Green ProcA

Green Public Procurement in Action

Green Procurement in Europe
IT

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Introduction

- Energy consumption in Europe's tertiary sector increased by 15.8% between 1999 and 2004 [CCR].
- France's power demand broke a new record in 2011, by 96,350 MW.
- Computer hardware consumption worldwide accounted for 830 TWh in 2008 and is expected to reach 900 TWh in 2012 [Gartner], the equivalent of France's total electricity consumption over 1.7 years.
- Office equipment has become one of the most energy-consuming categories within the tertiary sector, with a share of electricity consumption rising from 20% to 40%.
- This category is responsible for 5% of the nation's greenhouse gas emissions.

Computers

France contains some 40 million computers in operation, half of which are used in companies. The rate of computer ownership has been increasing by approx. 10% a year.

Workstation computer	On	Standby	Off	Total
Electrical power [W]	78.2	2.2	2.7	--
Use time [hours/year]	2,279	3,196	3,285	--
Energy consumption [kWh/year]	178	7	9	194

Average values for a computer equipped with a 3 GHz processor (or equivalent), an integrated graphics card, 512 MB of live memory (RAM) and an 80-Gbyte hard drive

Energy consumption of office equipment

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Laptop computers

The electricity consumption of laptop computers is sharply lower than that of office workstations. However, the complexity of these computers and the architecture of their processor leads to higher production costs.

Laptop computer	On	Standby	Off	Total
Electrical power [W]	32	3	1.5	--
Use time [hours/year]	2,613	2,995	3,153	--
Energy consumption [kWh/year]	84	9	5	98

Average values for a laptop computer equipped with a 1.7-GHz processor (or equivalent), decent 3D graphics capabilities, a 15" screen, 512 MB of live memory (RAM) and a 60-GB hard drive

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Screens

The energy demand differential between cathode ray tube (CRT) monitors and LCD screens is very significant . LCD screens have been experiencing more widespread popularity recently. In 2003, for the first time, LCD screen sales outpaced the number of CRT screens sold

17" LCD screen (reasonably priced)	On	Standby	Off	Total
Electrical power [W]	25	1.2	1.2	--
Use time [hours/year]	2,586	3,789	2,375	--
Energy consumption [kWh/year]	52.2	4.3	3.6	60.4

17" CRT screen	On	Standby	Off	Total
Electrical power [W]	73	3	3	--
Use time [hours/year]	2,586	3,789	2,375	--
Energy consumption [kWh/year]	153.3	10.9	9	173.2

Average values for standard screens in 2009 [Energy Star]

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Printers

Two types of printers are dominant: ink jet and laser. The energy consumption of laser printers is higher than ink jet printers.

Ink jet printer, 11/4 images per min	On	Standby	Off	Total
Electrical power [W]	15	1	-	--
Use rate [pages/year]	3,000 B&W			
	1,000 colour			--
Energy consumption [kWh/year]	0.1	8.7	-	8.8

Laser printer, 32 ipm, B&W	On	Standby	Off	Total
Electrical power [W]	650	40	-	--
Use rate [pages/year]	100,000 B&W			
Energy consumption [kWh/year]	33.8	350.4	-	384.2

Examples of average values of electrical power and electricity consumption of printers, in 2009 [Energy Star]

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Multifunction devices (MFD)

MFD consist of image processing devices that are capable of performing at least two of the following functions: photocopying, printing, digitising or faxing. The energy consumption of an MFD will be 50% less than the cumulative consumption of a printer, scanner, fax machine and photocopier taken separately

MFD, duplex mode, 6 to 12 ipm	On	Standby	Off	Total
Electrical power [W]	500	15	-	--
Use rate [pages/year]	5,000 B&W			
	1,000 colour			--
Energy consumption [kWh/year]	4.8	131.4	-	136.2

Examples of average values of power and electricity consumption for a typical MFD in 2009 [Energy Star]

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Fax machines

The average time spent turned on is typically very short, making standby the predominant mode. The standby mode, during which the fixation unit is being constantly heated, tends to be more energy-consuming than the "On" mode

MFD + Fax machine, 6 - 12 ipm (Laser colour MFD, 6 - 12 ipm)	On	Standby	Off	Total
Electrical power [W]	600	15	-	--
Use rate [pages/year]	5,000 B&W			
	1,000 colour			--
Energy consumption [kWh/year]	4.8	131.4	-	131.9

Examples of average values for a fax machine in 2009 [Energy Star]

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Photocopiers

Energy-efficient and innovative photocopiers strike a good balance between lower consumption in standby mode and shorter preheating times.

Photocopier, duplex mode	On	Standby	Off	Total
Electrical power [W]	1,000	10	-	--
Use rate [pages/year]	80,000 B&W			
	20,000 colour			--
Energy consumption [kWh/year]	53.3	87.6	-	140.9

Examples of average values for a photocopier in 2009 [Energy Star]

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Scanners

At the present time, flat scanners are the most popular models. In the vast majority of cases, these devices are sold without an "off" button and scanners are constantly operating in standby mode if the primary external cable has not been unplugged. A study measured the average consumption for some 20 office scanners and found 95 kWh/year, yet this figure was reduced to 48 kWh/year when discarding the two least efficient devices tested [Enertech]

Telephone systems

Each year over a billion cell phones are sold across the world [WWF]. Even if the amount of electricity consumption remains negligible, cell phone manufacturing actually accounts for 79% of all energy consumed over the entire life cycle of a cell phone.

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New technologies and future trends

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- The office equipment market is relatively saturated
- Technological performance has little room for future evolution
  - Slight drop in the electricity consumption of this category of equipment

- Rise in equipment ownership rates
- Shorter intervals between purchases
- Equipment use practices remain unchanged
  - Risks of an increase in office-based electricity consumption

Potential savings realized by:

- Purchasing energy-saving equipment
- Enhancing user awareness of energy-reducing techniques
- Managing the device end-of-life phase
- …

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Why is it necessary to purchase environmentally-friendly and energy efficient office equipment?

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- Consistent and compliant with European policy in the area of energy supply security and the fight against climate change
- 15 million computers sold every year in Europe
- Raw material consumption, production of wastes and toxic substances
- The obligation in France to incorporate sustainable development into all public procurement procedures during the needs definition stage

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The different types of labels

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- **Official eco-labels (Type I - ISO 14024:1999):** awarded by an independent third party following product compliance inspection against a benchmark for the criteria required by the classification;

- **Environmental self-declarations (Type II - ISO 14021:1999)**: environmental information provided by the manufacturer and/or distributor, without any independent oversight;

- **Eco-profiles (Type III - ISO 14025:2006)**: furnish standardised information on a given product, with emphasis on the life cycle analysis

- + **"Eco-labels"** recognized by the authorities

Terms of use of labels

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- A buyer cannot request a specific label, but instead merely insist on knowing the particular label's given characteristics. The mention "or equivalent" is thus mandatory.
- A buyer can only request the technical specifications inherent to a particular label for the object in question and not for the operations of the company itself.
- An eco-label's specifications are established on the basis of scientific knowledge.
- Eco-labels are adopted by virtue of an agreement reached between the various stakeholders, public authorities, consumer organisation representatives, manufacturers and environmental associations.

- http://curia.europa.eu/juris/document/document.jsf?doclang=EN&text=&pageIndex=1&part=1&mode=req&docid=122644&occ=first&dir=&cid=636399

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Energy star

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- Image processing equipment (printers, scanners, fax machines, photocopiers, etc.)
- Desktop computers (http://www.eu-energystar.org/fr/database/?cmd=selectform;table=ce_desktop)
- Laptop computers / notebooks (http://www.eu-energystar.org/fr/database/?cmd=selectform;table=ce_notebook)
- Servers
- Screens/monitors (http://www.eu-energystar.org/fr/database/?cmd=selectform;table=monitor)
- Total energy consumption in off, standby and hibernation modes
- A restricted base with widespread following throughout the world

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European Eco-label

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- 26 product groups (including television sets, office workstations and laptops for office use)
- Technical and environmental performance standards
  - consume less energy when running and in standby mode
  - contain fewer hazardous substances for human health and the env
  - may be picked up free of charge by the supplier at the end of its useful life
  - can be easily disassembled and recycled
  - life span is extended through the possible implementation of updates
  - less polluting batteries
- The supply currently available serves to further constrain the consumer's choice (e.g. 45 brands of televisions, but not a single computer or laptop for France in 2012).
- Other product categories are being developed (equipment like printers, photocopiers, fax machines and scanners)

http://ec.europa.eu/environment/ecolabel/index_en.htm

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TCO

- Exclusively office computer hardware
- Ergonomic and energy consumption criteria (= Energy Star), electromagnetic field emissions and ecological criteria (heavy metals, hazardous substances found in packaging). Priority assigned to safety.
- Approx. 50% of screens are certified, just a limited number of desktop computers

http://www.tcodevelopment.com/pls/nvp/Document.Show?cid=4146&mid=651

Blue Angel

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- Products with the lowest impact
- Criteria have been established for the majority of office computer equipment, except scanners
- These criteria take into consideration: recycling as of product design, pollution mitigation during manufacturing, energy consumption reductions (standby mode receives priority attention), chemical emissions, noise, and lastly end-of-life computer equipment disposal
- A wide array of products and services now carry this label across the world (http://www.blauer-engel.de/en/products_brands/search_products/search_for_products.php)

http://www.blauer-engel.de/en/index.php

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Nordic Swan

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- Covers over 60 product and service groups
- Covers computers, photocopiers and printers
- The evaluation criteria are based on: reduced water and energy consumption, fewer toxic chemical products, recycling, and waste reuse.
- A wide array of products and services now carry this label across the world (http://www.svanen.se/en/Buy-Svanenmarkt/Ecolabelled_products)

http://www.svanen.se/en/

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Epeat

- Covers over 60 product and service groups
- Covers computers and electronic devices
- Mandatory and optional evaluation criteria are based on: hazardous substances, environmentally-friendly components, equipment end-of-life issues, equipment longevity, Energy Star, recycling potential, corporate environmental certification, packaging.
- Different types of performance-related labels
- A wide array of products and services now carry this label across the world (http://ww2.epeat.net/searchoptions.aspx)

http://www.epeat.net/

Label comparison chart

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	Energy Star	Blue Angel	European Eco-label	TCO
Label characteristics	In Europe, office computer equipment only	Nearly all office equipment	Computer hardware for individual households, office equipment	Office equipment, supplies, telephones
Consumption in operating mode	Yes	No	Yes	No
Consumption in standby mode	Yes	Yes	Yes	Yes
Consumption in hibernation mode	Yes	Yes	Yes	Partially
Workplace security	No	Yes	Yes	Yes
Noise emissions	No	Yes	Yes	Yes
Mandatory / optional	Optional	Optional	Optional	Optional
Cost of the labelling application	No	Yes	Yes	Yes
Geographic zone of coverage	Worldwide	Germany, also open to foreign producers	Worldwide	Europe and North America

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Total cost approach

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- Beyond the purchase price, what is the actual cost of making a purchase?
- Various definitions assigned to the same notion: optimised integration of actual product cost
- Use cost / total cost (life cycle)?
- For more information: http://ec.europa.eu/environment/gpp/lcc.htm
- A cost estimation tool: http://www.smart-spp.eu/guidance

	Sustainable purchase	Conventional purchase
Acquisition price	(+)	-
Use cost	-	+
Maintenance	-	+
Reuse Recycling End of life	-	+
Indirect and external costs: Environmental degradation Social problems Manufacturing, transport	-	+
Actual cost for the "community"	----	++++

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User recommendations

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- Such guidelines determine the eventual success of a sustainable market.
- Daily use patterns
- Be sure to activate, upon receipt, the energy-saving modes on all devices.
- Use the main on/off switches for all devices. Turn off ink jet printers following their use since they do not require preheating.
- Turn on peripherals only when necessary.
- Have your equipment picked up at the end of its service life by your suppliers or an association.
- Select two-sided printing on recycled or sustainably managed paper; only print when necessary; read documents on the screen rather than on printouts.
- Print drafts on the back side of used paper.
- Remove any unnecessary programs / files / services.

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Procurement policies (1)

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- Before proceeding with a purchase, determine the actual needs (inventory existing equipment and describe current practices).
- Enhance user awareness and involve users in both the purchase and proper equipment operations (see below).
- Do not systematically renew purchases; first assess the alternatives available, study actual and current needs on a case-by-case basis.
- Extend the service life of equipment, organise the end-of-life phase.
- Prioritise the purchasing of hardware that meets specifications of the various existing labels and/or draw up a benchmark based on current guidelines.
- Compare the savings generated by application of the various labels.
- Activate, upon all new equipment receipt, the energy-saving modes.
- Remain available to accompany, explain and remind users of the best practices.

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Procurement policies (2)

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- Endeavour to reduce energy consumption (Energy Star) for equipment in operation or on standby
- Laptop computers consume between 50% and 80% less energy than workstations
- LCD screens consume 60% less than monitors when in operating mode
- Ink jet printers consume much less than laser printers
- Thermal photocopiers are the most energy efficient
- When choosing a fax machine, remember to verify its consumption in standby mode
- A multifunction device consumes less than the sum of the various machines it is designed to replace

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Procurement policies (3)

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- Protecting user health and safety by: mitigating nuisances due to noise and electromagnetic radiation, preventing contact with certain noxious substances, and making ergonomically-designed equipment available to enhance user comfort
- Limiting resource consumption during product manufacturing through reliance on recycled raw materials and on product designs featuring sustainability and ease of recycling
- Reducing equipment end-of-life waste volumes through possible functional extensions

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Examples of best practices (1)

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Example of an analytical grid used to establish an existing baseline

For each item proposed, evaluate the product's sustainable approach		☹ No information	😐 Little information	☺ Information ruled satisfactory
Reliance on ecological solutions stemming from suppliers on the market:				
Energy	Energy consumption Energy consumption when left in standby mode Products that satisfy the requirements of an energy efficiency label (e.g. TCO, Energy Star)	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Materials	Contains recycled materials Contains polluting products	☐ ☐	☐ ☐	☐ ☐
Labelling process	Product meets the stipulated requirements of an environmental quality label			
End-of-life management	Reuse / recycling	☐	☐	☐

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Examples of best practices (2)

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Bid assessment and rating (Example for metropolitan Roanne - France)

- The bid's technical merits (40%), as evaluated based on the technical quality compared to the minimum requirements listed in the set of specifications
- The assessed price (30%), as evaluated on the basis of supply prices
- The measures implemented in terms of sustainable development (20%), as determined on the basis of the data sheet below submitted as an appendix to the bid
- Delivery and installation timetable (10%)

Other information

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- European Union toolkits covering 20 product categories (http://ec.europa.eu/environment/gpp/toolkit_en.htm) including:
- office equipment; for the time being, only available in English (2012 version) (http://ec.europa.eu/environment/gpp/pdf/criteria/office_it_equipment.pdf)
- transport services; for the time being, only available in English (2012 version) (http://ec.europa.eu/environment/gpp/pdf/criteria/transport.pdf)
- green electricity; for the time being, only available in English (2012 version) (http://ec.europa.eu/environment/gpp/pdf/criteria/electricity.pdf)

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Environmental goals in IT workplace

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Design	Production
▪ Increase of energy efficiency ▪ Cost reduction ▪ Environmental impact reduction	▪ Reduction/elimination of use of hazardous substances ▪ Decrease of environmental impacts ▪ Optimization of carriage and pack
▪ Correct energy use management ▪ Information management on environmental impacts ▪ Use of alternative sources of energy	▪ Reuse ▪ Recycling e decomposability ▪ Recycling of consuming materials
Use	End of Life

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From strategy to fulfilment

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GPP strategy for tenders concerning Information Technology workplace wants to face some basic environmental matters, which seem to be extremely relevant in our context and, in particular, it is driven by three main goals:

1. **Efficiency and Savings of sources use**, especially Energy – to reach such a result, reduction of traditional energy sources and increase of energy efficiency towards use of alternative ones, become high strategical approaches. Therefore, in all IT tenders, products marked by Energy Star or equivalent, in their last approved version, are strictly recommendated.

2. **Reduction of use of hazardous substances -** to reduce this kind of use, minimal criteria must be defined in order to offer only products, which life cycle is whether free or low containing of hazardous substances. Therefore, in all IT tenders, it is completely forbidden to use such substances, if their quantities ecceed the prescriptive limits, as defined by RoHS Directive.

3. **Product waste reduction -** to contain quantity of waste, it is necessary to adopt products easily reuseable, decomposable and recycleable, having also a low packaging volume. Therefore, in all IT tenders, besides conformity to WEEE Directive, guarantee extention for 3 years and spare parts availability for 5 years up to delivery date are highly recommendated.

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Adopted methodology

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In order to reach those three prior goals, it has been decided to proceed in accordance with the following methodology:

1. **Rules selection which refer to ecolables** and to standards worked out on an European level (Ecolabel, Nordic Swan, Der Blaue Engel) in case of major strictness as regards to basic ones
2. **Analysis of ecolabel differences**
3. **Individuation of environmentally supportable characteristics** in line with strategic goals
4. **Selection of general criteria concerning environmental supportability** for electronic office equipment
5. **Market research** towards dispensing questionnaire and meetings with trade associations
6. **Individuation of specific criteria** of environmental supportability

   addressed to each commodity

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Environmental Criteria for Notebook

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	Criteria	Verification
Energy Efficiency	All pruducts shall have an Energy Star label according to the version of Energy Star that is applicable at the time of declaration and that can be found at www.energystar.gov	The tenderer shall submit documentation showing that the Energy Star label requirement are fulfilled.
	Additional points shall be awarded in proportion to the decrease of the Typical Energy Consumption (ETEC) value compared to the minimum value allowed for the configuration.	The tenderer shall submit a test report carried out according to the Energy Star test methods for the computer models. Appropriate means of proof are: a) Energy Star documents showing the ETEC value of the device in relation to the supply voltage of 230V; b) a test report produced by an accredited laboratory according to the UNI EN ISO 17025 and carried out according to the Energy Star test methods , showing ETEC value of the device in relation to the supply voltage of 230V. In both cases the documentation submitted must be related to the device in the specific configuration offered, or may be related to a more advanced configuration in terms of processor, memory, GPU, etc.

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	Criteria	Verification
Battery Performance and Efficiency	The battery in the base configuration must have an autonomy of at least 300 minutes in the "performance and battery test" mode.	The tenderer shall submit a test report carried out according to benchmark BAPCO MobileMark2012.
	Additional points shall be awarded in relation to the increase of the device autonomy configured with the secondary battery, compared to the minimum value allowed for the configuration. It is noted that, in the case where the secondary battery is natively used together with the basic one, the autonomy of the device must be reported with the concurrent use of two batteries.	The tenderer shall submit a test report carried out according to benchmark BAPCO MobileMark2012
	Additional points shall be awarded if at least one battery provided (primary or secondary) will be able to maintain at least 70% of the nominal capacity after 800 charge/discharge cycles (life cycle extension of the batteries). This points will be higher if both batteries (primary and secondary) will presenting the above mentioned characteristics. Points will also be awarded if the above-mentioned characteristics are related to the individual cells constituting the batteries, rather than to the entire ones. battery.	Test report carried out according to conditions specified in par. 7.6.1 of IEC EN 61960 'endurance in cycles'.

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	Criteria	Verification
Maintenance	Additional points shall be awarded in relation to the extension of maintenance services up to 60 months.	The applicant shall declare the compliance with this requirement in the offer. The requirement will be part of the contract clauses.
Device Weight	The equipment shall have a weight not exceeding the requirement set out for each lot. The weight refers to the basic configuration, complete, including optical disc, hard disk, RAM and battery.	Requirement verified by Consip during the technical verification procedure.
	Additional points shall be awarded in relation to the decrease of the device weight compared to the minimum value allowed for the configuration. The weight refers to the basic configuration, complete, including optical disc, hard disk, RAM and battery.	Requirement verified by Consip during the technical verification procedure.

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	Criteria	Verification
Display	The backlight of the display shall not contain any mercury.	Test report, produced by a recognized body according to the test procedures provided by IEC 62321, showing that the mercury content is not detectable. It presumes compliance to hold an eco-label showing that the requirement is fulfilled.
Sound emissions	The 'declared A-weighted sound power level', in accordance with ISO 9296, shall not exceed: — 35 dB (A) in the idle mode, — 40 dB (A) in hard-disk operating.	The applicant shall provide a report carried out by a laboratory accredited under EN ISO/IEC 17025, certifying that the noise emission levels have been measured in accordance with ISO 7779 and declared in accordance with ISO 9296. It presumes compliance with the requirement to hold an eco-label showing that the requirement is fulfilled.
Sound emissions	Additional points shall be awarded if the 'declared A-weighted sound power level', in accordance with ISO 9296, is: •LWAd ≤ 30 dB(A)) in the idle mode; •LWAd ≤ 34 dB(A) in hard disk operating.	The applicant shall provide a test report carried out by a laboratory accredited under EN ISO/IEC 17025, certifying that noise emissions levels have been measured in accordance with ISO 7779 and declared in accordance with ISO 9296.

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Environmental Criteria for Computer Desktop

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	Criteria	Verification
Energy Efficiency	All pruducts shall have the Energy Star 5.0 label or equivalent	Documentation showing that the Energy Star label requirement are fulfilled.
	Additional points shall be awarded in proportion to the decrease of the Typical Energy Consumption (ETEC) value compared to the minimum value allowed as following: -75% TEC requirement ≥ ETEC › 65% TEC requirement (1 point -65% TEC requirement ≥ ETEC › 60% TEC requirement (2 points) - ETEC ≤ 60% TEC requirement (3 points)	Test report carried out according to the Energy Star 5.0 test methods showing that the TEC value of the device, in relation to the supply voltage of 230V, is compliant with the value declared.

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Environmental Criteria for Computer Desktop

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	Criteria	Verification
User Manual	Additional points shall be awarded if the tenderer shall guarantee the availability of instruction containing information on the use of the device energy-saving functions.	The tenderer shall provide instruction manual or information sheets containing the required information on the use of the device energy-saving functions. It presumes compliance with the requirement to hold an eco-label showing that the requirement is fulfilled.
Maintenance / spare parts	Additional points shall be awarded if the tenderer shall guarantee: the availability of spare parts for at least 5 years from the time of purchase; the extension of maintenance services up to 60 months.	The applicant shall declare the compliance with these requirement in the offer. The requirement will be part of the contract clauses.
Plastic parts marking	Additional points shall be awarded if plastic parts › 25 g and covering a flat surface of more than 200 mm2 carry permanent labelling in accordance with the latest versions of ISO 11469.	Disassembly instructions showing the plastic parts marked in accordance with the latest versions of ISO 11469.

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Environmental Criteria for Computer Desktop

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	Criteria	Verification
Recyclable Design	Additional points shall be awarded if products are designed as to allow an easy (manual) disassembly for recycling purposes, in order to separate metal and plastic parts in covers/housing.	Disassembly instructions showing that the requirement is fulfilled.
Sound Emissions	The 'declared A-weighted sound power level', in accordance with ISO 9296, shall not exceed 40 dB (A) in the idle mode.	The applicant shall provide a test report carried out by a laboratory accredited under EN ISO/IEC 17025, certifying that noise emission levels have been measured in accordance with ISO 7779 and declared in accordance with ISO 9296. It presumes compliance to hold an eco-label showing that the requirement is fulfilled.

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Environmental Criteria for Monitor

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	Criteria	Verification
Energy Efficiency	All pruduct shall have the Energy Star 5.0 for Display label or equivalent.	The tenderer shall submit documentation showing that the Energy Star label requirement are fulfilled.
	Additional point will be awarded if the Maximum Sleep Mode Power Requirement is ‹ 0,5 watts	The tender shall submit documentation carried out according to the Energy Star 5.0 test methods showing that the requirement is fulfilled.
Maintenance / spare parts	Additional points shall be awarded if the tenderer shall guarantee: the availability of spare parts for at least 5 years from the time of purchase; the extension of maintenance services up to 60 months	The applicant shall declare the compliance with these requirement in the offer. The requirement will be part of the contract **clauses.**
Vertical tilt	Additional points shall be awarded if is possible to tilt the display in the vertical plane.	**Technical sheets** showing that the requirement is fulfilled.

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Environmental criteria for Imaging Equipment

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	Criteria	Verification
Energy Efficiency	All pruducts shall have an Energy Star label according to the version of Energy Star that is applicable at the time of declaration and that can be found at www.energystar.gov	The tenderer shall submit documentation showing that Energy Star label requirement is fulfilled.
Recycled paper	Imaging equipment shall be capable of processing recycled paper made of 100 % post-consumer paper that meets the requirements of EN 12281:2002 also in double printing mode	The tenderer shall provide a declaration of compliance carryied out by the producer or documentation (instruction manual or information sheets) showing that the requirement is fulfilled.
User Manual	A copy of the booklet or user manual or equivalent, shall be provided in italian or if not available in english, with instructions on how to maximise the environmental performance of the equipment.	The tenderer shall provide a digital form of the booklet or user manual or of all relevant pages of the user manual with informations as specified in the requirement
Design for Disassembly	The equipment shall be designed for disassembly.	Disassembly instructions detailing dismantling procedures and diagrams/scheme of the imaging equipment. (ie. **RAL-UZ 122, ed. 2009 o RAL-UZ 171, ed.2012).** It presumes compliance to hold an eco-label showing that the requirement is fulfilled.

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Environmental criteria for Imaging Equipment

Green ProcA
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	Criteria	Verification
Hazardous Substances and Heavy Metals	▪ ***Azo-colorants that might release carcinogenic aromatic amines*** appearing on the list of aromatic amines according to Annex XVII to Regulation (EC) No 1907/2006, shall not be used in toners and inks supplied. ▪ Only those substances which are listed as so-called existing substances in Annex II to Commission Regulation (EC) No 2032/2003 may be added as ***active biocides*** **to inks supplied.** No substances may be added to toners and inks (including solid inks) supplied which contain **mercury, cadmium, lead, nickel or chromium-VI-compounds** as constituents. Production-related contamination by heavy metals can't be higher than 100 ppm. Exempted are high molecular weight complex nickel compounds ▪ In accordance with classification criteria set out by Council Directive 67/548/EC, Directive 67/548/EC, Regulation (EC) No 1272/2008, no substances may be added to toners and inks (including solid inks) supplied with the ***following R phrases*** or which meet the requirements for such classification: R50, R50/53, R51/53, R59 R45, R49, R40, R46, R48, R60, R61, R60/61, R60/63, R61/62, R62, R63, R62-63, R64, R23, , R24, R25, R26, R27, R28, R39/23/24/25/26/27/28, R68/20/21/22, R48/25/24/23, R48/20/21/22, R65, R42, R43, R39-41, R29, R31, R32	*Material Safety Data* Sheets compliant with Regulation (EC) 1907/2006 shall be provided and showing that substances requirements are fulfilled. Material Safety Data Sheets for toners have to show a negative AMES Test.

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Environmental criteria for Imaging Equipment

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	Criteria	Verification
Substances Emissions	The product must fulfil the maximum limit values expressed below for the substances indicated: - TVOC ‹=18,0 mg/h (Colour Printing) or ‹=10,0 mg/h (Monochrome printing) - Benzene ‹=0,05 mg/h - Styrene ‹=1,0 mg/h (Monochrome printing) or ‹=1,8 mg/h (Colour Printing) - Ozone* ‹=3.0 mg/h (Colour Printing) or ‹=1.5 mg/h (Monochrome printing) - Dust* ‹= 4.0 mg/h - Not identified single substances VOC ‹=0,09 mg/h * Dust and Ozone limits refers only to electrophotographic devices	The applicant shall provide a test report carried out by a laboratory accredited under EN ISO/IEC 17025, certifying that the emission rates have been measured in accordance with the requirements described in Der Blaue Engel RAL UZ 171, ed. 2012 - Appendix S-M –“Test method for the determination of emissions from hardcopy devices” or equivalent. Product with Der Blaue Engel (RAL UZ 171, ed. 2012) ecolabel or equivalent presumes compliance with the requirement.

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Environmental criteria for Imaging Equipment

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	Criteria	Verification
Sound Emissions	The limit value **LWAd,lim,bw** for monochrome printing shall be determined in dependence of the operating speed **Sbw** given to one decimal place according to the following formula: **LWAd,lim,bw = (59 + 0.35 * Sbw) dB(A)** **LWAd,lim,bw** = A-weighted sound-power level in dB(A) for monochrome printing to be complied with, given to one decimal place, **Sbw** = operating speed for monochrome printing in pages per minute. Accordingly, the following applies to the limit **LWAd, lim,co** for colour printing on parallel systems: **LWAd,lim,co = (61 + 0.30 Sco) dB(A)** **LWAd,lim,co** = A-weighted sound-power level in dB(A) for colour printing to be complied with, given to one decimal place, **Sco** = operating speed for colour printing in pages per minute.	The applicant shall provide a report carried out by a laboratory accredited under EN ISO/IEC 17025, certifying that the noise emission levels have been measured in accordance with ISO 7779 and declared in accordance with ISO 9296. It presumes compliance with the requirement to hold an eco-label showing that the requirement is fulfilled (ie. Nordic Swan (ver. 5.4), Der Blaue Engel (RAL UZ 171, ed. 2012, RAL UZ 122, ed. 2009), Eco Mark Product Category No.122, ver. 2.11).

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Environmental criteria for Server

Green ProcA
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	Criteria	Verification
Energy Efficiency	Additional points will be awarded if a report carried out according with SPECPOWER certify an Overall ssj_ops / watt value at least of 4500.	Energy Efficiency reports carried out in accordance with the benchmark SPecpower_ssj2008 (ie prepared in accordance with the "Full Disclosure Report" provided by SPEC and that can be found at website http:// www.spec.org/power_ssj2008), certifying the"Overall ssj_ops / watt" value and showing that the requirement is fulfilled. This benchmark will be run on the server configurations with the CPU offered installed.
	Additional points will be awarded in proportion to the increase of the power supplies energy efficiency as defined in par. 3.6 test procedures provided by EPRI Generalized Internal Power Supply Efficiency Test Protocol available at www.efficientpowersupplies.org This points will be awarded if both devices offered (single processor server and dual processor server) will present the above-mentioned characteristics.	Power supply energy efficiency test reports or documents certifying the 80 Plus label. The applicant shall provide a test report carried out by a laboratory accredited under EN ISO/IEC 17025, certifying that the power supply energy efficiency and ITHD value have been measured in accordance with the test procedures provided by EPRI Generalized Internal power Supply Efficiency test Protocol (available at www.efficientpowersupplies.org) in relation to the supply voltage of 230V, as specified in par. 5.1.2 1.1 and 1.2 of the Specification. It presumes compliance with the requirement to hold the " 80 Plus Silver ", "80 Plus Gold "and "80 Plus Platinum" depending on the efficiency levels declared.

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Environmental criteria for Server

Green ProcA
Green Public Procurement in Action

	Criteria	Verification
Energy Efficiency	Additional points will be awarded in proportion to the increase of the power supplies energy efficiency taking into account the ITHD value (20% Load).	Power supply energy efficiency test reports or documents certifying the 80 Plus label. The applicant shall provide a test report carried out by a laboratory accredited under EN ISO/IEC 17025, certifying that the power supply energy efficiency and ITHD value have been measured in accordance with the test procedures provided by EPRI Generalized Internal power Supply Efficiency test Protocol (available at www.efficientpowersupplies.org) in relation to the supply voltage of 230V, as specified in par. 5.1.2 1.1 and 1.2 of the Specification. It presumes compliance with the requirement to hold the " 80 Plus Silver ", " 80 Plus Gold “and "80 Plus Platinum" depending on the efficiency levels declared.
Energy Efficiency and Heat Dissipation	The server energy consumption in relation to the its maximum configuration (maximum number of power supplies, maximum number of processors, maximum memory, etc.) must not exceed 1.300VA. Considering the maximum configuration, the heat dissipation from server must not exceed 4.500BTU per hour.	Technical sheets or brochure or other technical documentation showing that the requirement is fulfilled.

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Environmental Goals in the IT Context

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Design

- Increase of energy efficiency
- Reduction of costs
- Reduction of environmental impact

Production

- Reduction/elimination of the use of dangerous substances
- Reduction of environmental impact
- Optimisation of transport and packaging

Use

- Management of the correct use of energy
- Management of environmental impact information
- Use of renewable source energy

Disposal

- Reuse
- Recycling and possibility of disassembly
- Recycling of consumables

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LCC in desktop computers

Green ProcA
In pratica... acquisti verdi!

buy smart
Green Procurement for Smart Purchasers

	Offer 1		Offer 2		Offer 3		Offer 4		Offer 5		Offer 6	
Provider (name)	Company 1		Company 2		Company 3		Company 4		Company 5		Company 6	
Device type	xxx		xxx		xxx		xxx		xxx		xxx	
Technical Details												
Category (please check spelling, see list below)	Computer		Computer		Computer		Computer		Computer		Computer	
Number of devices to be purchased [number]	0	n	0	n	0	n	0	n	0	n	0	n
Average utilisation of devices referring to 40h/week [%]	0	%	0%	%	0%	%	0%	%	0%	%	0%	%
Average hours per year in on mode [hours/year]	0	h/y	0	h/y	0	h/y	0	h/y	0	h/y	0	h/y
Average hours per year in sleep mode [hours/year]	0	h/y	0	h/y	0	h/y	0	h/y	0	h/y	0	h/y
Average hours per year in standby mode [hours/year]	0	h/y	0	h/y	0	h/y	0	h/y	0	h/y	0	h/y
Power consumption in on mode [W]	0	W	0,0	W	0,0	W	0,0	W	0,0	W	0,0	W
Power consumption in sleep mode [W]	0	W	0,0	W	0,0	W	0,0	W	0,0	W	0,0	W
Power consumption in standby mode [W]	0	W	0,0	W	0,0	W	0,0	W	0,0	W	0,0	W
Investment Costs												
Purchasing costs per device (Euro/device)	0,0	€	0,0	€	0,0	€	0,0	€	0,0	€	0,0	€
Installation costs per device (Euro/device)	0,0	€	0,0	€	0,0	€	0,0	€	0,0	€	0,0	€
Delivery expenses (Euro/device)	0,0	€	0,0	€	0,0	€	0,0	€	0,0	€	0,0	€
Assessories (Euro/device)	0,0	€	0,0	€	0,0	€	0,0	€	0,0	€	0,0	€
Total investment costs for all devices [Euro]	0,0	€	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€
Energy Costs per Year												
Electric energy price (Euro/kWh)	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€
Energy consumption per year (kWh/year)	0,0	kWh	0,0	kWh	0,0	kWh	0,0	kWh	0,0	kWh	0,0	kWh
Energy consumption costs per year	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€
Other Running Costs per Year												
Hourly wage for the maintenance [Euro/hour]	0	€/h	0	€/h	0	€/h	0	€/h	0	€/h	0	€/h
Maintenace effort per device [min/device]	0	min	0	min	0	min	0	min	0	min	0	min
Maintenace costs per device [€]	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€
Other Costs per device [Euro/device]	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€	0,00	€

Total costs | best economic offer | input

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Example of LCC in desktop computers

PC Desktop		
Savings du to energy efficiency		
	1 PC 57% TEC	1 PC Energy Star
Consumption (kWh/a)	150	234
Consumption per year/item	€ 21	€ 33
Consumption per 400.000 items	€ 8.400.000	€ 13.104.000
Consumption per 400.000 items (5 years life cycle)	€ 42.000.000	€ 65.520.000
Savings per year/item	€ 12	
Savings per years (400.000 items)	€ 4.704.000	
Savings per year (5 years life cycle)	€ 23.520.000	
CO_2 avoided (tons)		12.230

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