c) chillers with leaving chilled water temperatures of less than +2°C;
- d) products designed for using predominantly biomass fuels;
- e) products using solid fuels;
- f) products that supply heat or cold in combination with electric power (‘cogeneration’) as a result of a fuel combustion or conversion process;
- g) products within the scope of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control)

So, the draft regulation is intended to cover products for several different purposes, some of these products are excluded from other regulations. The regulations are proposed to enter into force in three tiers, starting from 1<sup>st</sup> of January 2017. It may also be possible to split up the proposed regulation into more product-specific ones, but this will be subject to the outcome of the Consultation Forum. It will therefore be important to manufacturers and other stakeholders to actively follow the later stages of the regulatory process. ■

### New preparatory studies

- **ENER Lot 28** Ecodesign Preparatory Study on pumps for private and public waste water and for fluids with high solid content. Project website: <http://lot28.ecopumps.eu/>
- **ENER Lot 29** Ecodesign Preparatory Study on pumps for private and public swimming pools, ponds, fountains and aquariums, as well as clean water pumps larger than those regulated under Lot 11. Project website: <http://lot29.ecopumps.eu/>
- For both Lots 28 and 29, second stakeholder meeting was held at the end of May 2013, and third meeting was originally scheduled for December 2013. The “Document” pages on project websites contain links to the most recent task reports and also the outcomes of second stakeholder meetings.
- **ENER Lot 30** Special motors (not covered in Lot 11): Requirements for electric motors are specified in Regulation 640/2009. The aim of lot 30 is to identify improvement potential outside the scope of lot 11. See <http://www.eco-motors-drives.eu/Eco/Documents.html> for project documents. The second stakeholder meeting was held in February 2013, and an intermediate stakeholder meeting in June 2013.
- **ENER Lot 31** Compressors: Project website: <http://www.eco-compressors.eu/> The scope of this preparatory study is described briefly as: “Lot 31 - Products in motor systems outside the scope of the Lot 30 and the Regulation 640/209 on electric motors, in particular compressors, including small compressors, and their possible drives.” The first stakeholder meeting was held on 14 March 2013, and the outcome of the meeting is available on the project website.

For each study, registered stakeholders will receive announcements of new published documents and coming meetings by e-mail.