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Climate protection: EU sets particularly efficient circulating pumps as standard

EU-wide regulation will save some 11 million tonnes carbon dioxide annually by 2020

Circulating pumps are present in every house, yet hardly anyone knows how much electricity they consume although they easily rank as one of a household's biggest power consumers. The use of highly efficient circulating pumps saves energy and CO₂, and can save consumers money as well. Therefore, on 22 July 2009, the EU Commission adopted certain minimum efficiency standards in circulating pumps. As of 2013 inefficient circulating pumps will disappear from the market in two phases, which will reduce power consumption in all EU households by 23 terrawatt hours per year (TWh/a) by 2020. This will prevent the emissions of some 11 million tonnes of harmful carbon dioxide.

As a result of the regulation, Germany's share of electricity savings will amount to about 4 TWh/a, or roughly 2.4 mn t CO₂/a in its power grid. UBA sees the EU regulation to limit the energy consumption of circulating pumps as an important step in the right direction. It will make a tangible contribution to climate protection.

The regulations apply mainly to heating system circulation pumps, solar energy-powered pumps and brine operated circulating pumps in heat pumps. As of 1.1.2013 circulating pumps mounted externally must comply with certain standards. As of 1.8.2015 the regulation will also apply to integrated heating system circulating pumps. The proposed standards are so rigorous as to trigger a leap in technology, namely in producing highly efficient motors (electronically commutated permanent magnet motors - ECMs) and (rotation) speed control, i.e. automatic adjustment of power consumption, will become standard and enable large power savings. Because these highly efficient circulating pumps (the Energy Efficiency Index, or EEI, is the benchmark) are not installed every older heating system, integrated circulating pumps that are to replace the pumps in existing heat generators are exempted from the regulation until 1.1.2020. This exception will prevent replacement of an entire heat generator should a circulating pump be defective. As the service life of a heating system bought today can expect to last until around 2025 or 2030, consumers should pay attention when purchasing heating and solar energy systems to the presence of RPM-regulated circulating pumps with ECMs. A switch from a conventional non-regulated heating circulating pump to an electronically regulated circulating pump with an EC motor will save the average household about 54 euros

annually, or an average of about 75 percent lower running costs. The costs for highly efficient circulating pumps quickly pay off in the savings on electricity, despite the higher purchase price. When highly efficient circulating pumps are installed it is wise to undertake hydraulic equalisation of the heating system, as this can mean extra cost cuts for fuels, energy costs and additional reduction of emissions.

When a highly efficient circulating pump replaces an older non-regulated pump in a heat generator with an integrated circulating pump, the heat generator generally forfeits its safety certification. A repairman would be liable for any damages that might occur. Therefore, the manufacturers of heat generators, circulating pumps, and tradesmen should work together in the future to develop low-cost standard solutions that provide safe and low-energy heating that does not pose a risk of liability for tradesmen.

The new EU regulation on circulating pumps will be adopted within the framework of the Energy-using Products Directive (Eco-design Directive), and it applies immediately in all 27 EU Member States. It thus does not require transposition into German law.

Table: Standards in circulating pumps

As of	Pump type	Standards
1.1.2013	External circulating pumps	EEl 0,27; Product information
	Drinking water circulating pumps	Product information only
1.8.2015	External circulating pumps and circulating pumps integrated in new products	EEl 0,23; Product information
1.1.2020	Circulating pumps integrated in existing products	Deadline for replacement of integrated heating system circulating pumps installed before 1.8.2015

For more information see:

A [background paper](#) on the EU regulation concerning circulating pumps

The [Sparpumpe.de](#) campaign and [Pumpencheck](#) by co2online on low energy circulating pumps

Legal foundations: [Eco-Design Directive](#) (Federal Environment Agency); [Energy-using products act](#) (Federal Institute for Materials Research and Testing); [EuP-Netzwerk](#)

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