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EU green public procurement criteria for imaging equipment, consumables and print services

EU GPP criteria for imaging equipment, consumables and print services

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1 INTRODUCTION

EU green public procurement (GPP) criteria are designed to make it easier for public authorities to purchase goods, services and works with reduced environmental impacts. The use of the criteria is **voluntary**. The criteria are formulated in such a way that they can, if deemed appropriate by the individual authority, be (partially or fully) integrated into the authority's tender documents with minimal editing. Before publishing a call for tender, public authorities are advised to check the available offer of the goods, services and works they plan to purchase on the market where they are operating.

When a contracting authority intends to use the criteria suggested in this document, it must do so in a manner which ensures compliance with the principles of equal treatment, non-discrimination, proportionality, transparency and the requirements of EU public procurement legislation (see, for instance, Articles 42, 43, 67(2) or 68 of Directive 2014/24 and similar provisions in other EU public procurement legislation). This implies inter alia that award criteria or contract performance conditions shall not be chosen or applied in a way that discriminates directly or indirectly against economic operators from other Member States or from third countries. Practical information on these aspects can also be found in the 2016 handbook on 'Buying green!', available at http://ec.europa.eu/environment/gpp/buying_handbook_en.htm

This document lists the EU GPP criteria for imaging equipment, consumables and print services. An accompanying technical report provides the full rationale for selecting these criteria and gives references for further information.

The criteria are split into selection criteria, technical specifications, award criteria and contract performance clauses. The criteria are of two types:

- **Core criteria** — which are designed to allow for easy application of GPP, focusing on the key area(s) of environmental performance of a product and aimed at keeping administrative costs for companies to a minimum.
- **Comprehensive criteria** — which take into account more aspects or higher levels of environmental performance, for use by authorities that want to go further in supporting environmental and innovation goals.

The formulation 'same for core and comprehensive criteria' is inserted if the criteria are identical for both types.

1.1 Definition and Scope

The product group 'imaging equipment, consumables and print services' includes:

- **Imaging equipment**¹, meaning products marketed for office or domestic use, or both, and whose function is one or both of the following:
 - a) to produce a printed image in the form of a paper document or photo through a marking process either from a digital image, provided by a network/card interface or from a hardcopy through a scanning/copying process;
 - b) to produce a digital image from a hard copy through a scanning/copying process.

Excluded from the scope are:

- a) digital duplicators,
 - b) mailing machines,
 - c) facsimile (fax) machines.
- **Consumables**, meaning replaceable products essential to the functioning of the imaging equipment product. They can be replaced or replenished by either the end user or service provider during the normal usage and life span of the imaging equipment product. Consumables covered under the scope of this EU GPP include containers and cartridges.

Container means an end-user replaceable product that holds toner or ink and that fits onto or into or is emptied into an imaging equipment product. Containers do not contain integrated components or moving parts integral to the imaging product's function. Containers may also be called bottles or tanks.

Cartridge (Ink/toner) means an end-user replaceable product, which fits into or onto an imaging equipment product, with a printing-related functionality that includes integrated components or moving parts integral to the imaging equipment's function beyond holding the ink or toner material. Cartridges may also be called modules.

Cartridges and containers can be:

- new built (original equipment manufacturers (OEM) and non-OEM manufactured, including counterfeits)
 - remanufactured (by OEM and non-OEM)
 - refilled (by OEM and non-OEM).
- **Print services**, meaning service agreements where the price is linked to the quantity of printed pages. These agreements can include the supply of imaging equipment products and/or consumables, maintenance, end-of-life activities and optimisation of the organisation's document output.

Imaging equipment can be classified by type, and these different types are included within the scope of the criteria:

¹ Imaging equipment that are medical devices according to Article 1(2)(a) to Council Directive 93/42/EEC (or, from 26 May 2021, according to Article 2(1) to Regulation 2017/745) are not covered by this document.

- **Printer:** A product whose primary function is to generate paper output from electronic input. A printer is capable of receiving information from single-user or networked computers, or other input devices (e.g., digital cameras). This definition is intended to cover products that are marketed as printers, and printers that can be field-upgraded to meet the definition of a multifunctional device (MFD).
- **Copier:** A product whose sole function is to produce paper duplicates from paper originals. This definition is intended to cover products that are marketed as copiers, and upgradeable digital copiers (UDCs).
- **Multifunctional device (MFD):** A product that performs two or more of the core functions of a printer, scanner, copier, or fax machine. An MFD may have a physically integrated form factor, or it may consist of a combination of functionally integrated components. MFD copy functionality is considered to be distinct from the single-sheet convenience copying functionality sometimes offered by fax machines. This definition includes products marketed as MFDs, and ‘multi-function products’ (MFPs).
- **Scanner:** A product whose primary function is to convert paper originals into electronic images that can be stored, edited, converted, or transmitted, primarily in a personal computing environment. This definition is intended to cover products that are marketed as scanners.
- **Professional imaging product:** A printer or MFD marketed as intended for producing deliverables for sale, with the following features:
 - a) supports paper with basis weight greater than or equal to 141 g/m²;
 - b) A3-capable;
 - c) if product is monochrome, monochrome product speed equal to or greater than 86 ipm;
 - d) if product is colour, colour product speed equal to or greater than 50 ipm;
 - e) print resolution of 600 x 600 dots per inch or greater for each colour;
 - f) weight of the base model greater than 180 kg; and
 five of the following additional features for colour products or four for monochrome products, included as standard with the imaging equipment product or as an accessory:
 - g) paper capacity equal to or greater than 8,000 sheets;
 - h) digital front-end (DFE);
 - i) hole punch;
 - j) perfect binding or ring binding (or similar, such as tape or wire binding, but not staple saddle stitching);
 - k) dynamic random access memory (DRAM) equal to or greater than 1,024 MB.
 - l) third-party colour certification (e.g., IDEAlliance Digital Press Certification, FOGRA Validation Printing System Certification, or Japan Colour Digital Printing Certification, if product is colour capable); and
 - m) coated-paper compatibility.

Complementary definitions are listed below:

- **Drum units:** An end-user replaceable product, which fits into an imaging equipment product and includes a photosensitive drum.
- **Fusers units:** An end-user replaceable product, which fits into an imaging equipment product and consists of a pair of heated rollers that fuse toner onto output media.

- **Transfer unit:** An end-user replaceable product, which fits into an imaging equipment product and supports the transfer of toner onto output media ahead of a fusing process.
- **New built:** A new cartridge/container.
- **Remanufactured cartridge or container:** A cartridge or container that, after having been used at least once and collected at its end-of-life, is restored to its original condition and performance or better, for example by replacing wear parts and refilling with new toner or ink (including solid ink). The resulting product is sold with the same warranty as a new cartridge or container.
- **Refilled cartridge or container:** A cartridge or container that has been used and filled with new toner or ink (including solid ink)
- **Counterfeit:** A new cartridge/container manufactured by a third party (not an OEM) but illegally branded under an OEM brand name.

1.2 General note on verification

For a number of criteria, the proposed means for verifying is to provide test reports. For each criterion, the relevant test methods based on internationally recognised measurement methods and standards are indicated. In this way it can be ensured that the performance claims provided by the tenderers are verifiable, repeatable, auditable and above all comparable. It is up to the public authority to decide at which stage such test results should be provided. In general, it does not seem necessary to require all tenderers to provide test results from the outset. To reduce the burden on tenderers and public authorities, a self-declaration could be considered sufficient when submitting bids. Afterwards, there are different options for if and when these tests could be required:

a) At the tendering stage:

For *one-off supply contracts*, the bidder with the most economically advantageous tender could be required to provide this proof. If the proof is deemed to be sufficient, the contract can be awarded. If the proof is deemed insufficient or non-compliant then:

- i) where the means of verification concerns a technical specification, the proof would be requested from the next highest scoring bidder who would then be considered for contract award;
- ii) where the means of verification concerns an award criterion, the additional points awarded would be removed and the tender ranking would be recalculated with all the ensuing consequences applying.

A test report only ensures that a sample product has been tested for certain requirements, not the items actually delivered under the contract. For framework contracts, the situation may be different. This scenario is covered further in the next point on contract execution and in the additional explanations below.

b) During contract execution:

Test results could be requested for one or several items delivered under the contract, either in general, or if there are doubts about false declarations. This is particularly important for framework contracts which do not stipulate an initial order.

It is recommended to explicitly set contract performance clauses. These clauses should stipulate that the contracting authority is entitled to carry out random verification tests at any time during the term of the contract. If the results of such tests show that the delivered products do not meet the criteria, the contracting authority will be entitled to apply penalties and has the possibility to terminate the contract. Some public authorities include conditions that if, following the tests, the product is meeting their requirements, the testing costs have to be borne by the public authority; but if the requirements are not met, the costs have to be borne by the supplier.

For *framework agreements*, the point at which proof has to be provided will depend on the specific set-up of the contract:

- i) For framework agreements with a single operator where the individual items to be delivered are identified when the framework agreement is awarded, and where it is just a question of how many units will be needed, the same considerations apply as for the one-off supply contracts described above;
- ii) For framework agreements that pre-select several potential suppliers with ensuing competitions among those pre-selected, tenderers will only need to show at this initial pre-selection stage their capability of delivering items meeting the minimum performance requirements of the framework agreement. For ensuing call-down contracts (or orders) that are awarded following the competition among the pre-selected suppliers, in principle the same considerations as under a) and b) above apply, if additional requirements have to be proven under the competition. If the competition is decided only on the basis of price, then a check at the contract execution stage should be considered.


It is also important to highlight the option for bidders to provide verification based on products holding a relevant Type I ecolabel (according to ISO 14024) fulfilling the specified requirements. Such products should be deemed to comply with the relevant criteria, and verification would be requested following the same approach as has been set out for test results.

Please also note that, in accordance with Article 44 (2) of Directive 2014/24/EU, contracting authorities must accept other appropriate means of proof. This could include a technical dossier of the manufacturer where the economic operator concerned had no access to test reports or no possibility of obtaining them within the relevant time limits. This is on the condition that the lack of access was not attributable to the economic operator concerned and that the economic operator concerned proves that the works, supplies or services provided by it meet the requirements or criteria set out in the technical specifications, the award criteria or the contract performance conditions. Even if there is a reference to a certificate/test report drawn up by a specific conformity assessment body responsible for performing the tests, the contracting authorities must also accept certificates/test reports issued by other equivalent assessment bodies.

As a pre-requisite, the call for tender must include a clause to ensure that the imaging equipment and consumables to be procured meet all respective legal requirements of the EU and country (countries) in which the products are procured, for instance the CE marking, the Restriction of Hazardous Substances (RoHS) Directive, the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and the Waste Electric and Electronic Equipment (WEEE) Directive, where applicable.

2 KEY ENVIRONMENTAL IMPACTS

Based on available scientific evidence, the main environmental impacts of imaging equipment, consumables and print services from the lifecycle perspective are summarised in the tables below (for further details, see the technical report). The same table also presents the EU GPP approach to mitigate or reduce those impacts.

Key environmental aspects		GPP approach
<ul style="list-style-type: none"> • Use of electricity for printers, MFDs and scanners. • Use of consumables, particularly paper and cartridges (for printers and MFDs). • Manufacturing of printers, MFDs and scanners, particularly for more energy efficient products (e.g. laser technologies). • Generation of potential hazards from improper disposal of waste electronic equipment. • Emission during use. • Content of hazardous substances. • Manufacturing of cartridges, in particular of the housing and print head. • The amount of paper the cartridge uses to deliver printouts with a desired quality. 		<ul style="list-style-type: none"> • Purchase energy efficient imaging equipment. • Purchase services able to optimise the printing process. • Purchase products from tenderers implementing a restricted substances control of hazardous constituents. • Purchase products with limited indoor emissions from the use phase and a limited content of hazardous substances. • Purchase products designed in a way that the key components can be repaired. • Require end-of-life management practices to maximise the recovery of resources. • Procure equipment able to use remanufactured consumables and recycled paper. • Require that information be provided for green performance. • Require services that include optimisation of the imaging equipment fleet. • Procure consumables tested for quality performance.

The order of impacts does not necessarily reflect their magnitude.

Detailed information about imaging equipment, consumables and print services, including information about related legislation, standards and technical sources used as evidence, can be found in the technical report.

3 CRITERIA STRUCTURE

The criteria have been divided into three main sections, depending on the subject matter: 1) imaging equipment, 2) consumables and 3) print services. There is one additional horizontal section and a preliminary contract performance clause that apply to all three criteria areas. The criteria are also suitable to be used in long-term leasing contracts, a type of contract that may be particularly effective in promoting the use of durable equipment and the efficient use of resources.

	No	Criterion	Core	Comprehensive
PRELIMINARY CONTRACT CLAUSE				
SUBJECT MATTER: PRELIMINARY ASSESSMENT				
(conducted by a different provider than the potential provider for procurement of imaging equipment)				
CONTRACT PERFORMANCE CLAUSES	CPC1	Preliminary assessment of existing fleet and procurement needs	X	X
CRITERIA AREA 1 – IMAGING EQUIPMENT				
SUBJECT MATTER: PURCHASE, LEASING OF IMAGING EQUIPMENT				
SELECTION CRITERIA	SC1	Restricted substance control		X
TECHNICAL SPECIFICATIONS	TS1	Imaging equipment minimum energy efficiency	X	X
	TS2	Duplex imaging capability	X	X
	TS3	N-up printing	X	X
	TS4	Capability to use recycled paper	X	X
	TS5	Capability to use remanufactured cartridges	X	X
	TS6	Reduced number of materials		X
	TS7	Information on postconsumer recycled plastic used		X

	No	Criterion	Core	Comprehensive
	TS8(a)	Spare parts availability	X	X
	TS8(b)	Design for disassembly and repair	X	X
	TS8(c)	Design for recycling	X	X
	TS9	Substance emissions	X	X
	TS10	Noise emissions	X	X
	TS11	Substances of very high concern	X	X
	TS12	Hazardous substances content		X
	TS13	Firmware update control		X
	TS14	Warranty and services agreements	X	X
	TS15(a)	Supply of copy and graphic paper meeting the EU GPP criteria	X	X
	TS15(b)	Supply of cartridges meeting the EU GPP criteria	X	X
AWARD CRITERIA	AC1	Improvement in the imaging equipment's energy efficiency beyond TS1	X	X
	AC2(a)	Longer warranties	X	X
	AC2(b)	The longest warranty	X	X
	AC3	Take-back system for imaging equipment	X	
		End-of-life management of imaging equipment		X
AC4	Supply of reused/remanufactured ink and/or toner cartridges	X	X	
CONTRACT PERFORMANCE CLAUSES	CPC2	Reporting on reuse/recycling activities of imaging equipment	X	X
	CPC3	Reporting on supplied consumables	X	X

CRITERIA AREA 2 – CONSUMABLES				
SUBJECT MATTER: PURCHASE OF CONSUMABLES (CARTRIDGES AND/OR CONTAINERS)				
TECHNICAL SPECIFICATIONS	TS16	Cartridges/containers page-yield declaration	X	X
	TS17	Consumables mass resource efficiency		X
	TS18	Consumable hazardous substances		X
	TS19	Design for reusing/remanufacturing	X	X
	TS20	Consumable quality	X	X
	TS21	Take-back system for cartridges and containers and WEEE registration	X	X
AWARD CRITERIA	AC5	Electrophotographic consumables resource efficiency	X	X
	AC6	Facilitating reusability/remanufacturability	X	X
	AC7	End-of-life management of cartridges		X
CONTRACT PERFORMANCE CLAUSES	CPC4	Reporting on reuse/recycle activities of consumables	X	X
CRITERIA AREA 3 – PRINT SERVICES				
SUBJECT MATTER: PURCHASE OF OUTPUT - NUMBER OF PRINTOUTS				
TECHNICAL SPECIFICATIONS	TS22(a)	Commitment to reuse of imaging equipment	X	X
	TS22(b)	Commitment to repair of imaging equipment	X	X
	TS23	Supply of imaging equipment meeting the EU GPP criteria	X	X
	TS24(a)	Supply of paper meeting the EU GPP criteria	X	X
	TS24(b)	Supply of cartridges meeting the EU GPP criteria	X	X
AWARD CRITERIA	AC8	Supply of reused/remanufactured cartridges and containers	X	X
	AC9	Provision of managed print services		X
CONTRACT PERFORMANCE	CPC5	Reporting on supplied consumables	X	X
	CPC6	Provision of consumable use information		X

CLAUSES	CPC7	Provision of environmental information during service contract		X
HORIZONTAL CRITERIA (applicable to all criteria areas)				
TECHNICAL SPECIFICATIONS	TS25(a)	Guaranteed provision of consumables during contract	X	X
	TS25(b)	Guaranteed provision of spare parts during contract	X	X
	TS26	User instructions for green performance management	X	X

4 PRELIMINARY ASSESSMENT OF EXISTING FLEET AND PROCUREMENT NEEDS

4.1 Subject matter

Subject matter
Preliminary assessment of existing fleet and procurement needs

4.2 Contract performance clause

CPC1 Preliminary assessment of existing fleet and procurement needs	
Core criteria	Comprehensive criteria
<p><i>(This contract should be considered as a preliminary procedure, conducted by a different provider than the potential provider for procurement of imaging equipment. This preliminary assessment should apply only when the procuring authority identifies the need to optimise the use of the existing fleet prior to procurement of new imaging equipment and when the procurer decides not to use in-house staff to carry out this assessment.)</i></p> <p>The service provider must conduct an evaluation of any current fleet of imaging equipment that the procuring authority has on their site(s) and provide to the procuring authority the results of that evaluation. The evaluation must identify the following:</p> <ul style="list-style-type: none">• Number of imaging equipment models on each site• Name, model number and type of each imaging equipment model• Approximate age of each imaging equipment model. <p>Based on the main print needs communicated by the procurer (or assessed through the analysis of data registered by the existing machines) and the above evaluation results, the service provider must classify each imaging equipment model into distinct categories which identify their future status. Example categories include:</p> <ul style="list-style-type: none">○ Retain: Product to be kept for continued use on procuring authority's estate○ Return: Product to be returned to incumbent or past supplier (if applicable)○ Reuse: Product to be sold for reuse outside of procuring authority's estate○ Remanufacture: Product to be treated to increase or restore its performance and/or functionality or to meet applicable technical standards or regulatory requirements, with the result of making a fully functional product to be used for a purpose that is at least the one that was originally intended○ Recycle: Product to be sent for end-of-life processing. <p>Based on the elements above, the service provider must produce a short report advising the procurer on the number and characteristics of the additional new products to be procured.</p>	

5 EU GPP CRITERIA FOR THE PURCHASE OF IMAGING EQUIPMENT

5.1 Subject matter

Subject matter
Purchase of imaging equipment with low environmental impact throughout its lifecycle

5.2 Selection criteria

Core criteria	Comprehensive criteria
SC1 Restricted substance controls	
	<p>The tenderer must demonstrate implementation of a framework for the operation of restricted substance controls (RSCs) along the supply chain for the products to be supplied. Product evaluations according to the RSCs should, as a minimum, cover the following areas:</p> <ul style="list-style-type: none"> - Product planning/design; - Supplier conformity; - Analytical testing. <p>As a minimum, the RSCs must apply to REACH candidate list substances and RoHS restricted substances. The IEC 62474 material declaration database* must be used as the basis for identifying, tracking and declaring specific information about the composition of the products to be supplied. The RSCs must be used to ensure that the tenderer is aware of the presence or non-presence of substances that are listed in the IEC 62474 database.</p> <p>Supplier declarations of conformity with the RSCs must be collected and kept up to date for relevant materials, parts and sub-assemblies of the products to be supplied. These may be supported, where appropriate, by supplier audits and analytical testing. The RSC procedures must ensure that product and supplier compliance is re-evaluated when:</p> <ul style="list-style-type: none"> - restricted substance requirements change;

	<p>- supplied materials, parts and sub-assemblies change;</p> <p>- manufacturing and assembly operations change.</p> <p>Implementation of the RSCs must be with reference to the guidance in IEC 62476 or equivalent and the IEC 62474 material declaration database.</p> <p><i>*International Electrotechnical Commission (IEC), IEC 62474: Material declaration for products of and for the electrotechnical industry, http://std.iec.ch/iec62474</i></p> <p>Verification:</p> <p>The tenderer must provide documentation which describes the system, its procedures and proof of its implementation.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>
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5.3 Technical specifications

Core criteria	Comprehensive criteria
<p>TS1 Imaging equipment minimum energy efficiency</p>	
<p><i>(same for core and comprehensive)</i></p> <p><i>(Applicable to imaging equipment covered by energy efficiency requirements in Energy Star)</i></p> <p>Imaging equipment must meet all energy efficiency and power management requirements laid down in the most recently published ENERGY STAR specification [version to be specified in the call for tender, taking into account the explanatory note].</p> <p>The ENERGY STAR version implemented at the time of publication is 3.0 and updates can be followed at the following link: https://www.energystar.gov/products/office_equipment/imaging_equipment.</p> <p>Verification:</p> <p>The tenderer must provide test reports carried out according to the test methods laid down in the version(s) of the ENERGY STAR specified in the call for tender. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>	

Explanatory note: TS1 Imaging equipment minimum energy efficiency

To ensure availability of products for the tendering procedure, during the first year since the publication of a new version of the ENERGY STAR, the new and the previous version of the ENERGY STAR should be allowed in TS1.

TS2 Duplex imaging capability

(same for core and comprehensive)

(Applicable to imaging equipment covered by duplex imaging requirements in Energy Star.)

Imaging equipment must meet automatic duplexing requirements laid down in the most recently published ENERGY STAR specification [version to be specified in the call for tender] and duplex printing must be set as default.

The ENERGY STAR version implemented at the time of publication is 3.0 and updates can be followed at the following link:

https://www.energystar.gov/products/office_equipment/imaging_equipment.

Verification:

Equipment registered in the ENERGY STAR database or holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply. A statement from the manufacturer demonstrating that these requirements have been met is also accepted.

Explanatory note: TS2 Duplex imaging capability

To ensure availability of products for the tendering procedure, during the first year since the publication of a new version of the ENERGY STAR, the new and the previous version of the ENERGY STAR should be allowed in TS2.

TS3 N-up printing

(same for core and comprehensive)

Imaging equipment must offer as a standard feature the capability to print two or more pages of a document on one sheet of paper when the product is managed by original software provided by the manufacturer (printer driver).

Verification:

The tenderer must provide documentation stating that the requirement is met. Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

TS4 Capability to use recycled paper

(same for core and comprehensive)

Imaging equipment must be capable of processing recycled paper that meets the quality requirements of EN 12281².

Scanners are excluded from the scope of this criterion.

Verification:

The tenderer must provide a declaration confirming or documentation proving that recycled paper meeting the requirements in EN 12281 can be used in the product. Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

TS5 Capability to use remanufactured cartridges and containers

(same for core and comprehensive)

The products must not be designed to prevent remanufactured toner and/or ink cartridges and containers. Constructive, software-based or other measures that prevent use of remanufactured cartridge and containers should not be present or applied.

Verification:

The tenderer must provide a declaration confirming or documentation proving that remanufactured cartridges and containers can be used in the product. Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

TS6 Reduced number of materials

The number of materials used for plastic components of a similar function is limited to one material. Applies to:

- Casing parts, chassis
- Mechanical parts ($\geq 25g$).

Verification:

The tenderer must provide a product schematic illustrating the applicable plastic parts and the type of polymer used.

Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

² EN 12281:Printing and business paper for dry toner imaging processes

TS7 Information on postconsumer recycled plastic used

The percentage of postconsumer recycled plastic content, calculated as a percentage of total plastic (by weight), must be declared. The percentages must be provided in increments of $x < 1\%$, $1\% \leq x < 5\%$, $5\% \leq x < 10\%$, $10\% \leq x < 15\%$, $15\% \leq x < 20\%$ and beyond (in 5% intervals).

The following parts may be excluded from the calculation: printed circuit boards, cables, connectors, electronic components, optical components, electrostatic discharge (ESD) components, electromagnetic interference (EMI) components, and bio-based plastic material.

Verification:

The tenderer must provide documentation which specifies the percentage of postconsumer plastic used within the imaging equipment model(s) calculated in accordance with EN 45557. Documentation may consist of a manufacturer declaration, proof of compliance with an appropriate environmental scheme which includes the same product design features or other alternative means of proof detailing postconsumer recycled plastic content.

Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

TS8 (a) Spare parts availability

Spare parts listed below must be made available by manufacturers for at least 3 years from the date of purchase.

- Print heads (where not considered a consumable)
- Laser unit (where not considered a consumable)
- Fuser units (where not considered a consumable)
- Drum units (where not considered a consumable)

The manufacturer, importer or authorised representatives must ensure the delivery of the spare parts mentioned above within 15 working days after

Spare parts listed below must be made available by manufacturers for a minimum of 5 years from the date of purchase.

- Storage devices
- Scanning units
- Print heads (where not considered a consumable)
- Laser unit (where not considered a consumable)
- Fuser units (where not considered a consumable)
- Drum units (where not considered a consumable)

<p>having received the request.</p> <p>Verification:</p> <p>The tenderer must provide documentation which confirms that spare parts will be available for the durations listed in the criteria.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>	<ul style="list-style-type: none"> • Transfer belts/kits (where not considered a consumable) • Maintenance kits (where not considered a consumable) • Paper feed components • Density sensors • Power and control circuit boards • Cartridge/container attachment components • External power supplies • Hinges. <p>The manufacturer, importer or authorised representatives must ensure the delivery of the spare parts mentioned above within 15 working days after having received the request.</p> <p>Verification:</p> <p>The tenderer must provide documentation which confirms that spare parts will be available for the durations listed in the criteria.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>
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Explanatory note: TS8 (a) Spare parts availability

Spare parts are all components or assemblies that can potentially fail and/or that are expected to need replacement within the service life of the product. Other parts which have a lifetime usually exceeding the typical life span of the product are not spare parts.

TS8 (b) Design for disassembly and repair

(same for core and comprehensive)

Imaging equipment must be designed to facilitate disassembly and repair. The following requirements must be met:

- Casing parts, chassis, electric/electronic assemblies and cartridges/containers are separable or connected by separation aids^[1].
- Electric/electronic assemblies and components such as batteries and condensers which have a risk of containing constituents bearing hazardous substances, as well as fluorescent lamps containing mercury are easy to find and to remove.

- Disassembly of casing, chassis and electric/electronic assemblies can be undertaken with tools class A, B and C of the EN 45554:2020 standard^[2].
- Screw connections for fastening casing parts, chassis and electric/electronic assemblies can be tightened with no more than three tools.
- Only reusable fasteners are permitted for the casing and chassis^[3].
- Disassembly of the entire unit can be performed by a single person (i.e. not more than one snap-on connection has to be loosened at the same time).
- Casing parts are free of electronic assemblies.
- The manufacturer has carried out a trial disassembly, with reference to the above design features, and recorded it with a focus on weak spots.
- Instructions on how to replace the parts must be provided with the service manual. The manual must include an exploded diagram of the device illustrating the parts that can be accessed and replaced, and the tools required. The service manual must be available online for anyone to read, free of charge.

Verification:

The tenderer must provide a declaration of compliance with the above requirements together with the repair manual (physical document or a link where the document is available), which must include an exploded diagram of the product illustrating the parts that can be accessed and replaced, the tools required and how the repair process should be conducted.

Repair information must be provided according to EN 45559 (methods for providing information relating to material efficiency aspects of energy-related products). Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

Explanatory notes : TS8 (b) Design for disassembly and repair

[1]: The term ‘separation aids’ refers to predetermined breaking points, for example.

[2]: Tools class A, B and C, as defined in ‘Table A.2 — Process classification by necessary tools’. This means that all tools except proprietary tools are allowed. Proprietary tools are tools that are not available for purchase by the general public or for which any applicable patents are not available to license under fair, reasonable, and non-discriminatory terms.

[3]: An original fastening system that can be completely reused, or any elements of the fastening system that cannot be reused are supplied with the new part for a repair, reuse or upgrade process.

TS8 (c) Design for recycling

<p>Imaging equipment must be designed to facilitate recycling through the following design features:</p> <ul style="list-style-type: none"> • Plastic components weighing more than 25 g with a flat surface of at least 200 mm² must be provided with a permanent marking of the material in accordance with ISO 11469 (considering ISO 1043) or equivalent 	<p>Imaging equipment must be designed to facilitate recycling through the following design features:</p> <ul style="list-style-type: none"> • Plastic components weighing more than 25 g with a flat surface of at least 200 mm² must be provided with a permanent marking of the material in accordance with ISO 11469 (considering ISO 1043) or equivalent
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<p>standard,</p> <ul style="list-style-type: none"> Galvanic coatings on plastic parts are not used in casing parts and cartridges/containers. <p>Verification:</p> <p>The tenderer must provide documentation proving that each of the design-for-recycling requirements has been met. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>	<p>standard,</p> <ul style="list-style-type: none"> Galvanic coatings are not used in casing parts and cartridges/containers The presence of paints and coatings (other than galvanic) in casing parts must not significantly impact upon the resilience of plastic recyclate produced from these parts upon recycling and when tested according to ISO 180 or equivalent. <p>Verification:</p> <p>The tenderer must provide documentation which proves that each of the design-for-recycling requirements has been met.</p> <p>The report of a valid mechanical/physical test carried out according to ISO 180 or equivalent should be provided for the requirement regarding paints. Alternatively, third-party test reports obtained from plastics recyclers, resin manufacturers or independent pilot tests will be accepted.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p> <p>Explanatory notes : TS8 (b) Design for disassembly and repair</p> <p><i>For the purposes of this criterion, a significant impact is defined as a >25% reduction in the notched Izod impact of a recycled resin, as measured using ISO 180.</i></p>
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TS9 Substance emissions

<p>Imaging equipment (tested with the OEM cartridge) must meet the following substance emission rate requirements when measured according to the test procedure detailed in Blue Angel specification RAL-UZ 205:</p> <table border="1" data-bbox="89 1220 779 1409"> <tr> <td colspan="3">Permissible test values for emission rates as determined according to appendix S-M[1] for electrophotographic devices</td> </tr> <tr> <td>(All values in mg/h)</td> <td>Monochrome</td> <td>Colour</td> </tr> </table>	Permissible test values for emission rates as determined according to appendix S-M[1] for electrophotographic devices			(All values in mg/h)	Monochrome	Colour	<p>Imaging equipment (tested with the OEM cartridge) must meet the following substance emission rate requirements when measured according to the test procedure detailed in the Blue Angel specification RAL-UZ 205:</p> <table border="1" data-bbox="1131 1220 1899 1409"> <tr> <td colspan="3">Permissible test values for emission rates as determined according to appendix S-M[1] for electrophotographic devices</td> </tr> <tr> <td>(All values in mg/h, except</td> <td>Monochrome</td> <td>Colour</td> </tr> </table>	Permissible test values for emission rates as determined according to appendix S-M[1] for electrophotographic devices			(All values in mg/h, except	Monochrome	Colour
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(All values in mg/h)	Monochrome	Colour											
Permissible test values for emission rates as determined according to appendix S-M[1] for electrophotographic devices													
(All values in mg/h, except	Monochrome	Colour											

		printing	printing		for particle emissions)	printing	printing	
Pre-operating phase	TVOC[2]	1 (Desktop devices) 2 (Floor-mounted devices, device volume > 250 l)	1 (Desktop devices) 2 (Floor-mounted devices, device volume >250 l)		Pre-operating phase	TVOC[2]	1 (Desktop devices) 2 (Floor-mounted devices, device volume > 250 l)	1 (Desktop devices) 2 (Floor-mounted devices, device volume >250 l)
Print phase (= pre-operating + print phase)	TVOC[2]	10.0	18.0		Print phase (= Pre-operating + print phase)	TVOC[2]	10.0	18.0
	Benzene	< 0.05	< 0.05			Benzene	< 0.05	< 0.05
	Styrene	1.0	1.8			Styrene	1.0	1.8
	Ozone	1.5	3.0			Unidentified single substances		
	Dust	4.0	4.0			VOC	0.9	0.9
					Ozone	1.5	3.0	
					Dust	4.0	4.0	
					Print phase	PER10 PW [Particles/10 min]	3.5 * 1011	3.5 * 1011
<p>Large format printers (LFP), professional imaging products and scanners are excluded from the scope</p> <p>Verification:</p> <p>The tenderer must provide test results indicating emission rates during print phase for each of the named substances along with the details concerning the test procedure used to measure the emission rates. Test reports for devices of identical construction are accepted. The definition of 'identical construction' is the same as listed in Blue Angel RAL-UZ 205 appendix B-M to the basic award criteria.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>				<p>Permissible test values for emission rates determined according to appendix S-M[1] for inkjet devices</p>				
(All values in mg/h)						Monochrome printing	Colour printing	

	Pre-operating phase	TVOC[2]	1 (Desktop devices) 2 (Floor-mounted devices, device volume > 250 l)	1 (Desktop devices) 2 (Floor-mounted devices, device volume >250 l)
	Print phase (= Pre-operating + print phase)	TVOC[2]	10	18
		Benzene	< 0.05	< 0.05
		Styrene	1	1.8
		Unidentified single substances VOC	0.9	0.9
<p>Large format printers (LFP), professional imaging products and scanners are excluded from the scope.</p> <p>Verification:</p> <p>The tenderer must provide test results indicating emission rates during the print phase for each of the substances named along with the details concerning the test procedure used to measure the emission rates. Test reports for products of identical construction are accepted. The definition of ‘Identical construction’ is the same as listed in Blue Angel RAL-UZ 205 appendix B-M to the basic award criteria.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply</p>				

Explanatory notes : TS9 Substance emissions

[1] Appendix S-M of Blue Angel specification RAL-UZ 205 (January 2017 edition (Printers and Multifunction Devices))

[2] The list of volatile organic compounds which must be considered when measuring emissions from imaging equipment with a printing function must be determined as listed in Blue Angel specification RAL-UZ 205 (January 2017 edition) - (Appendix S-M - para. 4.5 VOCs).

TS10 Noise emissions

(same for core and comprehensive)

The A-weighted sound power level LWA must be determined according to ISO 7779. Devices capable of colour printing must be tested in both monochrome mode (LWA,M) and colour mode (LWA,F).

- Noise measurements must be conducted without optional peripheral devices.
- A4 size paper of grammage 60 g/m² to 80 g/m² must be used for test operations.
- The four-page Adobe Reader file from the Office Test Suite according to B.1 of ISO/IEC 24734 must serve as test pattern.
- Only one-sided printing must be measured.
- The noise measurement must only be conducted during repetitive printing operation cycles. The measurement time interval must include at least three complete outputs of the four-page test pattern (12 pages). The interval must begin after the printing preparation.

At least three devices of one model have to be tested. The declared A-weighted sound power level $LWAd$ must be determined following the procedures of ISO 9296:1988. It must be declared in decibels (dB) with one decimal place. If the noise emission measurement can be performed with one device, only the following formula may be used as a substitute to determine the declared A-weighted sound power level $LWAd$.

$$LWAd = LWA1 + 3,0 \text{ dB}$$

($LWA1$ = A-weighted sound power level of a single device, in dB with one decimal place)

The declared A-weighted sound power level(s) of (both) monochrome mode $LWAd,mo$ (and full colour mode LWA,co , if applicable) must not exceed the limit. The limit LWA,lim must be determined depending on the page throughput of (both) monochrome mode sM and colour mode sF , if applicable, given to one decimal place and according to the following formula:

$$LWA,lim = 47 + 15 * \lg (SM/F + 10) \text{ dB}$$

The values of the declared A-weighted sound power level $LWAd$ in dB with one decimal place and page throughput SM/F in ipm must be indicated in the information and data sheet under 'environment and health-related statements'. For devices capable of colour printing, the declared A-weighted sound power levels $LWAd,M$ and $LWAd,F$ and corresponding page throughput SM and SF , both of monochrome mode and colour mode, must be indicated.

Verification:

The tenderer must provide documentation, such as a test report, which identifies noise emission rates during print phase when measured according to

requirements in ECMA-74 combined with ECMA-109. The testing laboratory must be accredited according to both ISO/IEC 17025 and ISO 7779 for acoustical noise measurements or equivalent. The documentation should also identify if the A-weighted sound-power level in the criterion has been met.

Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

TS11 Substances of very high concern

(same for core and comprehensive)

No REACH candidate list substances are to be intentionally added as constituents to the plastics in casings and casing parts.

The requirements also apply to recycled material.

Compliance to be ensured for the latest version of the list of substances of very high concern, available one year prior to the product's date of manufacture.

Verification:

The tenderer must provide a declaration of compliance with the criterion.

Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

TS12 Hazardous substances content

- Halogenated polymers and halogenated organic compounds for their use as flame retardants are not permitted.

Exempted from this requirement are:

- Fluorinated organic additives (as, for example, anti-dripping agents) used to improve the physical properties of plastics, provided that they do not exceed 0.5% w/w.
- Fluorinated polymers as, for example, PTFE.
- Plastic parts with a mass equal to or less than 25 grams. However, these must not contain PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenyl ethers) or chlorinated paraffins. (This exemption does not apply to control panel keys.)
- Special plastic parts located close to heating and fuser elements. These parts must, however, not contain PBBs, PBDEs or chlorinated paraffins.
- No substances are to be intentionally added as constituents to the plastics which meet at least one of the conditions set out in following table:

Conditions for the exclusion of substances from materials in casings and casing parts.

		Hazard class	Hazard category	CLP-Regulation (EC) No. 1272/2008	
		Carcinogenicity	Carc. 1A, 1B	H350 May cause cancer	
		Carcinogenicity	Carc. 1A, 1B	H350i May cause cancer if inhaled	
		Germ cell mutagenicity	Muta. 1A, 1B	H340 May cause genetic damage	
		Reproductive toxicity	Repr. 1A, 1B	H360 May damage fertility or the unborn child	
	<p>The requirements also apply to recycled material.</p> <ul style="list-style-type: none"> The support material of printed circuit boards must not contain PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenyl ethers) or chlorinated paraffins. <p>Verification:</p> <p>The tenderer must provide documentation which proves that the requirement has been met. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>				

TS13 Firmware update control	
	<p>Any firmware update must not prevent the use of reused/remanufactured consumables.</p> <p>The imaging equipment must include functionality allowing firmware updates to be rolled back to previously installed versions. This functionality may be provided through a network connected computer or within the imaging equipment itself. Instructions detailing how firmware updates can be rolled back must be provided in the technical documentation. If the previous version of the firmware is made openly available on the internet, from the time it is first released, and users are provided clear instructions on where this can be located, then the objectives of the criterion are met.</p> <p>Alternatively, the tenderer must commit that if a software update prevents the use of reused/remanufactured consumables, a solution will be provided that permits the continuous use of reused/remanufactured consumables.</p> <p>Verification:</p> <p>The tenderer must provide documentation which identifies that the requirement has been met. Documentation may consist of a manufacturer's declaration or other alternative means of documentation that provide the necessary information.</p>
TS14 Warranty	TS14 Warranty and service agreements
<p><i>(This criterion is not relevant for contracts that include maintenance)</i></p> <p>The tenderer must provide a minimum two-year warranty, free of additional costs, effective from delivery of the product. This warranty must cover repair or replacement.</p> <p>The warranty must ensure that the products are in conformity with the contract specifications at no additional cost.</p> <p>The warranty must not be invalidated as a result of reused/remanufactured consumables being used in imaging equipment unless it is proven that any malfunction or damage was directly caused by the use of a</p>	<p><i>(This criterion is not relevant for contracts that include maintenance)</i></p> <p>The tenderer must provide a minimum three-year warranty, free of additional costs, effective from delivery of the product. This warranty must cover repair or replacement and include a service agreement with options for pick-up and return or on-site repairs. The warranty must guarantee that the products are in conformity with the contract specifications at no additional cost.</p> <p>The warranty must not be invalidated as a result of reused/remanufactured consumables being used in imaging equipment unless it is proven that any malfunction or damage was directly caused by the use of a reused/remanufactured consumable.</p>

<p>reused/remanufactured consumable.</p> <p>Verification:</p> <p>A copy of the warranty and service agreement must be provided by the tenderer. They must provide a declaration that they cover the conformity of the goods with the contract specifications.</p>	<p>Verification:</p> <p>A copy of the warranty and service agreement must be provided by the tenderer. They must provide a declaration that they cover the conformity of the goods with the contract specifications.</p>
<p>TS15 (a) Supply of copy and graphic paper meeting the EU GPP criteria</p>	
<p><i>(when copy and graphic paper supply is included in the imaging equipment supply contract)</i></p> <p>Copy and graphic paper offered by the tenderer as part of the provision of imaging equipment must comply with the core technical specifications of the EU green public procurement criteria for copying and graphic paper³.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>	<p><i>(when copy and graphic paper supply is included in the imaging equipment supply contract)</i></p> <p>Copy and graphic paper offered by the tenderer as part of the provision of imaging equipment must comply with the comprehensive technical specifications of the EU green public procurement criteria for copying and graphic paper².</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>
<p>TS15 (b) Supply of consumables meeting the EU GPP criteria</p>	
<p><i>(when imaging equipment consumables supply is included in the imaging equipment supply contract)</i></p> <p>Consumables offered by the tenderer as part of the provision of imaging equipment must comply with the core technical specifications included in EU GPP criteria area 2 imaging equipment consumables.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>	<p><i>(when imaging equipment consumables supply is included in the imaging equipment supply contract)</i></p> <p>Consumables offered by the tenderer as part of the provision of imaging equipment must comply with the comprehensive technical specifications included in EU GPP criteria area 2 imaging equipment consumables.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>

³ Available at: http://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm

5.4 Award criteria

Core criteria	Comprehensive criteria
AC1 Improvement in the imaging equipment's energy efficiency beyond TS1	
<p><i>(same for core and comprehensive)</i></p> <p><i>(Applicable to imaging equipment covered by energy efficiency requirements in Energy Star)</i></p> <p>Points will be awarded if imaging equipment is more energy efficient than the TEC_MAX value laid down in the ENERGY STAR TEC approach. Points must be calculated in comparison with the maximum typical electricity consumption (TEC_MAX) allowed under the ENERGY STAR version(s) specified in TS1.</p> <p>A maximum of x points [to be specified] may be awarded. Points must be awarded in proportion to the improvement in energy efficiency in comparison to the TEC_MAX value:</p> <ul style="list-style-type: none"> - over 80% lower: x points - 60-79% lower: 0.8x points - 40-59% lower: 0.6x points - 20-39% lower: 0.4x points - 10-19% lower: 0.2x points <p>Verification:</p> <p>The tenderer must provide reports of tests carried out according to the test methods laid down in the ENERGY STAR version(s) specified in TS1. The tenderer must detail the measured TEC value and the TEC_MAX value, for each applicable product and detail a calculation of the improvement in energy efficiency. These must be provided upon award of the contract or prior to that upon request.</p>	
AC2 Long warranties	
<p><i>(same for core and comprehensive)</i></p> <p>Option 1: AC2(a) Longer warranties</p> <p>Points will be awarded to each additional year of warranty offered that is more than the minimum technical specification. A maximum of x points [to be specified] may be awarded.</p> <ul style="list-style-type: none"> - +4 years or more: x points - +3 years: 0.75x points 	

- +2 years: 0.5x points

- +1 year: 0.25x points

Verification:

A copy of the warranty must be provided by the tenderer.

Option 2: AC2(b) The longest warranty

Points will be awarded to the tenderer that provides the longest warranty of all the bidders. A maximum of x points [to be specified] may be awarded.

Verification:

A copy of the warranty must be provided by the tenderer.

AC3 End-of-life

AC3 Take-back system for imaging equipment

(This criterion should be used in conjunction with contract performance clause CPC2)

Points must be awarded to a tenderer who offers a take-back system for used imaging equipment, at no cost to the procuring authority, with the aim of channelling such equipment for reuse of the equipment or its parts, or for material recycling, with preference given to reuse.

The tenderer may fulfil these obligations themselves or via a suitable third-party organisation.

Verification:

The tenderer must provide documentation which states that a free take-back system will be provided. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

AC3 End-of-life management of imaging equipment

(This criterion should be used in conjunction with contract performance clause CPC2)

Points must be awarded to a tenderer who provides a re-use and recycling service for the whole product and/or ensures the selective treatment of components in accordance with Annex VII of the WEEE Directive for equipment that has reached the end of its service life at no cost to the procuring authority.

The service must comprise the following activities:

- collection;
- confidential handling and secure data erasure (unless carried out in-house);
- functional testing, servicing, repair and upgrading to prepare products for re-use[1] ;
- the remarketing of products for re-use;
- dismantling for component re-use, recycling and/or disposal.

In providing the service, they must report on the proportion of equipment prepared or remarketed for re-use and the proportion of equipment prepared

	<p>for recycling.</p> <p>Preparation for re-use, recycling and disposal operations must be carried out in full compliance with the requirements in Article 8 and Annexes VII [2] and VIII of (recast) WEEE Directive 2012/19/EU and with reference to the list of components for selective treatment [see accompanying explanatory note].</p> <p>The tenderer may fulfil these obligations themselves or via a suitable third-party organisation.</p> <p>If the service is provided outside EU, where the WEEE Directive is not applicable, the treatment of waste components shall take place in conditions that are equivalent to the requirements of this Directive [3].</p> <p>Verification:</p> <p>The tenderer must provide details of the arrangements for collection, data security, preparation for re-use, remarketing for re-use and recycling/disposal. This must include, during the contract, valid proof of compliance for the WEEE handling facilities to be used (if applicable).</p> <p>Equipment holding a relevant Type I Eco-label that fulfils the specified requirements will be deemed to comply.</p> <p>The following compliance schemes are considered, at the time of writing, to meet these requirements: WEEELABEX:2011 requirement on 'Treatment of WEEE'; 'Responsible Recycling' (R2:2013) standard for electronics recyclers; eStewards standard 2.0 for Responsible Recycling and Reuse of Electronic Equipment; Australian/New Zealand standard AS/NZS 5377:2013 on 'Collection, storage, transport and treatment of end-of-life electrical and electronic equipment'</p>
	<p>Explanatory note: AC3 End-of-life management of imaging equipment</p> <p><i>[1] Some Member States have developed standards and/or schemes that public authorities may wish to refer to in order to provide greater detail on how equipment will be made suitable for reuse and resale.</i></p> <p><i>[2] Components requiring selective treatment in accordance with Annex VII of</i></p>

	<p><i>the WEEE Directive:</i></p> <ul style="list-style-type: none"> • <i>Mercury containing components</i> • <i>Batteries</i> • <i>Printed circuit boards greater than 10 cm²</i> • <i>Plastic containing brominated flame retardants</i> • <i>Chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC)</i> • <i>External electric cables</i> • <i>Polychlorinated biphenyls (PCB) containing capacitors</i> • <i>Components containing refractory ceramic fibres</i> • <i>Electrolyte capacitors containing substances of concern</i> • <i>Equipment containing gases that are ozone depleting or have a global warming potential (GWP) above 15</i> • <i>Ozone-depleting gases must be treated in accordance with Regulation (EC) No 1005/2009.</i> <p>[3] At the time of writing this Staff Working Document the Commission is planning to adopt a delegated act to lay down the criteria for the assessment of equivalent conditions.</p>
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AC4 Supply of remanufactured cartridges/containers

(same for core and comprehensive)

(when the supply of cartridges and containers is included in the imaging equipment supply contract)

Points must be awarded in proportion to the commitment to provide the highest percentage (share) of remanufactured cartridges/containers which comply with the core technical specifications included in EU GPP criteria area 2 imaging equipment consumables.

Verification:

The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.

5.5 Contract performance clauses

Core criteria	Comprehensive criteria
CPC2 Reporting on reuse/recycle activities of imaging equipment	
<p><i>(same for core and comprehensive)</i></p> <p><i>This criterion should be used in conjunction with award criterion 3.</i></p> <p>The contractor must provide records regarding the end of life of used imaging equipment.</p> <p>In particular the recording must detail:</p> <ul style="list-style-type: none"> - number of equipment taken back from the procuring authority, - number of equipment/parts, as appropriate, channelled for reuse, - number of equipment/parts, as appropriate, channelled for material recycling. 	
CPC3 Reporting on supplied consumables	
<p><i>(when the supply of cartridges or copy and graphic paper is included in the imaging equipment supply contract)</i></p> <p>The contractor must provide records on the provision of consumables specified in TS Supply of consumables, as appropriate, for:</p> <ul style="list-style-type: none"> - copy and graphic paper meeting the EU GPP criteria (TS15 (a)), - consumables meeting the EU GPP criteria (TS15 (b)), - remanufactured cartridges and containers (AC5). 	<p><i>(when the supply of cartridges or copy and graphic paper is included in the imaging equipment supply contract)</i></p> <p>The contractor must provide records on the provision of consumables specified in TS Supply of consumables, as appropriate, for:</p> <ul style="list-style-type: none"> - copy and graphic paper meeting the EU GPP criteria (TS15 (a)), - consumables meeting the EU GPP criteria (TS15(b)), - remanufactured cartridges and containers (AC5), - number of pages printed by remanufactured cartridges/containers that comply with EU GPP criteria area 2.

6 EU GPP CRITERIA FOR THE PURCHASE OF CONSUMABLES (CARTRIDGES AND CONTAINERS)

6.1 Subject matter

Subject matter
Purchase of consumables (cartridges and containers) with low environmental impact throughout their lifecycle

6.2 Technical specifications

Core criteria	Comprehensive criteria
TS16 Cartridges/containers page-yield	
<i>(same for core and comprehensive)</i>	
The expected page-yield must be declared for all cartridges/containers that will be supplied for use in the relevant imaging equipment.	
Verification:	
The tenderer must provide documentation which identifies page-yields and associated test procedures used to derive the values. Measurement of page-yield for inkjet and toner consumables should be carried out in accordance with the latest version of the following standards:	
<ul style="list-style-type: none">– ISO/IEC 24711,– ISO/IEC 19752,– ISO/IEC 19798,– DIN 33870-1,– DIN 33870-2.	
or through other reliable, accurate and reproducible methods, which take into account the generally recognised state of the art.	
Documentation may consist of a manufacturer declaration or other alternative means of documentation that provide the necessary information. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.	
Explanatory note: TS16 Cartridges/containers page-yield	
<i>Page-yield: Measured number of images that may be produced by the cartridge/container.</i>	

TS17 Consumable mass resource efficiency

The consumable mass resource efficiency [measured number of images that may be produced by a consumable per gram of the consumable material], calculated according to equation (1) must not be lower than the threshold indicated in the table below:

Consumable type	Minimum consumable mass resource efficiency
Toner cartridge or container & drum	$(2 \times [10 \times \tanh(0.1 + 0.0003 \times (C_{\text{Mass}} - 10)) - 0.5] + 1)$
Ink cartridge or container	$(2 \times [15 \times \tanh(0.2 + 0.0004 \times (C_{\text{Mass}} - 8)) - 1] + 2)$

Tanh = hyperbolic tangent

$$\text{Consumable mass resource efficiency} = \frac{\text{Page Yield}}{C_{\text{MASS}}} \quad (1)$$

Where:

- **Page-yield** is the measured number of images that may be produced by the consumable.
- **Consumable mass** (C_{Mass}) is the mass (g) of each cartridge or container (plus drum unit, if applicable), as measured in their to-be-installed condition (i.e. full of ink or toner).

Verification:

The tenderer must provide the result of the consumable mass resource efficiency calculation together with documentation which identifies all page-yields, associated test procedures used to derive the values, and

the mass of all cartridges, containers and drum units designed for use in each imaging equipment model. Documentation may consist of a manufacturer's declaration or other alternative means of documentation that provide the necessary information.

TS18 Consumable hazardous substances content

Colourants such as toners, inks, solid inks and the like must not contain substances as intentionally added constituents which meet the conditions set out in the table below.

Hazard class	Hazard category	CLP-Regulation (EC) No. 1272/2008
Carcinogenicity	Carc. 1A, 1B	H350 May cause cancer
Carcinogenicity	Carc. 1A, 1B	H350i May cause cancer if inhaled
Carcinogenicity	Carc. 2	H351 Suspected of causing cancer
Germ cell mutagenicity	Muta. 1A, 1B	H340 May cause genetic damage
Germ cell mutagenicity	Muta. 2	H341 Suspected of causing genetic defects
Reproductive toxicity	Repr. 1A, 1B	H360 May damage fertility or the unborn child
Reproductive toxicity	Repr. 2	H361 Suspected of damaging fertility or the unborn child

In addition, colourants must not contain substances as intentionally added constituents which require labelling of the mixture with the H phrases according to Annex 1 of Regulation (EC) No. 1272/2008 or which meet the criteria of the related classification.

Specific target organ toxicity (Single exposure)	STOT SE 1	H370 Causes damage to organs
Specific target organ toxicity (Single exposure)	STOT SE 2	H371 May cause damage to organs
Specific target organ toxicity (Repeated exposure)	STOT RE 1	H372 Causes damage to organs through prolonged or repeated exposure
Specific target organ toxicity (Repeated exposure)	STOT RE 2	H373 May cause damage to organs through prolonged or repeated exposure

Consumables must also meet the following hazardous material requirements:

- Not contain any additional REACH candidate list substances at a concentration greater than 0.1% (by weight)
- Toners and inks must not contain any intentionally added mercury, cadmium, lead, nickel or chromium-VI-compounds. Complex nickel compounds of high molecular weight used as colourants are exempted.

	<ul style="list-style-type: none"> • Toner and inks must not contain azo dyes (dyes or pigments) that can release carcinogenic aromatic amines listed in Regulation (EC) 1907/2006 (REACH Regulation), Annex XVII, Appendix 8. • No biocides must be added to toners or inks unless an active substance dossier, as defined under the Biocidal Product Regulation (BPR, Regulation (EU) 528/2012) for preservatives for products during storage (product type 6), has been submitted. Substances must not be used where they have been rejected from inclusion in the list of approved substances for product type 6. • Photoconductor drums must not contain intentionally added selenium, lead, mercury or cadmium (or any of their compounds). <p>Verification:</p> <p>The tenderer must provide documentation, such as safety data sheets (SDSs), which proves that the requirement has been met for the product(s) offered. Documentation should clearly prove that each aspect of the criterion has been met. Proof of compliance may consist of test reports from third parties or the manufacturer’s own tests illustrating the lack of any of the excluded substances listed in the criterion.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>
<p>TS19 Design for reuse/remanufacturing</p>	
<p>Cartridges or containers must not be designed to limit the ability to reuse/remanufacture. Examples of features which are deemed to limit the ability to remanufacture, or promote non-reuse, include, but are not limited to:</p> <ul style="list-style-type: none"> • Statements on the cartridge or container, or packaging, which declare, or imply, that the product is not designed to be remanufactured. 	<p>Cartridges or containers must not be designed to limit the ability to reuse/remanufacture. Examples of features which are deemed to limit the ability to remanufacture, or promote non-reuse, include, but are not limited to:</p> <ul style="list-style-type: none"> • Cartridges or containers covered by patents or licence agreements which include statements that seek to limit remanufacturing • Statements on the cartridge or container, or packaging, which declare, or imply, that the product is not designed to be

<p>Verification:</p> <p>The tenderer must provide documentation which explicitly states that cartridges or containers are not designed to limit the ability to reuse/remanufacture.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>	<p>remanufactured.</p> <p>Verification:</p> <p>The tenderer must provide documentation which explicitly states that cartridges or containers are not designed to limit the ability to reuse/remanufacture and identify how compliance to the two examples is achieved.</p> <p>Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>
<p>TS20 Consumable quality</p>	
<p><i>(same for core and comprehensive)</i></p> <p>Any cartridges or containers must meet all requirements behind at least one widely recognised cartridge/container quality standard.</p> <p>Verification:</p> <p>The tenderer must provide documentation which proves that cartridges or containers meet the requirements of at least one recognised quality standard, such as the DIN 33870-1 series, DIN 33870-2 series, DIN 33871-1 series or the equivalent for remanufactured cartridges and containers and the DIN 33871-2 series or the equivalent for new cartridges and containers. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p>	
<p>TS21 Take-back system for cartridges and containers and WEEE registration</p>	
<p><i>(same for core and comprehensive)</i></p> <p><i>This criterion should be used in conjunction with contract performance clause CPC4.</i></p> <p>A take-back system for used cartridges and containers must be provided at no cost to the procuring authority, with the aim of channelling them or their parts for reuse or for material recycling.</p> <p>The tenderer must provide containers to the procuring authority, which are suitable for the accumulation of used cartridges and containers.</p> <p>The tenderer may fulfil these obligations themselves or via a suitable third-party organisation.</p> <p>In addition, the proof of WEEE registration of the producer of cartridges falling under the WEEE Directive must be provided (if applicable).</p> <p>Verification:</p>	

The tenderer must provide a declaration which states that a free-of-charge take-back system will be provided for cartridges and containers. Cartridges and containers holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply. In addition, for cartridges falling under the WEEE Directive, the tenderer must provide proof that the producer is registered (i.e. WEEE registration number, or a WEEE registration certificate or any document proving that the producer is registered at that moment).

Explanatory note: TS21 Take-back system for cartridges and containers and WEEE registration

Printer cartridges which contain electrical/electronic parts and are dependent on electric currents or electromagnetic fields in order to function properly meet the definition of EEE and therefore fall within the scope of the WEEE Directive.

6.3 Award criteria

Core criteria	Comprehensive criteria
AC5 Electrophotographic consumables mass resource efficiency	
<i>(same for core and comprehensive)</i>	
<p>Points must be awarded for electrophotographic consumables (cartridges, containers and drum units) that minimise material use per page-yield. A maximum of x points [to be specified] may be awarded to the tenderer which offers the highest overall consumable resource efficiency value across all electrophotographic consumables for each model of imaging equipment. The resource efficiency should be calculated in accordance with the equation given in TS17. The results for each consumable should be summed to arrive at a total value. When different consumables are purchased, the value should be an average value across all products to be supplied.</p> <p>Verification:</p> <p>The tenderer must provide the result of the calculation of the consumable mass resource efficiency together with documentation which identifies the following for all cartridges/containers and any separate drum units used in relevant electrophotographic imaging equipment:</p> <ul style="list-style-type: none"> • page-yields • mass of full cartridges/containers • mass of separate drum units. <p>Documentation may consist of a manufacturer’s declaration or other alternative means of proof that provides the necessary information.</p>	
AC6 Facilitating reusability/remanufacturability	
A maximum of x points [to be specified] may be awarded to the	A maximum of x points [to be specified] may be awarded to the tenderer

<p>tenderer who offers consumables meeting the following requirement:</p> <ul style="list-style-type: none"> • Consumables can be manually dismantled, where necessary with the use of universally available tools (e.g. openly available screw heads, pliers or tweezers), in order to replace worn parts and be refilled with toner material or ink. <p>Verification:</p> <p>The tenderer must provide documentation which explains how the requirement has been met.</p>	<p>who meets at least one of the following technical features or practices:</p> <ul style="list-style-type: none"> • Consumables are designed to facilitate reuse/remanufacture through technical features, which encourage remanufacturing, namely: <ul style="list-style-type: none"> ✓ avoidance of a chip in the consumable, which controls imaging functionality <p>or</p> <ul style="list-style-type: none"> ✓ any installed chip that includes functionality allowing a full reset to be initiated via either the imaging equipment controls or a network connected computer without the need for additional products <ul style="list-style-type: none"> • OEM offers non-OEM organisations to purchase the rights, at a reasonable cost, to reprogram a consumable chip so that full imaging equipment functionality is supported • From the time a consumable is first placed on the EU market, replacement chips, which support full imaging equipment functionality, are available on the open market. <p>Verification:</p> <p>The tenderer must provide documentation that explains which technical features of the practices listed above have been applied.</p>
<p>AC7 End-of-life management of cartridges</p>	
	<p><i>(This criterion should be used in conjunction with contract performance clause CPC4)</i></p> <p>Points must be awarded to a tenderer who provides a re-use/remanufacturing and recycling service for used cartridges requiring selective treatment in accordance with Annex VII of the WEEE Directive for products that have reached the end of their service life at no cost to the procuring authority.</p>

	<p>The service must comprise the following activities:</p> <ul style="list-style-type: none"> - collection, - dismantling for component re-use/remanufacturing, recycling and/or disposal, <p>The tenderer must provide containers to the procuring authority which are suitable for the accumulation of used cartridges.</p> <p>Preparation for re-use, recycling and disposal operations must be carried out in full compliance with the requirements in Article 8 and Annexes VII and VIII of (recast) WEEE Directive 2012/19/EU.</p> <p>The supplier may fulfil these obligations themselves or via a suitable third-party organisation.</p> <p>If the service is provided outside EU, where the WEEE Directive is not applicable, the treatment of waste components shall take place in conditions that are equivalent to the requirements of this Directive [1].</p> <p>Verification:</p> <p>The tenderer must provide details of the arrangements for collection, preparation for re-use/remanufacturing, and recycling/disposal. This must include, during the contract, valid proof of compliance for the WEEE handling facilities to be used (if applicable).</p> <p>Cartridges holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.</p> <p>The following compliance schemes are considered, at the time of writing, to meet these requirements: WEEELABEX:2011 requirement on 'Treatment of WEEE'; 'Responsible Recycling' (R2:2013) standard for electronics recyclers; eStewards standard 2.0 for Responsible Recycling and Reuse of Electronic Equipment; Australian/New Zealand</p>
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	standard AS/NZS 5377:2013 on 'Collection, storage, transport and treatment of end-of-life electrical and electronic equipment'
	<p>Explanatory note: C7 End-of-life management of cartridges</p> <p>[1] At the time of writing this Staff Working Document the Commission is planning to adopt a delegated act to lay down the criteria for the assessment of equivalent conditions.</p>

6.4 Contract performance clauses

Core criteria	Comprehensive criteria
<p>CPC4 Reporting on reuse/recycle activities of consumables</p> <p><i>(same for core and comprehensive)</i></p> <p>For bulk shipments (i.e. not for single consumable returns), the contractor must provide records on the free take-back system for used consumables whose purpose is to channel such equipment or its parts for reuse or for material recycling, with preference for reuse.</p> <p>In particular the recording must detail:</p> <ul style="list-style-type: none"> - the number of consumables taken back from the procuring authority, - the number and type of parts, as appropriate, channelled for reuse/remanufacturing, - the number and type of parts, as appropriate, channelled for material recycling. 	

7 EU GPP CRITERIA FOR THE PURCHASE OF PRINT SERVICES

7.1 Subject matter

Subject matter
Purchase of print services whose environmental impact is low throughout their lifecycle

7.2 Technical specifications

Core criteria	Comprehensive criteria
TS22(a) Commitment to reuse of imaging equipment	
<i>(same for core and comprehensive)</i>	
Tenderers agree that fully functional imaging equipment owned by the purchasing authority and present at the procurer's premises must be retained for continued use rather than be replaced with new products (subject to the procuring authority's approval).	
This requirement does not apply if fewer overall imaging equipment products are installed.	
This requirement does not apply where a supplier provides evidence showing that replacing an existing product with a more efficient product(s) would reduce overall environmental impacts.	
This requirement does not apply where a supplier provides adequate reasoning identifying why the use of older equipment cannot be supported.	
Verification:	
Tenderer must provide a declaration of compliance with this requirement.	

Core criteria	Comprehensive criteria
TS22(b) Commitment to repair of imaging equipment	
<p><i>(same for core and comprehensive)</i></p> <p>Suppliers agree that imaging equipment that ceases to function during the contract will be brought back into full service using spare parts (subject to the procuring authority's approval). This requirement does not extend to:</p> <ul style="list-style-type: none"> • imaging equipment that is no longer able to provide the necessary levels of functionality stipulated by the procuring authority, • imaging equipment that cannot be feasibly brought back into full service through the substitution of non-functioning spare parts either due to lack of available spare parts or due to excessive costs, • the situation where the procuring authority wishes to reduce the total number of imaging equipment models in service. <p>Verification:</p> <p>The tenderer must provide a declaration of compliance with this requirement.</p>	
TS23 Supply of imaging equipment meeting the EU GPP criteria	
<p><i>(when the supply of imaging equipment is included in the print service contract)</i></p> <p>Imaging equipment offered by the tenderer as part of the provision of printing services must comply with the core technical specifications included in the EU GPP criteria area 1 imaging equipment.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>	<p><i>(when the supply of imaging equipment is included in the print service contract)</i></p> <p>Imaging equipment offered by the tenderer as part of the provision of printing services must comply with the comprehensive technical specifications included in the EU GPP criteria area 1 imaging equipment.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>

Core criteria	Comprehensive criteria
TS24(a) Supply of copy and graphic paper meeting the EU GPP criteria	
<p><i>(when the supply of copy and graphic paper is included in the print service)</i></p> <p>Copy and graphic paper offered by the tenderer as part of the provision of the printing service must comply with the core technical specifications of the EU green public procurement criteria for copying and graphic paper⁴.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>	<p><i>(when the supply of copy and graphic paper is included in the print service)</i></p> <p>Copy and graphic paper offered by the tenderer as part of the provision of the printing service must comply with the comprehensive technical specifications of the EU green public procurement criteria for copying and graphic paper³.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>
TS24(b) Supply of consumables meeting the EU GPP criteria	
<p><i>(when the supply of imaging equipment consumables is included in the printing service)</i></p> <p>Consumables offered by the tenderer as part of the provision of the printing service must comply with the core technical specifications included in EU GPP criteria area 2 imaging equipment consumables.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>	<p><i>(when the supply of imaging equipment consumables is included in the printing service)</i></p> <p>Consumables offered by the tenderer as part of the provision of the printing service must comply with the comprehensive technical specifications included in EU GPP criteria area 2 imaging equipment consumables.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>

⁴ Available at: http://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm

7.3 Award criteria

Core criteria	Comprehensive criteria
AC8 Supply of reused/remanufactured cartridges and containers	
<p><i>(same for core and comprehensive)</i></p> <p><i>(when the supply of cartridges and containers is included in the print service)</i></p> <p>Points must be awarded for the commitment to provide the highest percentage (share) of reused/remanufactured cartridges/containers, which comply with the core technical specifications included in EU GPP criteria area 2 imaging equipment consumables.</p> <p>Verification:</p> <p>The tenderer must provide supporting documentation that the products to be supplied meet the criteria specified above.</p>	
AC9 Provision of managed print services	
	<p>Points will be awarded to the tenderers who offer the provision of managed print services (MPS).</p> <p>MPS should cover the following areas:</p> <ul style="list-style-type: none"> -<i>Assessment</i>: which involves a review of the existing print environment of an organisation and aims to provide recommendations for better device management, -<i>Optimisation</i>: which entails consolidating and rationalising devices and business processes to develop a comprehensive MPS strategy, -<i>Management</i>: which covers systematic reviews, the monitoring of service level agreements and remote management. It aims to improve ongoing processes and workflows. <p>Verification:</p> <p>The tenderer must provide documentation which details the MPS conditions.</p>

	<p>Explanatory note: AC9 Provision of managed print services</p> <p><i>Managed print services (MPS) is defined as ‘the active management and optimisation of document output devices and related business processes’.</i></p>
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7.4 Contract performance clauses

Core criteria	Comprehensive criteria
<p>CPC5 Reporting on supplied consumables</p>	
<p><i>(same for core and comprehensive)</i></p> <p><i>(when the supply of imaging equipment consumables or copy and graphic paper is included in the printing service)</i></p> <p>The contractor must provide records on the provision of consumables specified in TS supply of consumables, as appropriate, for:</p> <ul style="list-style-type: none"> - copy and graphic paper meeting the EU GPP criteria (TS24 (a)), - consumables meeting the EU GPP criteria (TS24 (b)), - reused/remanufactured cartridges/containers (AC5). 	
<p>CPC6 Provision of consumable use information</p>	
	<p>The provision of print services must include the dissemination of detailed consumable usage statistics to the procuring authority, on a regular basis, or when requested to do so by the procuring authority, during the life of the service contract. Consumable usage information must include, as appropriate, the information listed below:</p> <ul style="list-style-type: none"> • Paper usage for each imaging equipment model within the fleet, indicating: <ul style="list-style-type: none"> – the number of sheets/rolls of paper and size (i.e. A4, A3, etc.), – the paper type (i.e. recycled, virgin, grammage, etc.) • Number of cartridges or containers used for each imaging equipment

	<p>model within the fleet</p> <ul style="list-style-type: none">• Yield per cartridge/container/drum unit per imaging equipment model in the fleet• Amount of other consumables used for each imaging equipment model within the fleet• Number of new and remanufactured consumables used• Number of mono and colour (per colour type) consumables used• Number of premature failures or dead-on-arrival consumables (per type). <p>Verification:</p> <p>The tenderer must provide documentation which contains the information listed.</p>
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CPC7 Provision of environmental information during service contract

The service provision must include, on request by the contracting authority, the supply of the following information during the life of the contract:

Details concerning the management of the imaging equipment and associated components at end of life. This must include:

- Initial destination of products at end of life
- Confirmation that the end-of-life service providers are certified on an ongoing basis to a recycling standard by independent certification bodies
- Number of products sent for:
 - Reuse
 - Remanufacture
 - Recycling
 - Other end-of-life options (to be specified (e.g. energy recovery, landfilling)).

Verification:

The tenderer must provide documentation which confirms that the required environmental information will be supplied, on request by the contracting authority, throughout the duration of the contract.

8 HORIZONTAL EU GPP CRITERIA

8.1 Subject matter

Subject matter
Purchase of imaging equipment
Purchase of consumables (cartridges and containers)
Purchase of print services

8.2 Technical specifications

Core criteria	Comprehensive criteria
TS25(a) Guaranteed provision of consumables during contract	
<i>(same for core and comprehensive)</i>	
<i>(applicable for tenders where procurement of consumables is included)</i>	
The tenderer must ensure the provision of consumables for any imaging equipment that is retained for use for the duration of the contract.	
Verification:	
The tenderer must provide a declaration of compliance with this criterion.	

Core criteria	Comprehensive criteria
TS25(b) Guaranteed provision of spare parts during contract	
<p><i>(same for core and comprehensive)</i></p> <p><i>(applicable for tenders where procurement of repair service is included)</i></p> <p>The service must include the provision of spare parts for any existing installed imaging equipment that is retained for use for the duration of the contract.</p> <p>Verification:</p> <p>The tenderer must provide documentation which confirms that spare parts for any existing installed imaging equipment that is retained for use will be provided for the duration of the contract.</p>	
TS26 User instructions for green performance management	
<p><i>(same for core and comprehensive)</i></p> <p>Physical or on-line training on how to maximise the environmental performance of the particular imaging equipment provided by the manufacturer and the best practices for the use of related consumables must be offered. Alternatively, a guide on green performance management can be provided with instructions included as a specific part of the user manual and/or in a digital form accessible via the manufacturer's website.</p> <p>Any of the chosen options should cover at least the following elements: paper management functions, energy efficiency functions, more efficient use and better end-of-life management for consumables.</p> <p>Verification:</p> <p>Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply. Other appropriate means of proof that the above clause will be met will also be accepted, such as a declaration provided by the manufacturer when the equipment is supplied.</p>	

9 LIFE-CYCLE COSTING

Life-cycle cost analysis (LCC) is a method for assessing the total costs of the product group or service under study. It takes into account all costs related to the purchase and use of and maintenance operations for this product group or service and the disposal of any waste generated by it. The purpose of the LCC is to estimate the overall costs of project alternatives and to select the option that ensures the purchase and/or the service that will provide the lowest overall costs consistent with its quality and function. The LCC should be performed early in the purchase process. LCC use in GPP procedures can help determine the lowest costs for evaluating offers. In fact, LCC can help authorities consider not only the costs of acquiring a product or service (e.g. raw material and manufacturing costs) but also other costs that usually have to be identified and calculated by the purchaser (e.g. maintenance costs, running costs, disposal and recycling costs, etc.). These kinds of costs should be added to the selling price to have a comprehensive estimate of the LCC of a product or service. In addition, LCC considers the environmental externalities of a product or a service during its life cycle, when it is possible to determine a monetary value. The use of LCC can provide a more thorough view of the costs of a service through its life-cycle stages, including, for example, not only the cost of supplies, accessories and machinery but also the cost of running the service (e.g. energy consumption during operations) and labour costs. Directive 2014/24/EU on Public Procurement identifies the costs to be considered in an economic analysis of the purchase to be performed. Public authorities can provide the industry with real incentives for developing green technologies through green procurement. In some service sectors, the impact can be particularly significant, as public purchasers command a large share of the market (e.g. energy-efficient buildings, public transport, facilities management). If the whole life costs of a contract are considered, green public procurement can save money while also having fewer impacts on the environment. By purchasing wisely, one can save materials and energy, reduce waste and pollution, and encourage sustainable patterns of behaviour.

In the preliminary report⁷, the LCC of imaging equipment have been calculated in order to get an overview of the most important costs to public procurers.

The following costs were considered:

1. Purchase cost
2. Running costs for operation (i.e. costs for electricity, paper, and toner/ink cartridges)
3. Running costs for repair and maintenance
4. End-of-life costs.

Installation costs were considered negligible. Even though larger machines require professional installation, the cost level for this is still marginal compared to the cost of the machine.

Printers and MFDs come in different sizes with very different purchase and operating costs in the market. Three sizes based on printing speed were identified during the data collection and can be seen in Table 1.

Table 1. Printers and MFD categories based on size (defined by printing speed)

Size	Printing speed (Pages per minute – ppm)
Small	1-20
Medium	21-40

Size	Printing speed (Pages per minute – ppm)
Large	>40

Furthermore, prices and costs also vary widely depending on whether the printing is colour or monochrome. Therefore, costs data was split not only depending on the size of the equipment but also depending on the type of printing.

1. Purchase cost:

Purchase costs for imaging equipment products can vary depending on the technology, brand and the capability. They range from less than €100 for small inkjet printers to €10,000 for large MFD printers.

2. Running costs for operation:

Running costs for the operation of imaging equipment typically consist of the costs of electricity and the cost of consumables, such as paper, toner and ink cartridges.

- Electricity: The electricity price for offices in the EU-28 was assumed to be €0.2087 per kWh in 2015⁵.
- Consumables:
 - Paper:** The costs of paper were found to be €0.042 per sheet for A4 paper, and €0.062 per sheet for A3 paper, based on the retail prices of 20 manufacturers.
 - Cartridges:** The cost of toner or ink cartridges varies greatly based on type and capacity. Small laser and inkjet printers tend to have the highest price in euro per printed sheet, while large laser MFDs tend to have the lowest. Differences in cartridge prices from colour to monochrome are observed in the data collected (see Table 2).

⁵ Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Energy prices and costs in Europe. Page 5. Available at: http://ec.europa.eu/energy/sites/ener/files/documents/com_2016_769.en_.pdf

Table 2. Collected price data for toner and inkjet cartridges for MFDs and printers

Printing technology	Cartridge manufacturer	Colour/mo-nochrome	Price range (EUR)	Yield range (pages/lifetime)	Cost per page range (EUR)
Laser	OEM	Black	49-269	1,400-50,000	0.002-0.054
		Colour	67-326	1,000-55,000	0.002-0.067
	Remanufactured	Black	26-67	1,000-44,000	0.002-0.050
		Colour	20-105	1,000-38,000	0.002-0.021
Inkjet	OEM	Black	6-37	300-2,500	0.011-0.058
		Colour	24-26	1,020-1,500	0.017-0.024
	Remanufactured	Black	9-20	560-1,200	0.017-0.032
		Colour	n.a. ⁶	n.a.	n.a.

3. Running costs for repair and maintenance:

The average cost of a single repair found via desk research was approximately €52. The costs varied from €34 to €78.

4. End-of-life costs:

End-of-life costs can include the costs for disposal of imaging equipment, costs of purchasing services from recycling companies, or costs for transportation to recycling stations or WEEE stations. As most office imaging equipment is relatively easy to uninstall, the costs of decommissioning were considered negligible. Depending on the EU country, these costs can vary from €80 plus VAT to higher amounts depending on the number of manual labour units and the transportation capacity⁷.

Considering all the information above, the total LCCs were calculated based on average prints per month of 2,500, 8,000, and 25,000 for small, medium and large products. Results are presented in the preliminary report⁸.

The following figure shows results for 8,000 average prints per month. The total lifetime of the imaging equipment considered was 6 years for laser printers and MFDs and 4 years for inkjet printers, MFDs and scanners. Paper and, in the case of small devices, toner costs are seen to be predominant in the life-cycle cost of imaging equipment.

⁶ n.a. = data not available for cartridges that were compatible with the MFDs/printers where price data were collected.

⁷ <https://www.envirowaste.co.uk/commercial/weee-recycling-and-it-disposal/>, accessed July 2017.

⁸ Preliminary report EU GPP Imaging Equipment. Available at: <https://susproc.jrc.ec.europa.eu/imaging-equipment/stakeholders.html>

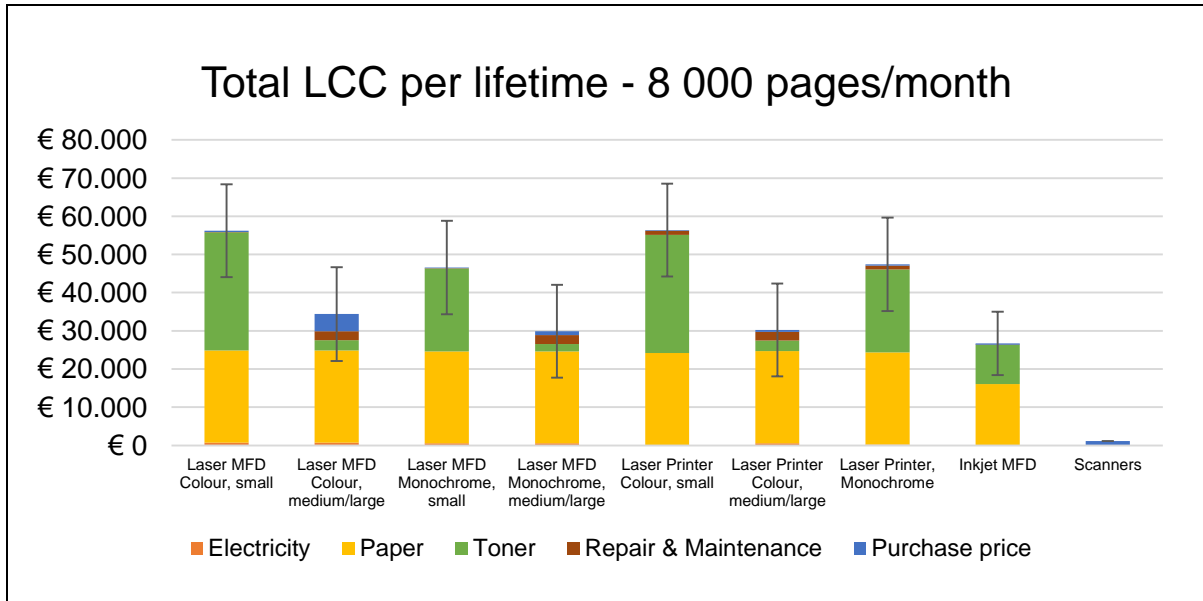


Figure 1. Total life-cycle costs for product lifetime assuming 8,000 printouts per month

The European Commission developed a series of sector-specific LCC calculation tools which aim to facilitate the use of LCC among public procurers. The purpose of the tool is to encourage and facilitate the wide application of life-cycle costing (LCC) among public authorities in the European Union, so that organisations can make more cost-effective decisions in their procurement processes.

The LCC guide and calculation tool for the imaging equipment sector are available at: <https://ec.europa.eu/environment/gpp/lcc.htm>