

Ecodesign of energy related project – progress with Boilers and water heaters

After a long delay, the draft regulations for boilers (Lot 1) and water heaters (Lot 2) have proceeded, and the relevant documents for eco-design, labelling and testing and calculation of boilers and water heaters are in interservice consultation, and have been submitted to Member States for review in February 2012, and voting in Regulatory Committee is expected in autumn 2012. The following information is taken from the draft regulation texts, with just a few explanatory notes added.



Boilers

The scope of Boiler Regulation will include boiler space heaters, cogeneration space heaters and heat pump space heaters providing heat to water-based central heating systems for space heating purposes, and boiler combination heaters and heat pump combination heaters providing heat to water-based central heating systems for space heating purposes and additionally providing heat to deliver hot drinking and sanitary water. These heaters are designed for using gaseous or liquid fuels, including from biomass to some extent, electricity and ambient or waste heat.

The boiler regulation concerns a wide range of products, and for different products and product character-

istics (seasonal space heating efficiency, water heating energy efficiency, sound power level and emissions of nitrogen oxides), the entry into force of requirements is different, starting from two years from entry into force of the Regulation, as given in Annex II of the draft regulation.

At the same time, the Commission has submitted a draft regulation establishing requirements for energy labelling of, and the provision of supplementary product information for heaters with a rated heat output ≤ 400 kW, packages of space heater ≤ 400 kW, temperature control and solar-only system ≤ 400 kW and packages of combination heater ≤ 400 kW, temperature control, solar-only system ≤ 400 kW and passive flue heat recovery devices.

Water heaters

Water heaters Regulation should be limited to water heaters which are dedicated to providing drinking and sanitary hot water. Products providing heat both for space and water heating purposes should be covered by a separate Regulation.

From one year after this Regulation has entered into force the energy efficiency of water heaters shall not fall below the minimum values given in Annex I of the regulation. More stringent requirements shall enter into force two years after the first date.

Also for water heaters, a draft regulation for energy labelling has been submitted - The products to be covered are conventional water heaters, heat pump water heaters and solar water heaters with a rated heat output ≤ 400 kW, hot water storage tanks with a storage volume $\leq 2\,000$ litres and packages of water heater and solar-only system.

Huge savings potential with improved efficiency of boilers and water heaters

The cost effective savings potential from Boilers and Water Heaters is very large. The products account for almost a quarter of EU CO₂ emissions. The studies show that at the LLCC level the savings potential is around 30%, or around 6% of total EU CO₂ emissions (current LLCC level v. average currently sold). The proposed regulations will lead to an overall reduction in CO₂ emissions of about 190 Million tonnes in 2020 (120 Mt boilers, 70 Mt water heaters) and over 280 Million tonnes in 2025 (180 Mt boilers, 100 Mt water heaters). They represent an estimated overall annual saving to the public (after higher investment costs) of around 60 Billion € in 2020 rising to 150 Billion € in 2025 (over 1% of GDP).

The overall effect on the manufacturers and installers of boilers and water heaters should be positive. The estimated total revenue for the purchase and installation of boilers and water heaters doubles by 2015 (compared to BAU) and by 2020 is around € 95Billion as against €45 Billion under BAU.

The major market transformation is needed to achieve these savings will not be easy to achieve in practice, this may cause a number of problems. However, there has not been any major disagreement that the savings suggested are technically feasible, and cost effective.



The analysis shows that it is not enough that the burner/heat exchanger assembly is efficient at steady state, but that it should be part of a well designed system comprising heat generator, pumps, controls, and perhaps heat pumps or solar etc. that are optimized to work efficiently in response to the varying demands (and operating conditions) placed on it. The model presented in annex gives a robust estimate of how well any particular combination can be expected to do this. Some of crucial elements appear to be:

1. Smart controls to ensure that the individual rooms are heated only as much as required.
2. Hydraulic balancing (and controls) to minimize the water return temperatures.
3. Appropriate contribution of renewables (solar, heat pumps etc.)

The proposal for Ecodesign regulation for water pumps has been approved by the European Council on 10 Feb.

More information at:

http://ec.europa.eu/energy/efficiency/studies/ecodesign_en.htm

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