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COMMISSION OF THE EUROPEAN COMMUNITIES

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Draft

**Explanatory Memorandum accompanying**  
**COMMISSION REGULATION (EC) No .../...**  
**of ...**

**implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for household refrigerating appliances**

## EXPLANATORY MEMORANDUM

### 1) CONTEXT OF THE PROPOSAL

#### • Grounds for and objectives of the proposal

Household refrigerating appliances are addressed in Directive 96/57/EC<sup>1</sup> of the European Parliament and of the Council on energy efficiency requirements for household electric refrigerators, freezers and combinations thereof. The requirements laid down in that Directive, which have been applicable since 1999, have long been exceeded and can be considered obsolete.

Directive 2005/32/EC of the European Parliament and of the Council, adopted in the meantime, lays down a framework for the Commission, assisted by a Regulatory Committee, to set ecodesign requirements for energy-using products. Ecodesign requirements are requirements that the products covered must meet in order to be placed on the market, with the aim of improving their environmental performance.

Article 16 of Directive 2005/32/EC states that ‘the Commission shall, as appropriate, introduce by anticipation (...) implementing measures starting with (...) domestic appliances’ in accordance with the criteria of Article 15 (in particular, significant volume of sales and trade, significant environmental impact, and significant potential for improvement in terms of environmental impact).

A technical, environmental and economical analysis (‘preparatory study’) has shown that:

- (i) household refrigerating appliances, with 20 million compressor-type appliances sold every year (along with 300 000 absorption-type appliances), are placed in large quantities on the EU market;
- (ii) the environmental impact of household refrigerating appliances in the EU is significant; in particular electricity consumption in the use phase, estimated to be 122 TWh per year in 2005, corresponding to 56 million tonnes of CO<sub>2</sub> equivalent;
- (iii) there are wide disparities in the environmental performance of household refrigerating appliances;
- (iv) and cost-effective technical solutions exist which could significantly improve this performance.

In accordance with Article 15 of Directive 2005/32/EC, household refrigerating appliances should therefore be subject to an ecodesign implementing measure.

Commercial refrigerating appliances are addressed in a separate implementing measure.

#### • General context

The most significant aspect in the environmental performance of household refrigerating appliances is their energy consumption in use. Cost-effective energy-saving solutions are available on the market, though they are not penetrating the market to a satisfactory extent. This is due to a market failure, which can be explained by the fact that energy-efficient refrigerating appliances are usually more expensive at the time of purchase, even if they may yield significant cost savings over their life cycle. The benefits are often unclear or irrelevant to the person making the purchasing decision.

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<sup>1</sup> OJ L 236, 18.9.1996, p. 36.

This problem has been addressed over the last 12-13 years both by ecodesign requirements and by a labelling scheme set out in Commission Directive 94/2/EC<sup>2</sup> of 21 January 1994 implementing Council Directive 92/75/EEC<sup>3</sup> with regard to energy labelling of household electric refrigerators, freezers and their combinations, leading to energy efficiency improvements of almost 30%.

While the energy efficiency requirements are outdated, the current labelling scheme remains an important market driver for further improvements in energy efficiency. However, the preparatory study demonstrated that if the current legislative framework remained unchanged, energy savings were expected to decline as from 2015. This is mainly due to the current design of the energy efficiency classes. Although two classes, A+ and A++, were added in 2003, a scheme with already 80% of products in class A or above in 2005 does not leave enough room for product differentiation in the medium to long term, with the result that the cost-effective energy-savings potential will not be achieved in 2020-2025.

According to the preparatory study, the 307 million household refrigerating appliances in the EU-27 accounted for an annual electricity consumption of 122 TWh in 2005, which will fall to 83 TWh in 2020 without further action (i.e. with the current labelling scheme in place). The aim of the proposal is to maintain this trend towards further energy efficiency improvements. It is estimated that the combined effect of the proposed new ecodesign requirements and revised labelling scheme would lead to additional reductions of 6 TWh in 2020 (3Mt of CO<sub>2</sub> equivalent) and 14 TWh (7Mt of CO<sub>2</sub> equivalent) in 2025.

- **Existing provisions in the area of the proposal**

In addition to Directive 94/2/EC on the labelling of household refrigerating appliances, the following measures are relevant for household appliances:

- Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (the Low Voltage Directive).
- Regulation (EC) No 842/2006 of the European Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases. As a result, industry has practically phased out CFCs and HCFCs and substituted them mainly by hydrocarbons (and to a minor extent by HFCs), thus reducing the ozone depletion potential and greenhouse gas impact of refrigerant and foaming agents for new equipment.
- Directive 90/128/EEC of the European Parliament and of the Council of 23 February 1990 relating to plastic materials and articles intended to come into contact with foodstuffs.
- Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (the WEEE Directive). Refrigerating fluids in particular, with a GWP>15 such as HFC, have to be extracted from the appliance at the end of life without leakages to the environment. In addition, the practice of refrigerator collection, recycling and residual waste disposal has been in place for over a decade. The preparatory study reports material recycling percentages of between 89 and 92%, depending on the type of the appliance.

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<sup>2</sup> OJ L 45, 17.2.1994, p. 1.

<sup>3</sup> OJ L 297, 13.10.1992, p. 16.

- Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (the RoHs Directive).
- Regulation (EC) No 1980/2000 of the European Parliament and of the Council of 17 July 2000 on a revised Community eco-label award scheme.

It is concluded that ecodesign requirements aiming to further reduce the use of hazardous substances and to ensure design for recycling and reuse to reduce the waste impact of household refrigerating appliances are not appropriate, because these environmental aspects are covered by existing legislation.

- **Consistency with the other policies and objectives of the Union**

Increased market take-up of energy-efficient household refrigerating appliances, through the introduction of new energy efficiency requirements and possibly a revised energy labelling scheme, will help achieve the 20% energy savings potential anticipated by 2020 in the Energy Efficiency Action Plan (COM(2006) 545).

Furthermore, implementation of Directive 2005/32/EC contributes to the Community's binding target to reduce greenhouse gases by at least 20% in 2020, or 30% if there is an international agreement that commits other countries to comparable emission reductions.

Promotion of the market take-up of efficient household refrigerating appliances complies with the renewed Lisbon Strategy and Sustainable Development Strategy as it will encourage investment in R&D and provide for a level playing field. It is also in line with the Sustainable Consumption, Production and Industrial Policy Action Plan.

Finally, the European Economic Recovery Plan (COM(2008) 800) mentions energy efficiency as one of the key priorities, in particular the promotion of the rapid take-up of 'green products', including refrigerating appliances.

## 2) CONSULTATION OF INTERESTED PARTIES AND IMPACT ASSESSMENT

- **Consultation of interested parties**

### Consultation methods, main sectors targeted and general profile of respondents

Stakeholders were consulted from the very beginning of the preparatory study as well as within the Ecodesign Consultation Forum as required by Article 18 of the Directive.

On 5 December 2008, a meeting of the Ecodesign Consultation Forum was held. Building on the results of the preparatory study, the Commission presented working documents suggesting ecodesign requirements for household refrigerating appliances. About one month before the meeting, the working document was sent to the members of the Consultation Forum. The working document was placed on the Commission's CIRCA portal alongside the stakeholder comments received in writing before and after the meeting.

### Summary of responses and how they have been taken into account

All respondents throughout the consultation process supported in general the setting of more stringent ecodesign requirements, but with some reservations on some technical issues:

- Some stakeholders required the setting of more stringent requirements on energy efficiency as well as an implementation date earlier than that proposed in the working document submitted to the Consultation Forum. This request was taken into account in the impact assessment in the analysis of the sub-options.
- Inconsistencies were highlighted between the current ecodesign and labelling directives. An effort was consequently made to review and unify the method for calculating the EEI as well as definitions and categories of appliances. The harmonisation proposal was submitted to the Consultation Forum, which gave its full support.
- Some stakeholders asked for the measurement uncertainty to be reduced. The proposed Regulation provides for the measurement accuracy to be tightened from 15% to 10%. The scope for further reduction should be assessed in the light of the

Round Robin Test to be carried out in the near future under the mandate given to CENELEC for the design of a new testing standard.

- The Consultation Forum highlighted the need to further assess the impact of the inclusion of wine storage appliances within the scope of the Regulation. Subsequent analysis showed that the lack of harmonised measurement methods and reliable data on wine storage appliances did not allow for specific energy efficiency requirements to be set by the date of adoption of this Regulation. It is proposed instead to include wine storage appliances in the scope of the revised Labelling Directive, and two years after entry into force of the Regulation to assess whether new ecodesign requirements may be included on the basis of the new data collected for the Labelling Directive.
- The correction factors for the formula used to calculate the energy efficiency index were partly contested. While these concerns may be legitimate, the revision of correction factors was not included in the preparatory study, so there is a lack of reliable data for an in-depth investigation. It is therefore proposed to analyse the scope for revision of the correction factors as part of the planned review of this Regulation five years after its entry into force.

- **Collection and use of expertise**

*Scientific/expertise domains concerned*

External expertise on household refrigerating appliances was mainly gathered through a study providing a technical, environmental and economic analysis (the ‘preparatory study’), which was carried out by a consortium of external consultants on behalf of the Commission’s Directorate General for Energy and Transport (DG TREN)

*Methodology used*

The methodology followed the provisions of the Directive, in particular Article 15 and Annexes I and II. The technical, environmental and economic analysis followed the structure of the ‘MEEuP’ ecodesign methodology developed for the Commission’s Directorate General for Enterprise and Industry and endorsed by stakeholders.

*Main organisations/experts consulted*

The preparatory study was conducted in an open process that took into account input from relevant stakeholders, including manufacturers and manufacturing associations, environmental NGOs, consumer organisations, EU/EEA Member State experts and international organisations such as the International Energy Agency (IEA).

*Summary of advice received and used*

No potentially serious risks with irreversible consequences have been mentioned.

The technical, market and economical analysis carried out in the preparatory study resulted in recommendations for ecodesign requirements. These recommendations were used as a basis for suggesting possible ecodesign requirements to the Consultation Forum.

*Means used to make the expert advice publicly available*

The preparatory study was accompanied by a dedicated website where interim results and further relevant materials were published regularly for timely stakeholder consultation and input. Written submissions from stakeholders are listed in the final reports. The study website was publicised on the ecodesign websites of Transport and Energy DG and Enterprise and

Industry DG. The written submissions received through the Consultation Forum and the Forum minutes are available on the Commission's CIRCA portal.

- **Impact assessment**

An impact assessment was carried out in accordance with Article 15(4)(b) of Directive 2005/32/EC. The options listed below were discarded at an early stage (for more details, see the accompanying impact assessment report):

- no EU action (legislation currently in place would not be amended, no new legislation would be adopted);
- support for a voluntary commitment;
- new ecodesign requirements only (with no revision of the labelling scheme);
- revised labelling scheme only (with no new ecodesign requirements).

The option that appeared the most sensible, and which was advocated by all stakeholders, is the following:

- simultaneous revision of the labelling scheme and the ecodesign requirements in a coordinated approach.

Considering that the most significant environmental impact of household refrigerating appliances is their energy consumption in use, several sub-options for gradual ecodesign requirements together with revised energy efficiency classes were analysed for compressor-type appliances, which represent 95 % of the market:

- BAU: Business-As-Usual scenario, i.e. continuation of current policy measures at EU level (current labelling scheme only) and no further action at EU level;
- Sub-option EE44-15: EEI < 55 in 2010, EEI < 44 in 2015;
- Sub-option EE44-13: EEI < 55 in 2010, EEI < 44 in 2013;
- Sub-option EE42-15: EEI < 55 in 2010, EEI < 42 in 2015;
- Sub-option EE42-13: EEI < 55 in 2010, EEI < 42 in 2013.

The cost-benefit analysis shows that sub-option EE42-13 delivers the most savings without any negative impact on the other functionalities of appliances.

It will ensure that:

- ongoing energy improvements are maintained and fostered;
- fair competition and product differentiation continues to operate on energy improvements;
- the cost-effective level of energy consumption is reached;
- more energy-consuming products are quickly removed from the market with a reduction of the life cycle environmental impact of refrigerating appliances; calculated in net present value (euro 2005), consumer expenditure will drop from around €30 bn in 2005 to €19 bn in 2020;
- the competitiveness of the industry is supported through the expansion of the EU internal market for sustainable products;
- the burdens on manufacturers including SMEs are not excessive, as the transition periods take redesign cycles into account;
- there is no negative impact on employment in the EU.

Extension of the scope was also considered in order to include new types of appliances that are increasingly gaining market share, such as absorption-type appliances or wine storage appliances.

The Commission carried out an impact assessment as listed in the Work Programme. The resulting report is available at [http://ec.europa.eu/governance/impact/cia\\_2009\\_en.htm](http://ec.europa.eu/governance/impact/cia_2009_en.htm).

### **3) LEGAL ELEMENTS OF THE PROPOSAL**

#### **• Summary of the proposed action**

The measure sets new mandatory ecodesign requirements for placing household refrigerating appliances on the market with the aim of reducing their environmental impact. It includes both generic requirements to regulate those features that have an impact on energy consumption and specific requirements for the energy consumption of refrigerating appliances, which was identified as the parameter with the most significant environmental impact.

Appliances that are increasingly gaining market share, but were previously excluded from the scope of the Ecodesign Directive 96/57/EC, are now included — such as absorption-type appliances, with sales of 300 000 units per year, and mini drink chillers with a volume of less than 10 litres, which may consume as much as a 230-litre refrigerating appliance.

The absence of reliable data did not allow for specific ecodesign requirements to be set for wine storage appliances. Since the inclusion of wine storage appliances within the scope of the revised Energy Labelling Directive on household refrigerating appliances will allow standardised information to be collected on this product group, ecodesign requirements may be set on the basis of this information at a later stage. It is proposed to assess this possibility two years after entry into force of the proposed Regulation.

#### **• Legal basis**

The proposed Regulation is an implementing measure under Directive 2005/32/EC, in particular its Article 15(1). The Directive is based on Article 95 of the Treaty.

#### **• Subsidiarity principle**

The subsidiarity principle applies insofar as the proposal does not fall under the exclusive competence of the Community.

The objectives of the proposal cannot be sufficiently achieved by the Member States, because the adoption of different ecodesign measures on household refrigerating appliances by individual Member States would lead to obstacles to the free movement of goods within the Community.

Community action will better achieve the objectives of the proposal, as the setting of harmonised ecodesign requirements at EU level will avoid fragmentation of the internal market and provide a level playing field for all.

In line with the principle of subsidiarity, it is thus appropriate for the measures in question to be adopted at Community level.

The scope of the proposal is limited to the harmonisation of ecodesign requirements, while implementation and market surveillance will fall under the responsibility of the Member States.

The proposal therefore complies with the subsidiarity principle.

- **Proportionality principle**

The proposal complies with the proportionality principle for the following reasons.

In accordance with the principle of proportionality, this measure does not go beyond what is necessary in order to achieve its objective.

The form of the proposed ecodesign legislation is a Regulation, which is directly applicable in all Member States. This ensures that no costs will arise for national and Community administrations in transposing the implementing legislation into national legislation.

As regards conformity assessment, there will be no additional costs compared with the current situation, where energy efficiency requirements are already mandatory.

The extension of the scope of the implementing measures to include new types of appliances such as mini-drink chillers and absorption-type appliances should entail additional costs for market surveillance, which should be proportional to the unit sales, i.e. 3 to 4%. In addition, the generic requirements are expected to increase total surveillance costs by up to a further 2%.

- **Choice of instruments**

Proposed instrument: Regulation.

Other means would not be adequate for the following reasons.

The proposed form of action is a Commission Regulation (implementing Framework Directive 2005/32/EC), because the objectives of the action can be achieved most efficiently by fully harmonised requirements (including timely entry into force) throughout the EU, thus ensuring the free movement of compliant equipment.

#### **4) BUDGETARY IMPLICATIONS**

The proposal has no implications for the Community budget.

#### **5) ADDITIONAL INFORMATION**

- **Simulation, pilot phase and transitional period**

There is a transitional period for the proposal.

- **Repeal of existing legislation**

The adoption of the proposal will lead to the repeal of the existing Directive 96/57/EC.

- **Review/revision/sunset clause**

The proposal includes a review clause.

- **European Economic Area**

The proposed act concerns an EEA matter and should therefore extend to the European Economic Area.