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**COMMISSION STAFF WORKING DOCUMENT**

**SUMMARY OF THE IMPACT ASSESSMENT**

**Accompanying document to the**

**Draft Commission Regulation implementing directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household dishwashers**

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## SUMMARY OF THE IMPACT ASSESSMENT

### Accompanying document to the

### **Draft Commission Regulation implementing directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household dishwashers**

**Lead DG:** TREN

**Associated DG:** ENTR

**Other involved services:** COMP, ECFIN, ENV, INFSO, LS, MARKT, RTD, SANCO, SG, TRADE

**Agenda planning or WP reference:** 2009/TREN/024

#### EXECUTIVE SUMMARY

Household dishwashers are currently addressed in Commission Directive 97/17/EC implementing Council Directive 92/75/EC with regard to energy labelling of household dishwashers. Unlike, for instance, refrigerating appliances, household dishwashers are not subject to requirements regarding minimum energy efficiency or other performance aspects.

Directive 2009/125/EC of the European Parliament and of the Council (the Ecodesign Directive) lays down a framework for the Commission, assisted by a Regulatory Committee, to set ecodesign requirements for energy-related products. It is one of the priorities of the European Economic Recovery Plan — COM(2008) 800.

The approach to developing the proposed ecodesign implementing measure for household dishwashers and its impact assessment is structured in four steps:

Step 1: assessment of the criteria for an ecodesign implementing measure as set out in Article 15(2)(a)–(c) of the Ecodesign Directive, taking into account the ecodesign parameters listed in Annex I and the method for setting specific requirements laid down in Annex II of the Ecodesign Directive;

Step 2: consideration of relevant EU initiatives, market forces and disparities in the environmental performance of equipment on the market with equivalent functionality, as set out in Article 15(2) of the Ecodesign Directive;

Step 3: establishing policy objectives, including the desirable level of ambition, the policy options to achieve them, and the key elements of the ecodesign implementing measure as required by Annex VII of the Ecodesign Directive;

Step 4: assessment of the impact on the environment, consumers and industry, with a view to the criteria for implementing measures set out in Article 15(5) of the Ecodesign Directive.

### Step 1: Legal base for an implementing measure: compliance with the Ecodesign Directive, Article 15

In order to assess the criteria for ecodesign implementing measures as set out in Article 15(2) of the Ecodesign Directive, the Commission carried out a technical, environmental and economic analysis ('preparatory study') of household dishwashers<sup>1</sup> in accordance with Article 15(4)(a) and Annexes I and II of the Ecodesign Directive.

The study has shown, as illustrated in Table A, that (1) household dishwashers are placed on the EU market in large quantities, (2) the environmental impact of household dishwashers is to a large extent related to the consumption of electricity and water during use, and remains significant despite ongoing improvements, and (3) technical cost-effective solutions exist that could lead to significant improvements. The existing disparity in electricity consumption is limited, since the majority of appliances are in the same energy efficiency class. However, the preparatory study identified a substantial potential for improvement (6% cost-effective energy savings in the short term, 13-15% in the medium term, and 30-40% over the longer term).

The economic value and the environmental impacts in 2020 were calculated on the basis of a business-as-usual scenario.

**Table A: Total household dishwashers in the EU-27 in 2005 and 2020**

Article 15(2)(a):	Annual sales volume in the EU	2005: 6 million units per year, representing an economic value of EUR 3.2 billion
Article 15(2)(b):	Environmental impact: electricity and water consumption of appliances (Business as Usual — BaU — scenario)	Electricity: – 2005: 26 TWh or 13 million t CO <sub>2</sub> equivalent <sup>2</sup> – 2020: 33.7 TWh or 17.5 million t CO <sub>2</sub> equivalent Water: – 2005: 308 million m <sup>3</sup> – 2020: 389 million m <sup>3</sup>
Article 15 (2)(c):	Improvement potential for household dishwashers (applying existing cost-effective)	Between 1.7 and 2.0 TWh depending on the sub-options in 2020 compared to the BaU scenario (in 2025, the energy-savings potential increases to 3.2-3.5 TWh compared to the BaU scenario).  Between 56 to 64 million m <sup>3</sup> water saved in 2020 (use phase).

<sup>1</sup> Preparatory study for ecodesign requirements of EuPs, Lot 14: 'Domestic Dishwashers and Washing Machines'. Available on: [www.ecowet-domestic.org](http://www.ecowet-domestic.org).

<sup>2</sup> This represents 1% of the total EU electricity consumption of about 2760 TWh in 2005.

## Step 2: Existing initiatives and capacity of market forces to address the issue

Further to Articles 15(2) and 15(4)(c) of the Ecodesign Directive, relevant EU and national environmental legislation was considered. Related (voluntary) initiatives at both EU and Member State level were taken into account, and barriers leading to market failures and preventing market take-up of technologies with improved environmental performance were analysed.

As a result of energy labelling<sup>3</sup>, combined with voluntary commitment by industry between 1999-2004 to phase out the least efficient household dishwashers, household dishwashers have improved their energy efficiency by some 35% in the last ten years, with the EU Energy Label becoming one of the most important market drivers.

However as a consequence of the success of the labelling scheme and the voluntary commitments, 90% of household dishwashers are now in the energy label's highest energy efficiency class. The market mechanism driving forward the energy efficiency of household dishwashers has halted, as no further energy efficiency classes have been defined by the legislator (**regulatory failure**). In addition, the industry has decided not to make new voluntary commitments because market actors have become too scattered for proper and fair implementation.

Furthermore, not all environmental costs are included in electricity and water prices. Consequently, consumer (and producer) choices are made on the basis of lower prices that do not reflect environmental costs for society (**negative externality**).

The total energy consumption of household dishwashers is still increasing, since the unsaturated market means that the growth in sales still exceeds the savings brought about by more efficient appliances. To address this problem, the stagnation in innovation must be overcome, and stakeholders, including the industry and consumer organisations, are now unanimously asking for the combined introduction of ecodesign requirements and a revised labelling scheme for household dishwashers<sup>4</sup>.

Therefore, in the absence of voluntary commitments by the sector, the present impact assessment pays particular attention to the rationale for developing new and tighter measures under the Ecodesign and the Energy Labelling Directives as a means to provide consumers with meaningful product information on energy efficiency and to give European manufacturers the long-term security they need to invest in innovative technology. The aim is to maintain the trend towards further efficiency improvements and support the global competitiveness of EU industry.

From the first two steps, it is concluded that the criteria for ecodesign implementing measures as set out in Article 15(2) of the Ecodesign Directive are met, and household dishwashers

<sup>3</sup> Commission Directive 97/17/EC amended by Commission Directive 1999/9/EC implementing Directive 92/75/EEC with regard to energy labelling of household dishwashers.

<sup>4</sup> In the past, Member States have launched fiscal incentive programmes to foster the market take-up of energy-efficient appliances but the uncertainty surrounding the future of the energy efficiency classes has prevented them from initiating new support programmes. Furthermore, the Ecodesign Directive implies that legislative action on domestic appliances cannot be taken at Member State level.

should be covered by an ecodesign implementing measure in accordance with Article 15(1) of the Ecodesign Directive, complemented by an upgraded energy labelling scheme.

### **Step 3: Policy objectives and levels of ambition**

Annex II of the Ecodesign Directive provides that the level of ambition for improving the environmental performance and electricity consumption is to be determined by an analysis of the least life-cycle cost for the end-user. Furthermore, benchmarks for technologies yielding best performance, as developed in the preparatory study and the discussions with stakeholders during the meeting of the Ecodesign Consultation Forum<sup>5</sup> on 4 December 2008, are considered. The minutes of this meeting are attached in Annex III of this Impact Assessment. The results are reflected in the objectives that the proposed Regulation aims to achieve.

The objective is to trigger a market transformation to realise the improvement potential. Several policy options were considered, including self-regulation, revision of just the energy labelling and introduction of minimum energy performance requirements alone. Considering the strong interrelationship between the energy labelling scheme and the ecodesign requirements, and given the request by Member States, the industry, consumer organisations and environmental NGOs for a coordinated revision of the existing legislation, this impact assessment considers, in sections 5 and 6, the combined impact of both measures.

### **Step 4: Environmental, economic and social impact assessment**

An assessment of the proposed implementing measure is carried out. Considering that the most significant environmental impact of household dishwashers is their energy consumption during use, sub-options for gradual ecodesign requirements together with revised energy efficiency classes are analysed in section 6. The sub-options considered (along with a business-as-usual scenario) are as follows:

- **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, in scenario analysis referred to as Baseline;
- **Sub-option A:**
  - Introduction of minimum energy efficiency requirements in two stages, i.e.  $EEI < 71$  in 2011 and  $EEI < 63$  in 2016,
  - Introduction of a minimum cleaning performance requirement, i.e.  $Cp < 1.12$  in 2011,
  - Introduction of minimum drying performance requirements, i.e.  $Dp < 1.08$  in 2013 for machines with 8 place settings and higher, and  $Dp < 0.86$  for machines up to 7 place settings;
- **Sub-option B:**

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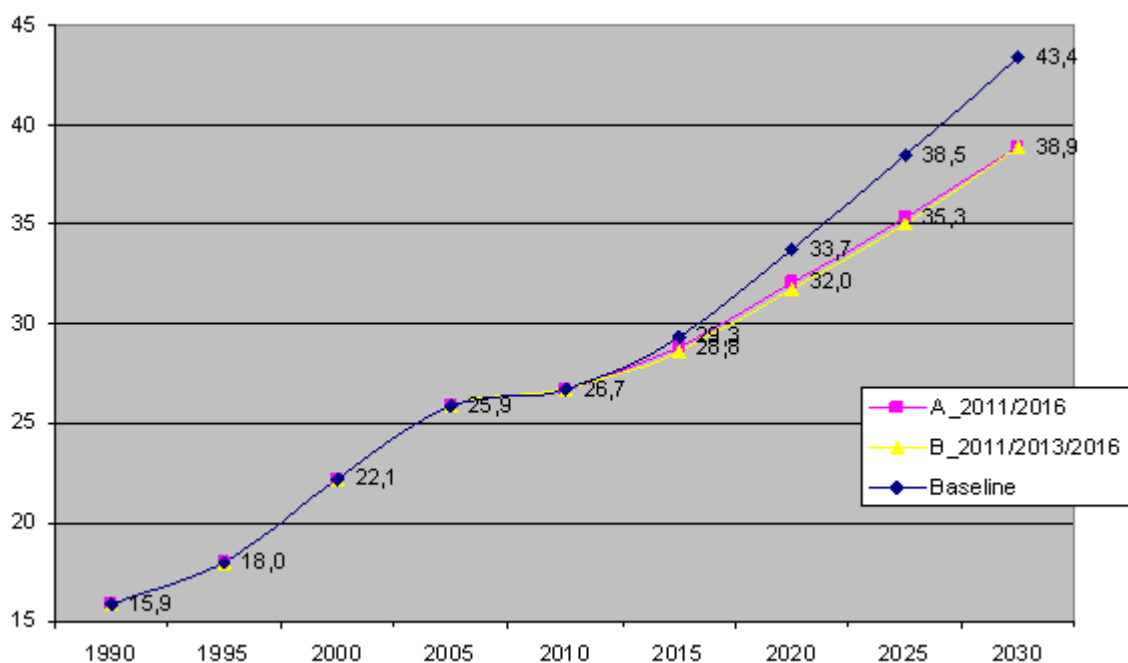
<sup>5</sup> The Consultation Forum is a balanced grouping of Member States representatives and stakeholders such as industry, consumer bodies and environmental NGOs, called upon to express their views.

- Introduction of minimum energy efficiency requirements in three stages, i.e.  $E_{EEI} < 71$  in 2011 for all dishwashers (except for dishwashers with 10 ps and width  $\leq 45$ cm:  $E_{EEI} = 80$ ),  $E_{EEI} < 63$  in 2013 for dishwashers with a rated capacity  $\bullet 10$  ps (except dishwashers with 10 ps and width  $\leq 45$ cm:  $E_{EEI} < 71$ ) and  $E_{EEI} < 63$  for 8-10ps dishwashers with width  $\leq 45$ cm as of 2016,
- Introduction of a minimum cleaning performance requirement, i.e.  $C_p < 1.12$  in 2011,
- Introduction of minimum drying performance requirements, i.e.  $D_p < 1.08$  in 2013 for dishwashers with 8 place settings and higher, and  $D_p < 0.86$  for dishwashers up to 7 place settings.

A requirement for maximum water consumption has been considered but not deemed feasible for three main reasons: 1) water consumption is assumed to decrease following the introduction of a requirement for minimum energy efficiency (water consumption and energy consumption are linked to a certain degree); 2) not enough data are available to fully assess the effects of a water consumption requirement; and 3) this option was not discussed thoroughly with all stakeholders involved and therefore may not receive the necessary support.

The following graph illustrates the possible energy savings with each scenario.

**Figure A: EU-27 total electricity consumption of household dishwashers under sub-options A and B in TWh/year (electric) (EU-27 demand in 2005: 3106 TWh)**



Source: Input to this impact assessment from VHK

The graph shows that the energy consumption of household dishwashers is expected to increase in the business-as-usual scenario. This is due to the fact that this market is not yet

saturated and sales outweigh the savings achieved by more efficient appliances. In order to slow down the increase in energy consumption, while ensuring that measures remain cost-effective, the existing legal framework needs to be upgraded.

Compared with 1990 — the reference year for climate change policy — the annual energy consumption and carbon emissions of household dishwashers in 2020 will be 100% higher in the BaU scenario (1990: 16 TWh. 2020: 34 TWh). The estimated savings for sub-options A and B are 5.0 and 5.8%, respectively, with respect to the baseline scenario in 2020. In 2025, savings are projected to be around 10% per year (compared to BaU 2025).

The biggest threat to further energy efficiency improvements as identified by the industry itself would indeed be failure by the legislator to put in place a legislative framework to support the market dynamics. The fact that the current labelling scheme, i.e. the energy efficiency classes, is outdated has several negative impacts: if the current situation continues, consumers will no longer be able to differentiate between products on the basis of their energy efficiency (all models are in the same labelling class), retailers will lose interest in drawing attention to the energy label, authorities will have difficulties in promoting the most efficient models, and the industry will not be motivated to invest in energy efficiency but might instead invest in other features (possibly more energy-consuming) in order to differentiate their products from those of their competitors.

The analysis demonstrates that the appropriate policy option for realising the environmental improvement potential of household dishwashers is the combined introduction of ecodesign requirements and revision of the labelling scheme in two stages (one year and four years after entry into force). This approach ensures that:

- ongoing energy improvements are maintained and fostered by setting a transparent legislative framework that will provide the industry with the long-term security it needs to invest in innovative technology;
- fair competition and product differentiation continues to operate on energy improvements by providing consumers with an effective and reliable tool to compare the energy consumption of products in the context of strong market demand for energy-efficient appliances;
- by 2020, absolute energy savings of 5.0 – 5,8 % can be achieved compared with the business-as-usual scenario in 2020. Due to market inertia (i.e. the full replacement of old models by new ones takes about 15 years), the effects of the new measures up to 2020 will be very limited with respect to the baseline scenario.
- the cost-effective energy-savings potential is achieved, i.e. around 1.7 to 2.0 TWh in 2020 compared to the BaU scenario, increasing to 3.2 to 3.5 TWh in 2025;
- more energy-consuming products are quickly removed from the market, securing electricity and CO<sub>2</sub> savings in the EU while reducing the life-cycle costs of household dishwashers for consumers. Calculated in terms of ‘net present value’ (EUR 2005), consumer expenditure — i.e. annual purchase and running costs for the EU27 population — will increase from around €8bn today to €10bn in 2020 and approximately €11bn in 2025 (mainly due to increased penetration).

- a level playing field for all manufacturers is guaranteed, ensuring fair competition and free movement of products;
- disproportionate burdens for manufacturers are avoided due to transitional periods that duly take into account redesign cycles.

Finally, SMEs are considered to represent 30% of manufacturers (mainly OEMs, i.e. suppliers of components like thermostats, shelves, etc.) and 80% of retailers. The analysis shows that the policy options will have no negative impact on them. On the contrary, they will benefit from stronger demand for new technologies and higher turnover.

As set out in Section 7, the impacts of the legislation will be monitored mainly through market surveillance by Member State authorities to ensure that the requirements are met, whereas the appropriateness of the scope, definitions and concepts will be monitored through ongoing dialogue with stakeholders and Member States.