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COMMISSION STAFF WORKING DOCUMENT

EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT

Accompanying the document

COMMISSION REGULATION (EU) No …/..

implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for computers and computer servers

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BACKGROUND

The Framework Directive 2009/125/EC ('Ecodesign Directive') lists products which have been identified by the Council and the European Parliament as priorities for Commission implementing measures. It includes consumer office equipment (Article 16), and computers, servers and displays are the most important equipment categories in this respect.
The 2007 Spring European Council called for thorough and rapid implementation of the five priorities[1] set by the Energy Council on 23 November 2006[2], based on the Commission's Action Plan on Energy Efficiency. The priorities include to 'dynamically and regularly improve and expand the scope of minimum efficiency requirements for energy-using products', by 'fully utilising the Ecodesign Directive'. The strategy of adopting minimum energy performance standards for equipment and appliances was welcomed by the European Parliament[3].

APPROACH TOWARDS SETTING ECODESIGN REQUIREMENTS

The approach to developing the proposed ecodesign implementing Regulation for computers, servers and displays and this impact assessment was structured in four steps:

Step 1: assessment of the criteria for an ecodesign implementing measure as set out in Article 15(2a)-15(2c) of the Ecodesign Directive, taking into account the ecodesign parameters identified in Annex I of the Ecodesign Directive;

Step 2: consideration of relevant European Union initiatives, market forces and environmental performance disparities of the 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 available to achieve them, and the key elements of the ecodesign implementing measure as required by Annex VII of the Ecodesign Directive;

Step 4: environmental, economic and social assessment of the impacts on environment and consumers with regard to the criteria on implementing measures set out in Article 15(5) of the Ecodesign Directive.

1 Brussels European Council 8/9 March 2007, Presidency Conclusions, 7224/07.
2 TTE (Energy) Council on 23 November 2006, 15210/06.
3 European Parliament resolution of 31 January 2008 on an Action Plan for Energy Efficiency.

SUMMARY OF THE RESULTS

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 has carried out a technical, environmental and economic study for computers and monitors ('preparatory study')[4] conforming to the provisions of Article 15(4a) and Annex II of the Ecodesign Directive.

With regard to the criteria established by Article 15(2) of the Ecodesign Directive, the preparatory study concludes[5] that the most significant environmental impact is electricity consumption during the use phase, and the following results were established for the EU:

Article 15 (2a):	Annual sales volume in the European Union	90 million in 2010 and 150 million in 2020 (computers) 50 million in 2010 and 75 million in 2020 (displays) 2.4 million in 2010 and 3.9 million in 2020 (servers)
Article 15 (2b):	Environmental impact, in particular use phase electricity consumption	74 TWh in 2010 96 TWh in 2020 (130 TWh without current policies)
Article 15 (2c):	Improvement potential for power consumption	Up to 50% through power management, use of dual-core processors and adapting their intensity, using efficient power supplies, using LED technology in the case of displays.

The volume of sales of around 140 million units per year is far above the indicative 200000 units provided for in the Ecodesign Directive. It is expected that annual sales will increase to around 230 million units by 2020.

The annual electricity consumption of computers, servers and displays for EU-27 in 2010 corresponds roughly to the electricity consumption of the Czech Republic, and the expected

[4] EuP Preparatory study'Lot 3 –Personal Computers (desktops and laptops) and Computer Monitors', IVF Industrial Research and Development Corporation , Sweden, final report of 27 August 2007; documentation available on the DG TREN ecodesign website http://ec.europa.eu/energy/efficiency/studies/ecodesign_en.htm.

[5] The preparatory study was subsequently complemented by an impact analysis taking into account the extended scope of the measure (to include workstations, thin clients and servers).

electricity consumption by 2020 corresponds roughly to the electricity consumption of Belgium.

Assuming that the average typical energy consumption[6] ('TEC') is improved by 20%-50%, the annual electricity consumption of computers, servers and displays would be reduced by approx. 12.5 TWh annually by 2020, which corresponds roughly to the electricity consumption of Lithuania, and is considered to be significant. Further significant environmental impacts are lead, mercury and brominated flame retardants contained in computers, servers and displays (hazardous substances), and waste, which are targeted by policies on restriction of the use of certain hazardous substances[7] ('RoHS') and waste[8] ('WEEE'). The latter two instruments are complemented by consumer information requirements under the Ecodesign Directive.

The improvement potential leads to a reduction of life cycle costs (cost-effective) without significantly increasing the purchasing price, because it is related to technical solutions which do not involve significant additional costs.

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

Further to Articles 15(2) and 15(4c) of the Ecodesign Directive, relevant European Union and national environmental legislation is considered. Related (voluntary) initiatives at both European Union and Member State levels are taken into account and barriers preventing market take-up of technologies with improved environmental performance are analysed.

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. The environmental performance of computers, servers and displays, including use-phase energy consumption, has not been a decisive factor in the purchasing decision of consumers (particularly in the domestic sector) and no easily accessed and understood information on running costs/energy savings is available, and there is little awareness of the energy consumption and the associated costs (asymmetric information). Furthermore, not all environmental costs are included in electricity prices. As a result consumer (and producer) choices are made on the basis of a lower electricity price not reflecting environmental costs to society (negative externality). Therefore insufficient incentives exist for manufacturers to optimise the environmental performance of computers, servers and displays, in particular the energy consumption, and cost-effective improvement potentials are often not realised. Several initiatives at European Union and Member State level aim at improving the environmental performance of these products. The ENERGY STAR Programme[9], a voluntary labelling scheme, has been quite effective in transforming the market over the last 10 years, although its impact varies across the different market segments. The RoHS and WEEE Directives, along with the Ecodesign Regulations for standby/off mode[10] and for external power supplies[11], have improved – and/or are expected to improve in

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6 A method of testing and comparing the energy performance of computers, which focuses on the typical electricity consumed by a product while in normal operation during a representative period of time.

7 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, OJ L 37, 13.2.2003, p. 19. .

8 Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment, OJ L 37, 13.2.2003, p. 24.

9 COMMISSION DECISION of 11 March 2003 establishing the European Community Energy Star Board (2003/168/EC) See http://www.eu-energystar.org/.

10 Commission Regulation (EC) No 1275/2008 of 17 December 2008 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment.

the future – the environmental performance of computers, servers and displays as related to hazardous substances, waste and electricity consumption. However, these initiatives have not sufficiently improved some of the key elements determining the environmental impact of these product groups, such as power management or the efficiency of the internal power supply. Therefore additional legislative action pursuant to the Ecodesign Directive based on Article 95 of the Treaty should be taken at EU level, and Member States expect a harmonised legislative framework to be set.

Conclusion of Steps 1 and 2

The analysis carried out in Steps 1 and 2 shows that:

– the volume of sales and trade of computers, servers and displays in the European Union is significant;

– the environmental impact of computers, servers and displays is significant, the main environmental aspect being electricity consumption;

– significant cost-effective improvement potentials for electricity consumption exist, which are linked to a wide disparity in the environmental performance of computers, servers and displays on the market with identical functionality;

– neither initiatives at European Union and Member State level nor market forces alone capture the improvement potential for power consumption to a satisfactory extent.

It is concluded that the criteria set out in Article 15(2) of the Ecodesign Directive are met, and computers, servers and displays will be covered by an ecodesign implementing measure pursuant to Article 15(1) of the Ecodesign Directive.

Step 3. Policy objectives and levels of ambition

Further to Annex II of the Ecodesign Directive, the level of ambition for improving the electricity consumption of computers, servers and displays should be determined by an analysis of the least life-cycle cost for the user. The results are reflected in the objectives that the proposed ecodesign Regulation aims to achieve.

Several policy options for achieving market transformation realising the appropriate level of ambition are considered, including business as usual, self-regulation, energy labelling and an ecodesign Regulation on computers, servers and displays.

However, due to the clear mandate of the Legislator for establishing ecodesign requirements for these product groups, the depth of analysis for options other than an ecodesign implementing measure is proportionate for an implementing legal act, and the focus is on assessment of the proposed Regulation.

Step 4. Environmental, economic and social impact assessment

Assessment of the proposed implementing measure involves, in particular, analysis of sub-options for the timing of ecodesign requirements addressing the different technical improvement options for power consumption, taking into account the criteria set out in Article 15(5) of the Ecodesign Directive, and the impacts on manufacturers including SMEs. The degree of intensity of the options varies regarding the stringency of the requirements, the timing for their introduction and the scope of equipment covered.

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[11] Commission Regulation (EC) No 278/2009 of 6 April 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies.

– Sub-option 1: ecodesign requirements becoming effective essentially in one stage 18 months after entry into force of the Regulation. Minimum requirements limited in scope and providing TEC allowances corresponding to approx. ENERGY STAR v.5.0 levels + 30%-45%. Exclusion of thin clients, workstations and servers, and high-end computers from the scope;

– Sub-option 2: ecodesign requirements becoming effective essentially in two stages 6 months (levels based on ENERGY STAR 4.0) and 18 months (levels based on ENERGY STAR 5.0) after entry into force of the Regulation.;

– Sub-option 3: ecodesign requirements becoming effective essentially in one stage 12 months after the entry into force of the Regulation. Minimum requirements based on ENERGY STAR 5.0. Limited scope of requirements for servers, thin clients and workstations. Additional allowances for certain high-end products and functions (e.g. gaming computers), and exclusion of top-end computers from the scope.

The following accumulated electricity and cost savings, and avoided CO2 emissions for products placed on the market from October 2011 up to December 2020, are expected:

	Accumulated electricity consumption (TWh)	Accumulated electricity savings (TWh)	Accumulated electricity cost savings[12] (billion EURO)	Accumulated avoided CO2 emissions[13] (Mt)
No policy (Baseline 1)	1197	-	-	-
Business-as-usual/current policy (Baseline 2)	928	270	43.2	125
Sub-option 1	860	338	54	157
Sub-option 2	832	365	58.4	170
Sub-option 3	835	362	57.9	168

The assessment of the economical, environmental and social impacts of sub-options 1-3 can be summarised on a relative scale from 1 (low) to 4 (high):

	Economic impact (costs)	Environmental impact (electricity/CO_2/electricity cost savings)	Social impact (risk of job losses in SMEs)
Sub-option 1	1	1	1
Sub-option 2	2	4	3

[12] Assumption: 0.16€/kWh.

[13] Assumption: 0.4 kg CO2/kWh.

Sub-option 3	1	4	1

Conclusion on Step 3 and Step 4

After comparison of those options it became clear that the appropriate policy option for realising the improvement potential is a Regulation setting ecodesign requirements with the following main characteristics:

Since sub-option 3 is the preferred option for the intensity of ecodesign requirements, achieving the appropriate balance between positive environmental impacts and electricity cost savings, and possible risks related to jobs and additional costs, is the aim. Therefore ecodesign requirements for total energy consumption (computers), for on, sleep and off modes (computers, displays), for power management (computers, displays) and for the efficiency of internal power supplies (computers, servers) are set essentially in one stage becoming effective one year after entry into force of the measure; in view of the expected introduction of new technologies, the ecodesign requirements should be reviewed not later than three years after the Regulation enters into force.

These ecodesign requirements entail:

– cost-effective reduction of electricity consumption from 12.5 TWh to 16.3 TWh by 2020 compared to the baseline (2) scenario, corresponding to electricity cost savings of EUR 2-2.6 billion, and 5-6.5 million tons avoided CO_2 emissions;

– compatibility and complementarity with existing policy instruments, namely the ENERGY STAR Programme, the Ecodesign Regulations on standby/off mode and external power supplies (energy efficiency), and the RoHS Directive (mercury);correction of market failures and improvement of the functioning of the internal market;

– no significant administrative burdens for manufacturers or retailers;

– insignificant, if any, increase of the purchasing cost, which would be largely offset by savings during the use phase of the product;

– respecting the specific mandate of the Legislator;

– a clear legal framework for product design;

– no significant impacts on the competitiveness of industry and employment, in particular in the SME sector due to the small absolute costs related to product re-design and re-assessment;

MONITORING

Monitoring of the impacts will mainly be done by market surveillance carried out by Member State authorities ensuring that the requirements for ecodesign of computers, servers and displays are met, whereas the appropriateness of scope, definitions and concepts will be monitored by the ongoing dialogue with stakeholders and Member States.