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COMMISSION STAFF WORKING DOCUMENT

Accompanying document to the

Proposal for a Commission Regulation implementing Directive 2005/32/EC with regard to ecodesign requirements for fans within a 125 W to 500 kW power range

SUMMARY IMPACT ASSESSMENT

SEC(2011) 384 final
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Accompanying document to the

Proposal for a Commission Regulation implementing Directive 2005/32/EC[1] with regard to ecodesign requirements for fans within a 125 W to 500 kW power range

SUMMARY IMPACT ASSESSMENT

Lead DG: DG ENER[2]

Associated DG: DG ENTR

Other involved services: SG, SJ, DG ENV, DG COMP, DG ECFIN, DG INFSO, DG MARKT, DG SANCO, DG TRADE, DG RTD, DG EMPL, JRC

EXECUTIVE SUMMARY

The Ecodesign Framework Directive lists products which have been identified by the Council and the European Parliament as priorities for the Commission for implementation. The Spring Council 2007 called for thorough and rapid implementation of the five priorities[3] set by the Energy Council on 23 November 2006[4], based on the Commission's Action Plan on Energy Efficiency. One of those priorities is to "dynamically and regularly improve and expand the scope of minimum efficiency requirements for energy-using products" by "fully utilizing the Ecodesign Directive", including appliances in motor driven systems, such as motors, drives, pumps and fans (Article 16). These products are one of the priority product groups considered for implementing measures under the Ecodesign Directive. The need to quickly come up with minimum energy performance requirements for these devices has been emphasised in Article 16.2 of the Ecodesign Directive and supported by the Member States representatives and the stakeholders in the Consultation Forum.

In order to assess the criteria for Ecodesign implementing measures as laid out in Article 15(2) of the Ecodesign Directive, the Commission has carried out a technical, environmental and economic preparatory study on motors, pumps, circulators and fans[5] following the provisions of Article 15(4a) and Annexes I and Annex II of the Ecodesign Directive. The study has shown that fans (1) have a significant environmental impact within the European Union, (2) present significant potential for improvement without entailing excessive costs, (3) are not addressed properly by market forces, and (4) are not sufficiently addressed by other relevant European Union legislation. These four criteria are fully met by fans, also when

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1 Since completion of the Impact Assessment, Directive 2005/32/EC has been replaced by Directive 2009/125/EC. The latter is the legal basis for the Regulation on fans which is to be adopted.

2 At the time of the Impact Assessment it was DG TREN.

3 Brussels European Council 8/9 March 2007, Presidency Conclusions, 7224/07.

4 TTE (Energy) Council on 23 November 2006, 15210/06.

5 "Preparatory studies for ecodesign requirements – Lot 11 on electric motors, water pumps, circulators in buildings and fans for ventilation in non-residential buildings. Available on: http://www.ecomotors.org.

taking into account the savings arising from the fact that a certain number of fans in the power range of 750 W – 375 kW are driven by electric motors covered by the draft motor Regulation[6]. Fans covered include all axial, centrifugal, cross-flow, box and roof fans in the power range of 125 W – 500 kW, as defined by the preparatory study. This is in accordance with trade statistics and views of stakeholders and this scope avoids overlap with domestic fans covered in Lot 10.

The sector is economically significant. Fan sales in the EU27 (2005) amount to about 13 million units per annum (7,1 million driven fans and 5,7 million fan products). The combined turnover of fan industry and trade is almost € 8 billion. The main fan market is EU based.

The preparatory study has established that the sales of fans will increase and so will the annual energy consumption, from 390 TWh in 2005 to 629 TWh in 2020 under a business as usual scenario. In terms of (indirect) CO2 emissions, fans are responsible for around 4,4 % of the total CO2 emissions in the EU27.

The significant aspect for improving the environmental performance of fans is the life cycle energy consumption. Impacts from production and distribution are minor compared to the use-phase impact. There is clear improvement potential as cost effective technical solutions and products already exist. The improvement potential applying existing cost-effective technology is 54 TWh annually in 2020.

The fact that electric motor systems are mentioned in Article 16 of the Ecodesign Directive implies that legislative action on fans cannot be taken on Member State level, and the Member States expect that a harmonized legislative framework is set, the legal basis being Article 95 of the EC Treaty[7].

Several market failures have been identified to explain that cost-effective technologies leading to energy efficiency improvements are not penetrating the market to a satisfactory extent by market forces alone.

Consumer choice is made on the basis of the purchase price, as the lower electricity price is not reflecting environmental costs for the society (negative externality).

Another main barrier for energy efficiency is the fact that in most cases many other variables than energy efficiency have to be considered such as duty point, operating conditions and noise. Fan selection is a matter for specialists. However, the electricity bills related to the fan are paid by the end-user and not by the engineer specifying the fan (in for example a HVAC system), or by the tenant of a building instead of the owner (split incentives)

In addition, many fans are sold in the OEM market. Often these are not as good a match for specific operating conditions as fans specifically designed for the situation. In these cases the purchase/selling price is the first priority rather than the life cycle cost (split incentives). This causes a market failure and, consequently, the improvement potential is not realised.

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6 The text was a draft at the time of the Impact Assessment. The Regulation on electric motors 640/2009 of 22 July 2009 was published in the Official Journal of 23 July 2009.

7 Since the Impact Assessment was finalised the Lisbon Treaty has come into force. Therefore the reference to Article 95 is to the Article in the precursor of the Lisbon Treaty.

Another problem is that the purchase price is well visible and is typically higher for energy efficient fans. On the other hand, information on running costs/cost savings is not explicit and can be obtained only with difficulties (asymmetric information).

As a result, manufacturers have no incentive to reduce the energy consumption of fans, even though this could be done at reasonable additional cost to the manufacturer and would bring significant savings to the consumer and reduced CO_2 emissions.

Existing cost-effective solutions that allow reducing the energy consumption of fans are therefore not applied because of these market failures. The existing policy initiatives will have only a very limited impact on the environmental performance of fans.

It is concluded that the criteria for Ecodesign implementing measures as set out in Article 15(2) of the Ecodesign Directive are met, and fans should be covered by an Ecodesign implementing measure pursuant to Article 15(1) of the Ecodesign Directive.

Annex II of the Ecodesign Directive provides that the level of ambition for improving the environmental performance and electricity consumption should be determined by an analysis of the least life cycle cost for the user of equipment. 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[8] on 27 May 2008, are considered. The results are reflected in the objectives that the proposed regulation aims to achieve.

The objective of the proposed Implementing Regulation is to trigger the market transformation that would enable the realisation of the improvement potential. Several policy options are considered, including self-regulation, mandatory energy labelling and mandatory minimum energy performance requirements, but the latter proves to be the most effective one.

An assessment of the proposed implementing measure is carried out. In particular, sub-options for Ecodesign requirements in several stages are analysed, taking into account the criteria set out in Article 15(5) of the Ecodesign Directive, and the impacts on manufacturers including SMEs. The considered sub-options are:

1. efficiency levels based on the preparatory study;

2. efficiency values based on proposals by the fan manufacturing industry;

3. efficiency values proposed by environmental NGOs;

4. efficiency values based on sub-option 1 unless superseded by levels in sub-options 2 for the first tier and sub-option 3 for the second tier (a compromise of the most ambitious yet still realistic levels in the three sub-options).

The considered sub-options lead to gross savings as detailed in Annex 1.

The preferred choice in terms of expected savings is the fourth sub-option.

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[8] The Consultation Forum is a balanced formation of the Member States representatives and of affected parties such as the industry, consumer and environmental NGOs called to express their views.

A comparison of objectives (sub-options within the option on ecodesign implementing measure) shows that the appropriate policy option for realising the improvement potential of fans is a Commission Regulation setting ecodesign requirements in two tiers with entering into force in mid 2012 and 2015. This approach ensures that:

– cost-effective potentials to improve the electricity consumption of fans are quickly realised, leading to important electricity savings of 54 TWh and CO_2 savings of nearly 25 Mt annually in the Community by 2020, while reducing the life-cycle costs of these devices for consumers;

– a clear legal framework is established, providing a level playing field for manufacturers, ensuring fair competition and free circulation of products;

– requirements for fans are harmonised in the European Union, leading to a minimization of administrative burdens and costs for the economic operators;

– disproportionate burdens for manufacturers are avoided due to transitional periods which duly take into account redesign cycles;

– SMEs are not negatively affected;

– important additional energy savings outside the EU27 can be realised, as several third countries are following the EU legislative approach on fans which is based on the new ISO standard 12759. Fans are sold in global markets, where some European manufactures are among the biggest ones.

ANNEX 1 : Main impacts of the four sub-options for minimum Ecodesign requirements

MAIN IMPACTS							
			Scenario's 2020				
			1	**2**	**3**	**4**	**5**
IMPACTS (as Art. 15, sub. 4., subsub e. of 2005/32/EC)			**BaU**	**A: CSWD**	**B: Industry**	**C: EnvNGO**	**D: Compromise**
ENVIRONMENT							
	ENERGY	PJprimary/a	**5659**	**5178**	**5219**	**5170**	**5172**
	GHG	Mt CO2 eq./a	**288**	**263**	**266**	**263**	**263**
	Electricity	TWh/a	**629**	**575**	**580**	**574**	**575**
CUSTOMER							
EU totals	expenditure	€ bln./a***	**106,8**	**99,8**	**100,3**	**99,7**	**99,7**
	purchase costs	€ bln./a	8,3	9,6	9,5	9,7	9,7
	running costs	€ bln./a	98,5	90,1	90,9	90,0	90,0
per product	product price	€	833	980	964	982	982
	install cost	€	52	52	52	52	52
	energy costs	€ /a	434	372	377	371	371
	payback (discount rate corr.)	years	reference	**3,2**	**3,1**	**3,2**	**3,2**
BUSINESS							
EU turnover	manuf	€ bln./a	**7,1**	**8,3**	**8,2**	**8,3**	**8,3**
	whole-sale	€ bln./a	**2,1**	**2,5**	**2,5**	**2,5**	**2,5**
	instal	€ bln./a	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**
EMPLOYMENT							
employ-ment (jobs)	industry EU (incl OEM)	'000	47	55	54	55	55
	industry non-EU	'000	2	3	3	3	3
	whole-sale	'000	8	10	9	10	10
	installers	'000	0	0	0	0	0
	TOTAL	'000	**58**	**68**	**67**	**68**	**68**
	of which EU	'000	55	65	64	65	65
	EXTRA EU jobs	'000	reference	**9,7**	**8,7**	**9,9**	**9,8**
	of which SME**		reference	4,9	4,3	4,9	3,0
**= partitioning 50% industry & wholesale, 80% installers							
***=all money amounts in Euro 2005 (inflation corrected)							