The European Commission's science and knowledge service

Joint Research Centre

EU GPP criteria for COMPUTERS

1st Ad Hoc Working Group Meeting

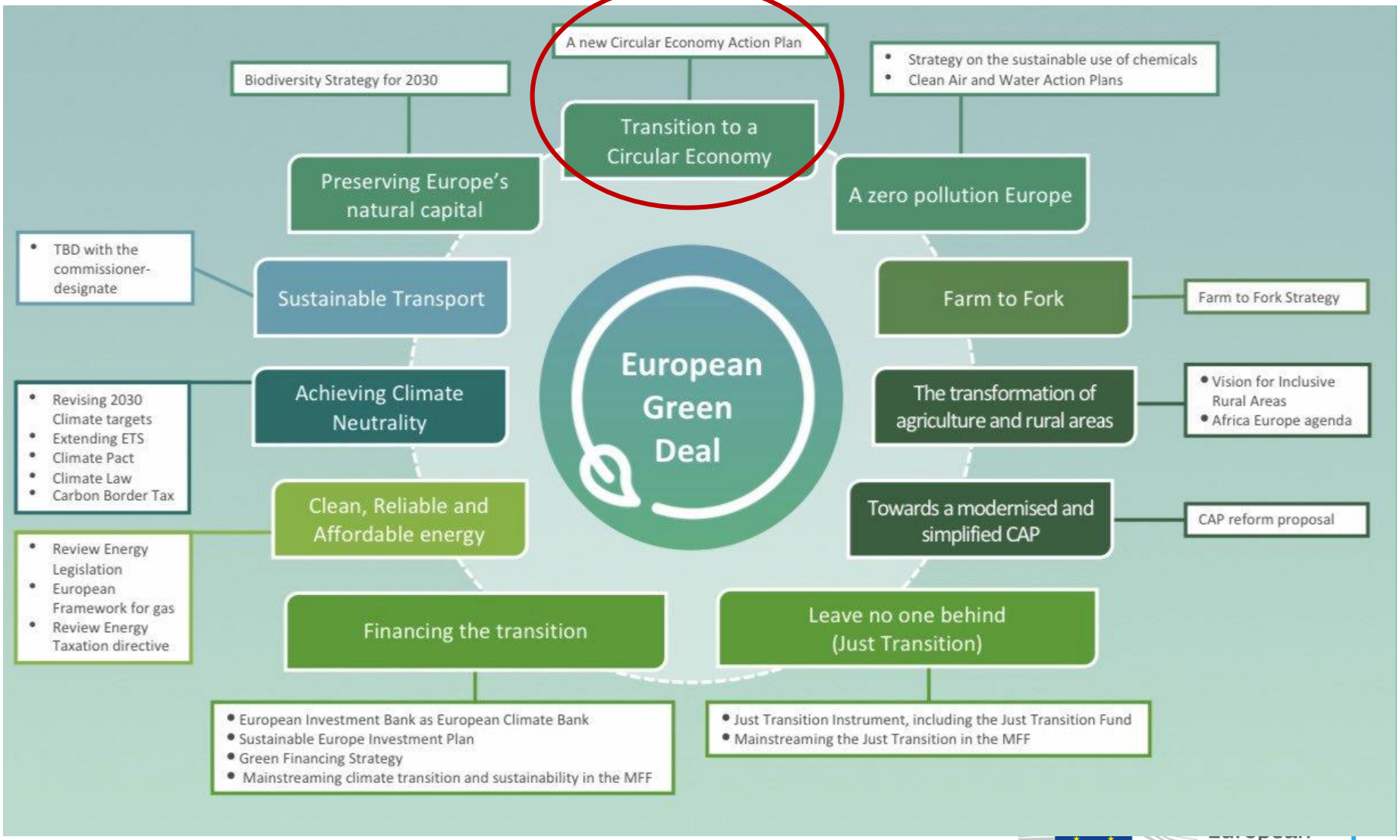
Seville - 11th December 2019

European Commission

EU Green Public Procurement

European Commission
Directorate-General for Environment
Sustainable production, products and consumption

Enrico Degiorgis


European Green Deal
Transition to a Circular Economy
A new Circular Economy Action Plan
Biodiversity Strategy for 2030
Preserving Europe's natural capital
Sustainable Transport
TBD with the commissioner-designate
Achieving Climate Neutrality
Revising 2030 Climate targets
Extending ETS
Climate Pact
Climate Law
Carbon Border Tax
Clean, Reliable and Affordable energy
Review Energy Legislation
European Framework for gas
Review Energy Taxation directive
Financing the transition
European Investment Bank as European Climate Bank
Sustainable Europe Investment Plan
Green Financing Strategy
Mainstreaming climate transition and sustainability in the MFF
Leave no one behind (Just Transition)
Just Transition Instrument, including the Just Transition Fund
Mainstreaming the Just Transition in the MFF
Towards a modernised and simplified CAP
CAP reform proposal
The transformation of agriculture and rural areas
Vision for Inclusive Rural Areas
Africa Europe agenda
Farm to Fork
Farm to Fork Strategy
A zero pollution Europe
Strategy on the sustainable use of chemicals
Clean Air and Water Action Plans

What is GPP?

"...a process whereby **public authorities** seek to procure goods, services and works with a **reduced environmental impact** throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured."

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Obstacles to GPP

- Lack of political support
- Green products are perceived to cost more
- Lack of knowledge on how to verify green criteria
- Lack of awareness of the benefits of green products
- Lack of professional workforce + time

Commission support

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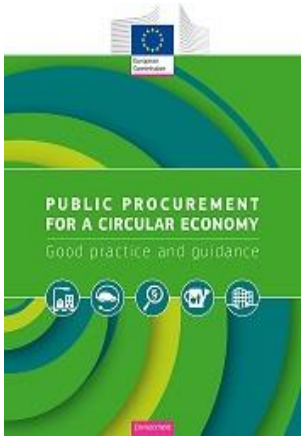
GPP support tools



GPP website of the European Commission:

- *Full sets of **common EU GPP criteria** and background reports in 20+ languages*
- Buying Green Handbook
- Updated GPP Training Toolkit NEW!
- Circular Procurement brochure
- More than 100 GPP Examples
- News and upcoming events

General Help desk: gpp-helpdesk@iclei.org

GPP Newsletter (please sign up!)

Exchange Platform - https://procurement-forum.eu/

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EU GPP Criteria

- 19 product groups covered (food, office buildings, road transport, …)
- Clear, verifiable, justifiable
- Voluntary (unless differently set at national/local level)
- Life-cycle approach and scientific evidence base
- Priority sectors identified through multi-criteria analysis (scope for environmental improvement, public expenditure, market availability, …)
- Member States and contracting authorities are encouraged to use them
- Legal framework: public procurement directives

Stakeholders

Actors involved

JRC

DG ENV

Other Commission DGs

GPP Advisory Group: representatives of MSs, observers (Switzerland, Norway, UNEP), Business Europe (Association of MSs Business Federations), UEAPME (European SMEs Association), EEB (European Environment Bureau), BEUC (European Consumer Organisation), ICLEI (Local Governments Network)

Manufacturers / Service providers (supply side)

Professional associations and networks (supply side)

Public procurers (demand side)

NGOs

Academia

Key objectives

Finding the right balance (ideally consensually) between environmental relevance, cost considerations, market availability and ease of verification.

Stages of the procurement process

- **Selection criteria (SC)**: suitability of an economic operator to carry out a contract
- **Technical specifications (TS)**: required characteristics of a product or a service
- **Award criteria (AC)**: criteria with a weighted scoring which are chosen to determine the most economically advantageous tender
- **Contract performance clauses (CPC)**: special conditions laid down that must be fulfilled during the execution of the contract

Two levels of criteria

Core criteria:

- Aim at addressing the key environmental impacts
- Require minimum additional verification effort or cost increases.

Comprehensive criteria:

- Aim at purchasing the best environmental products available on the market
- possibly requiring additional verification efforts or a slight increase in cost compared to other products with the same functionality.

GPP criteria for products are largely based on standard Type I ecolabels.

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Criteria under development/revision

- Data Centres
- Imaging Equipment
- Computers and monitors: revision started – please comment on first proposed criteria

How to participate to the ongoing work? → http://susproc.jrc.ec.europa.eu/product_bureau/projects.html

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The European Commission's science and knowledge service

Joint Research Centre

Introduction and background

Work programme, timeline, summary of scope and preliminary evidence

Felice Alfieri

Seville - 11th December 2019

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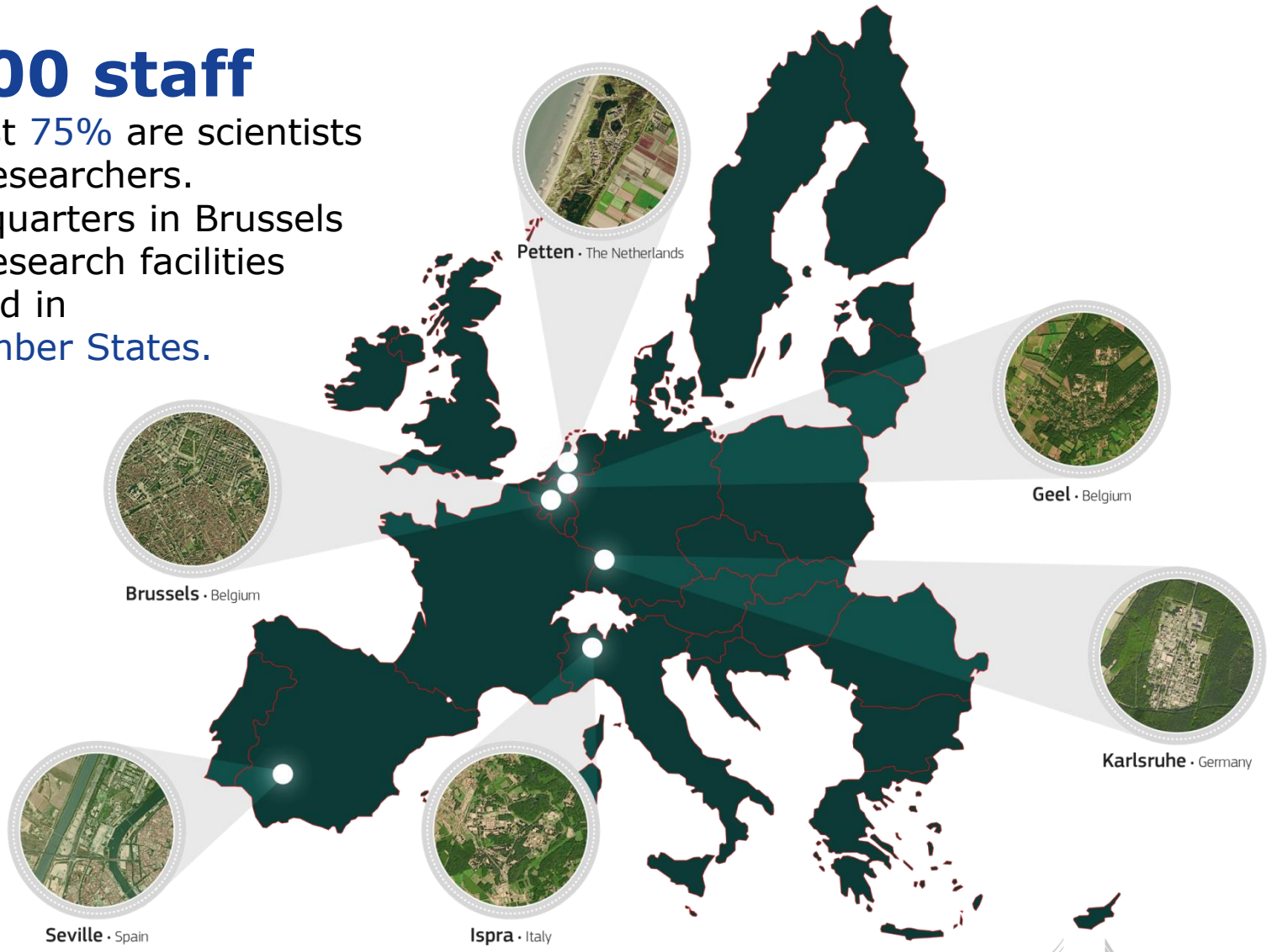
The Joint Research Centre at a glance

3000 staff

Almost 75% are scientists and researchers.
Headquarters in Brussels and research facilities located in
5 Member States.



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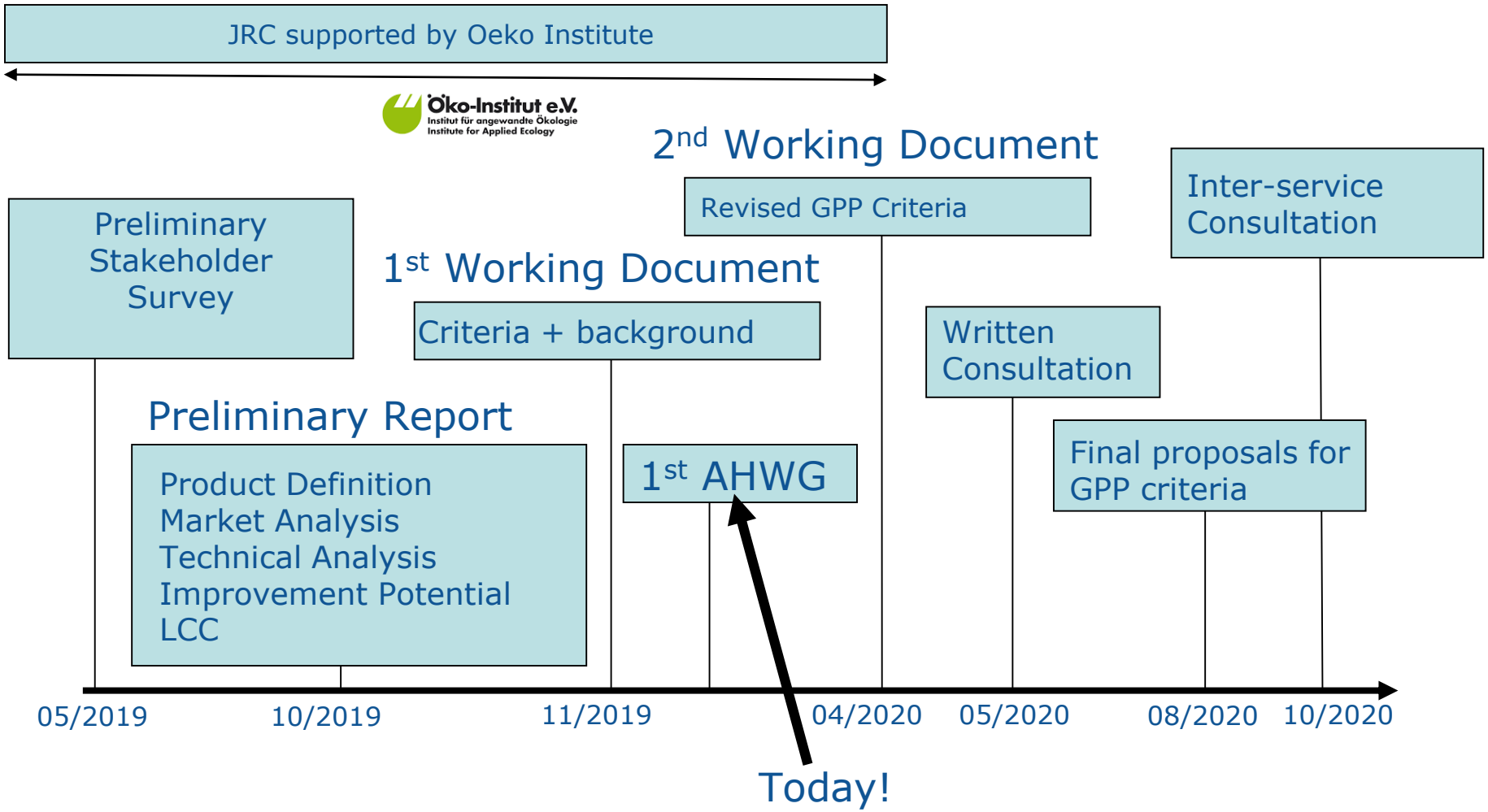
Work Programme and Timeline



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EXISTING CRITERIA

Existing Criteria

https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm

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Preliminary Stakeholder Survey May 2019

Number	Organisation type
7	Public Authorities / Public Procurers (including Central Purchasing Bodies)
2	Testing organisation / Certification
3	Manufacturing of IT products and or components
2	IT Refurbishment / Remanufacturing
1	End of Life Management
2	Non-governmental organisation (NGO)
1	Trade associations and professional bodies

Preliminary Stakeholder Survey
Main Conclusions:

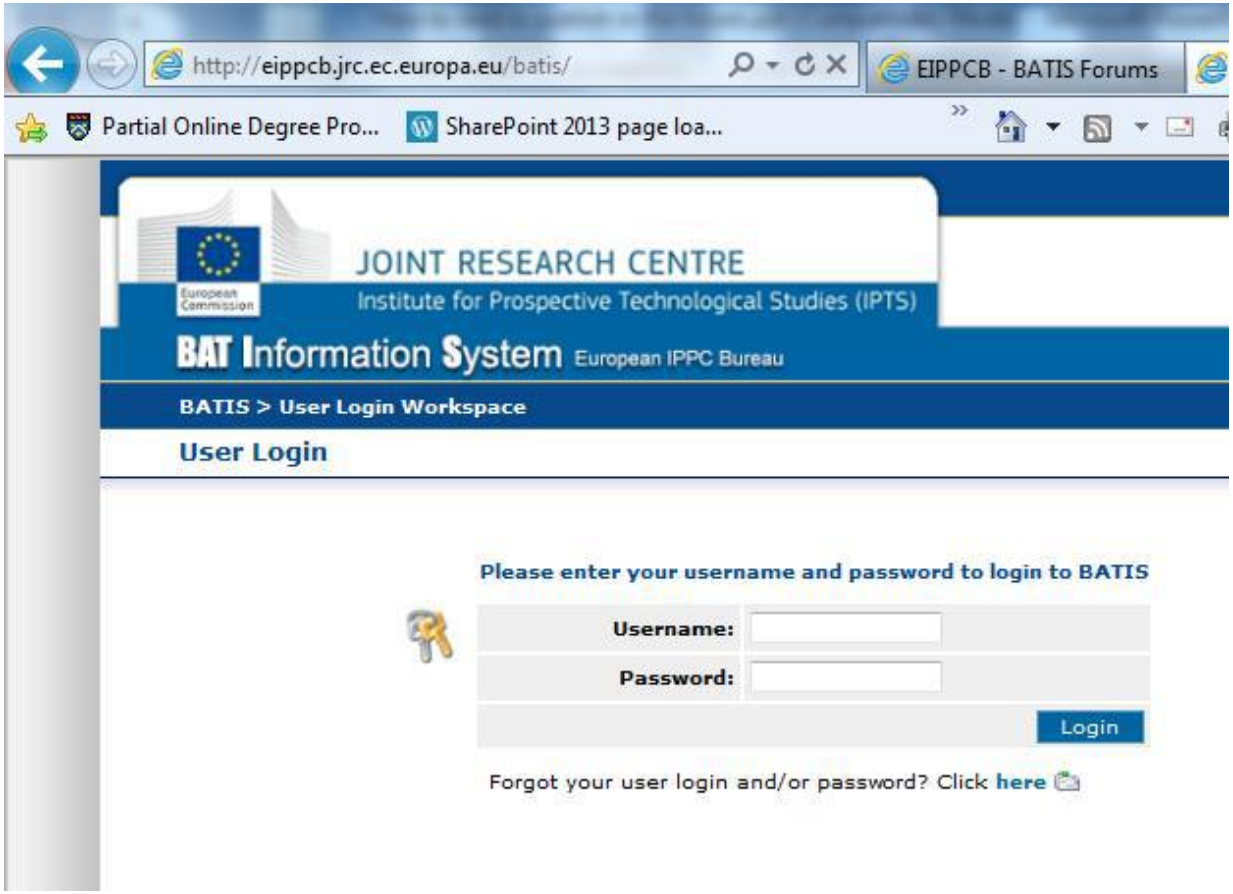
- The GPP Criteria for Computers and Monitors 2016 are generally positively commented
- Several public authorities have been using some of the criteria (e.g. the Commission itself)
- Scope Expansion is requested by several stakeholders
- Simplification of the criteria is also requested, especially the verification from public procurers

Publication of the technical background documents and first criteria proposals
Criteria and metrics to be included in the GPP criteria

Date	Description	Link
13/11/2019	GPP Technical Report Draft V1. November 2019	Technical report
13/11/2019	GPP Preliminary Report Draft V1	Preliminary report

Comments using the BATIS system

Written comments on the first criteria proposals are invited and should be posted on the BATIS system **at the latest by Friday 31st January 2020**



JRC-IPTS-PRODUCT-BUREAU@ec.europa.eu

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Presentation and discussion on procurement routes and scope definition

Current Scope

Existing Scope

Stationary computers

- **Desktop Computers (incl. Integrated Desktop Computers and Thin Clients)**
- **Small-scale servers**
- **Workstations**

Display devices

- **Computer monitors**

Portable computers

- **Notebook Computers (including subnotebooks)**
- **Two-In-One Notebook**
- **Tablet Computers**
- **Portable All-In-One Computer**
- **Mobile Thin Client**

Preliminary Stakeholder Survey
Stakeholders' opinion on proposed scope and definitions

- Small-scale servers should be addressed in the server related GPP (i.e. devices installed in a data centre or server room).
- The terminology for portable computers should be revised: All-In-One Computers are mainly stationary and not part of the portable segment.
- Smartphones suggested to be considered
- Display devices should include projectors and large format displays

Background for the definition of scope

- The analysis described in Preliminary Report highlights a substantial overlap of the environmental criteria for mobile equipment applied by voluntary approaches (ecolabels) for smartphones, tablets and notebooks.
- The analysis of environmental impacts shows similar hotspots related to the lifecycle impacts of these products.
- Similar failure mechanisms and priority components.
- Different ICT products could be part of the same tender.

Proposed Revised Scope

Proposed revised scope of the GPP criteria (first proposal)

Stationary ICT devices

- **Computers**
  - **Desktop computers**
  - **All in one computers (or integrated desktop computers)**
  - **Desktop Thin clients**
  - **Workstations**
- **Computer displays**

Mobile ICT devices

- **Portable computers**
  - **Notebooks**
  - **Two-in-one notebooks**
  - **Mobile thin clients**
- **Tablets**
- **Smartphones**

Update of the title: proposal

EU Green Public Procurement (GPP) Criteria for Stationary and Mobile ICT Products and Services

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Preliminary findings 1 – Market and procurement routes

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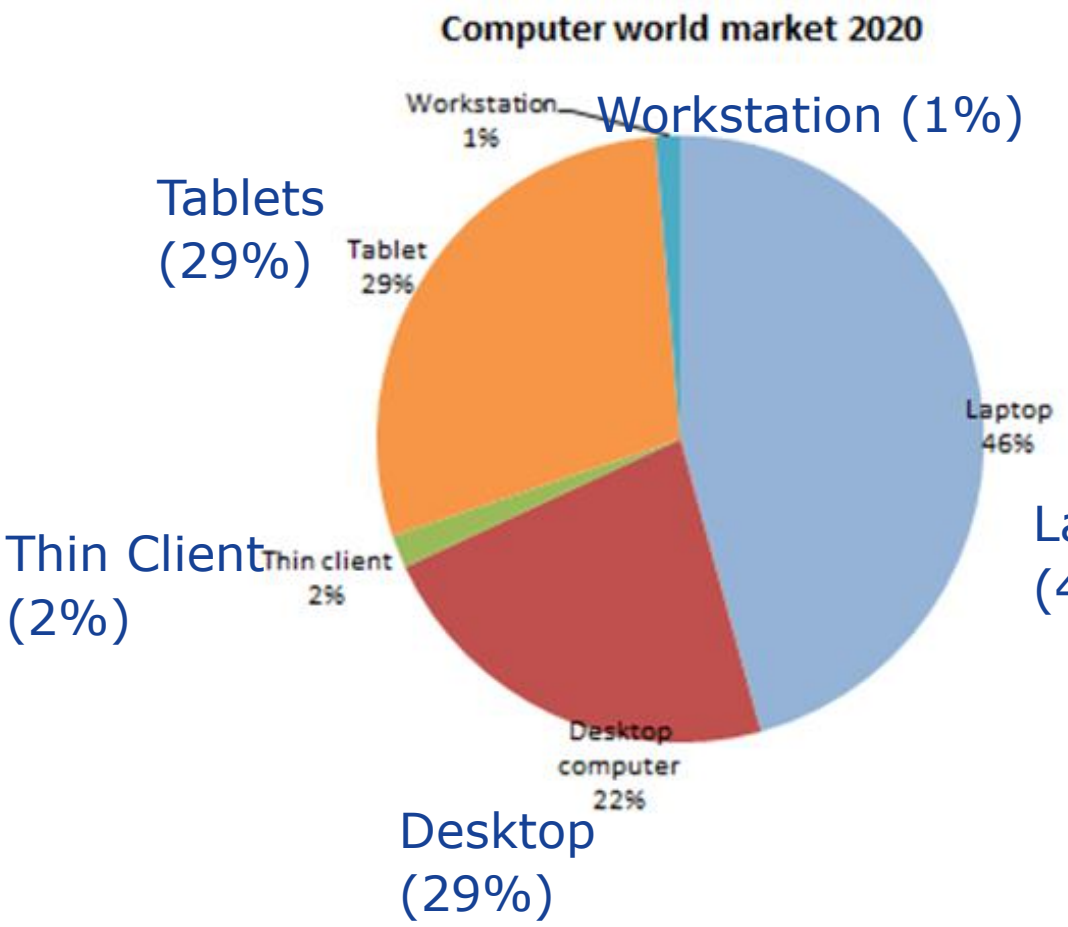
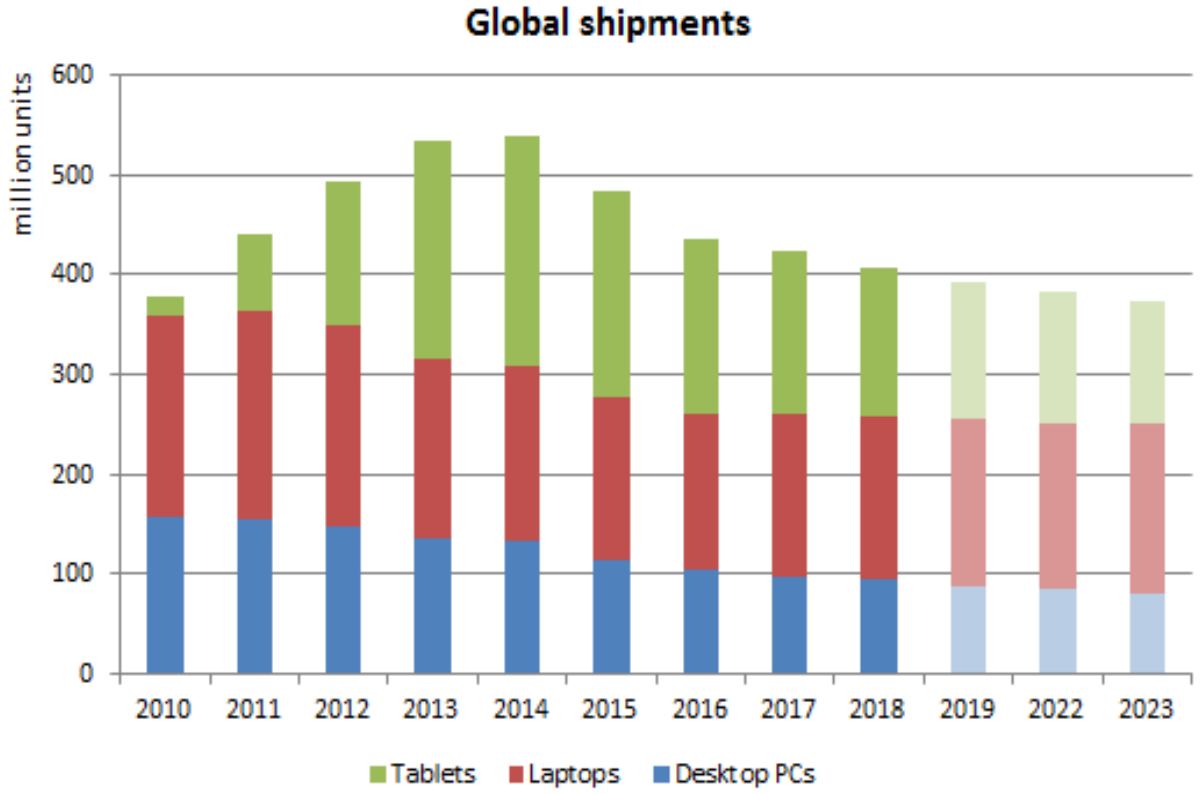
Computer world market



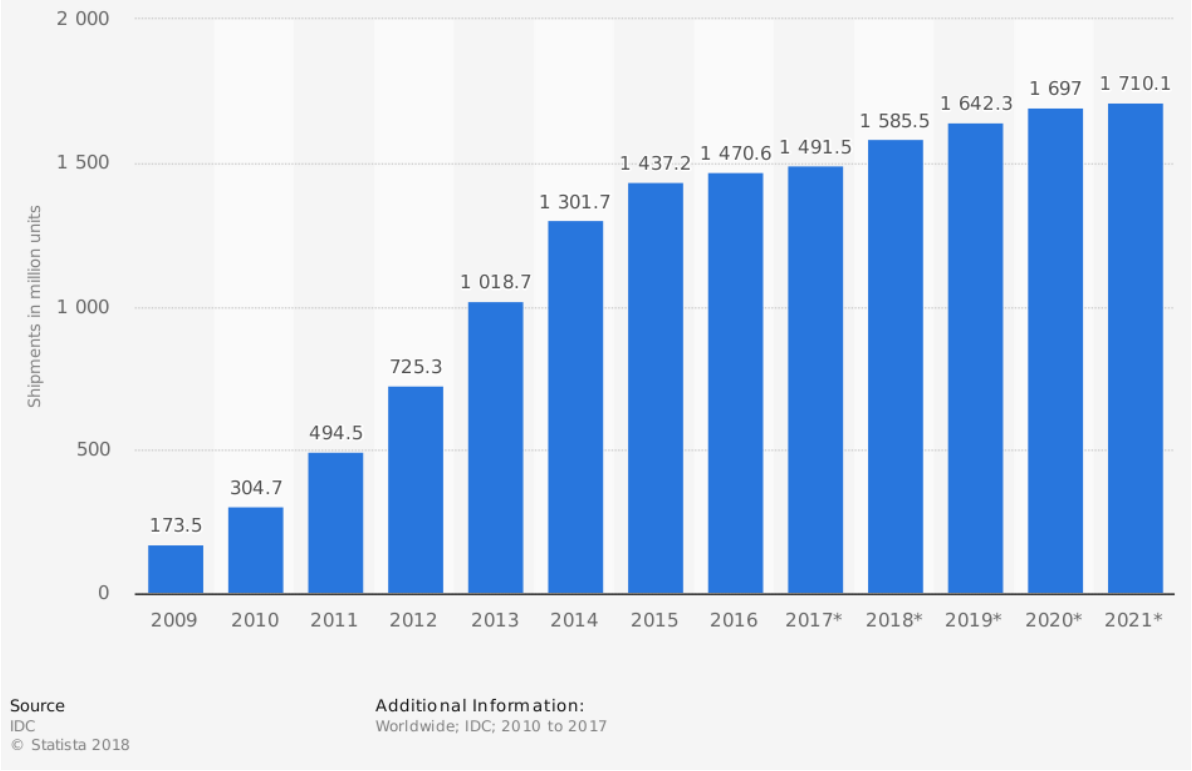
Preparatory study on the review of Regulation 617/2013 Computers and Computer Servers – Task 7 (2017) Viegand Maagoe and Vito. https://computerregulationreview.eu/documents

Market Trends: Computers



Global shipments have been slightly decreasing and desktop PCs also have a lower market share.

Market Trends: Smartphones



"Mass smartphonization"!

In Europe increase of shipments from 166.3 million units in 2013 to 210.8 units in 2018

Market Trends in the public sector

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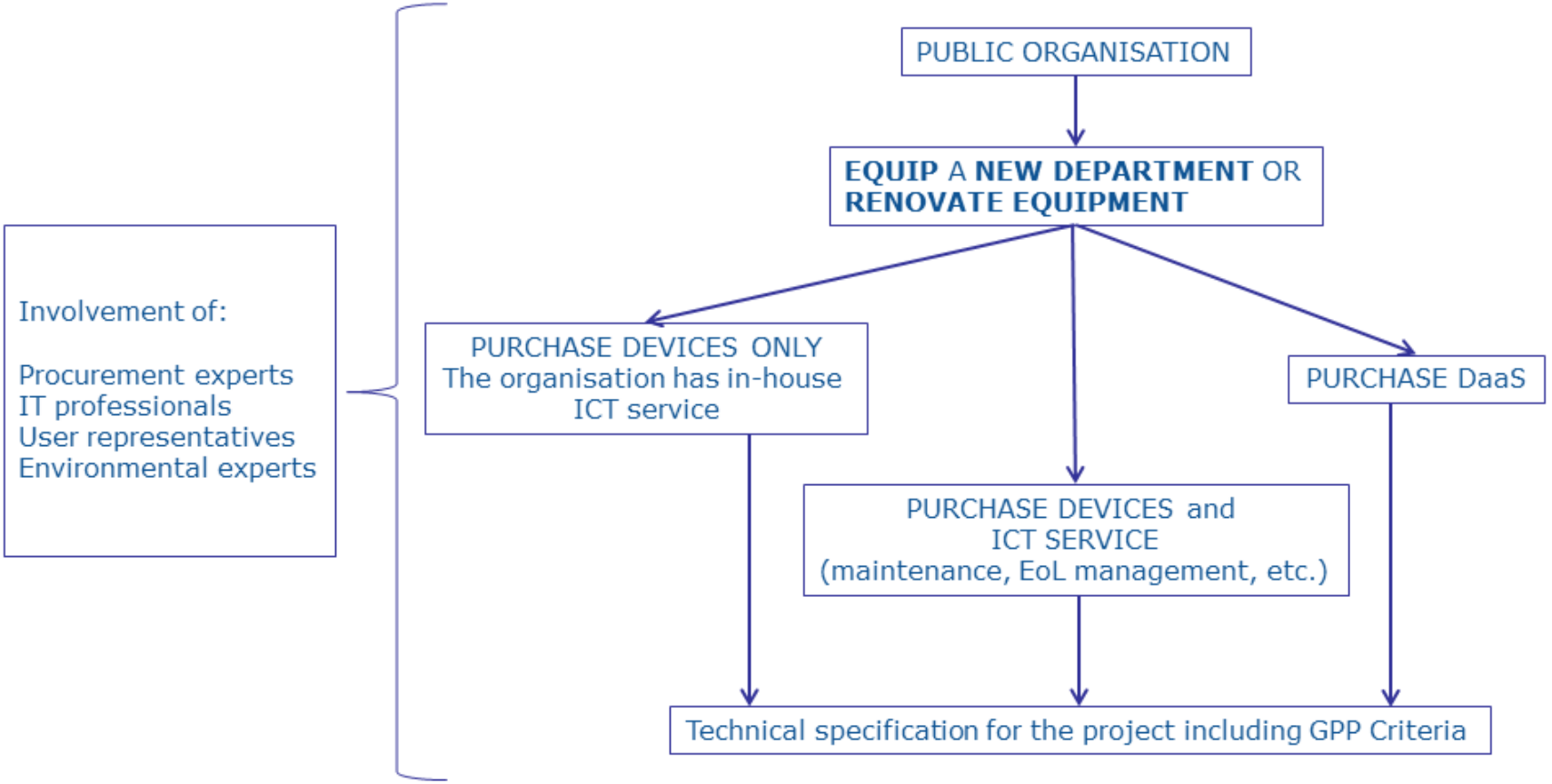
Market Trends in the public sector

The contract notices on the TED website were screened **from mid-May to mid-June 2019**.

The CVP 30200000 'Computer equipment and supplies' was chosen

Tenders with values, abs.	54
Tenders with values, share	53%
Total of 54 Tenders with value	146.587.112,58 €
Average value/tender	2.714.576,16 €
lowest value	17.830,00 €
highest value	41.250.000,00 €
Extrapolation from 54 to 102 tenders, total	276.886.768,21 €

Procurement routes in the public sector



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Scope, Market, Procurement
Questions

- Are the scope and definitions appropriate?
- Is our picture of the market representative?
- Are the identified procurement routes representative?

Specific points/requests:

– More knowledge of public procurements trend and routes needed

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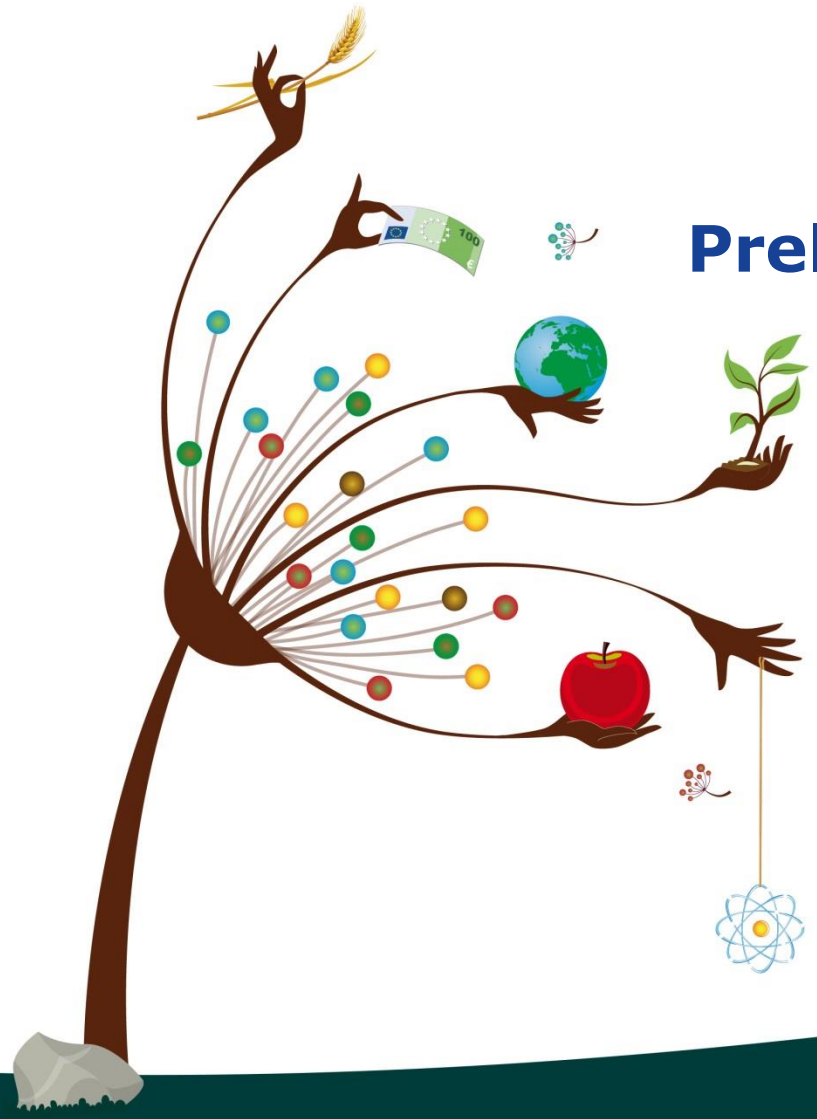

Preliminary findings 2: LCA and LCC analysis, standard and metrics, technical improvement potential.

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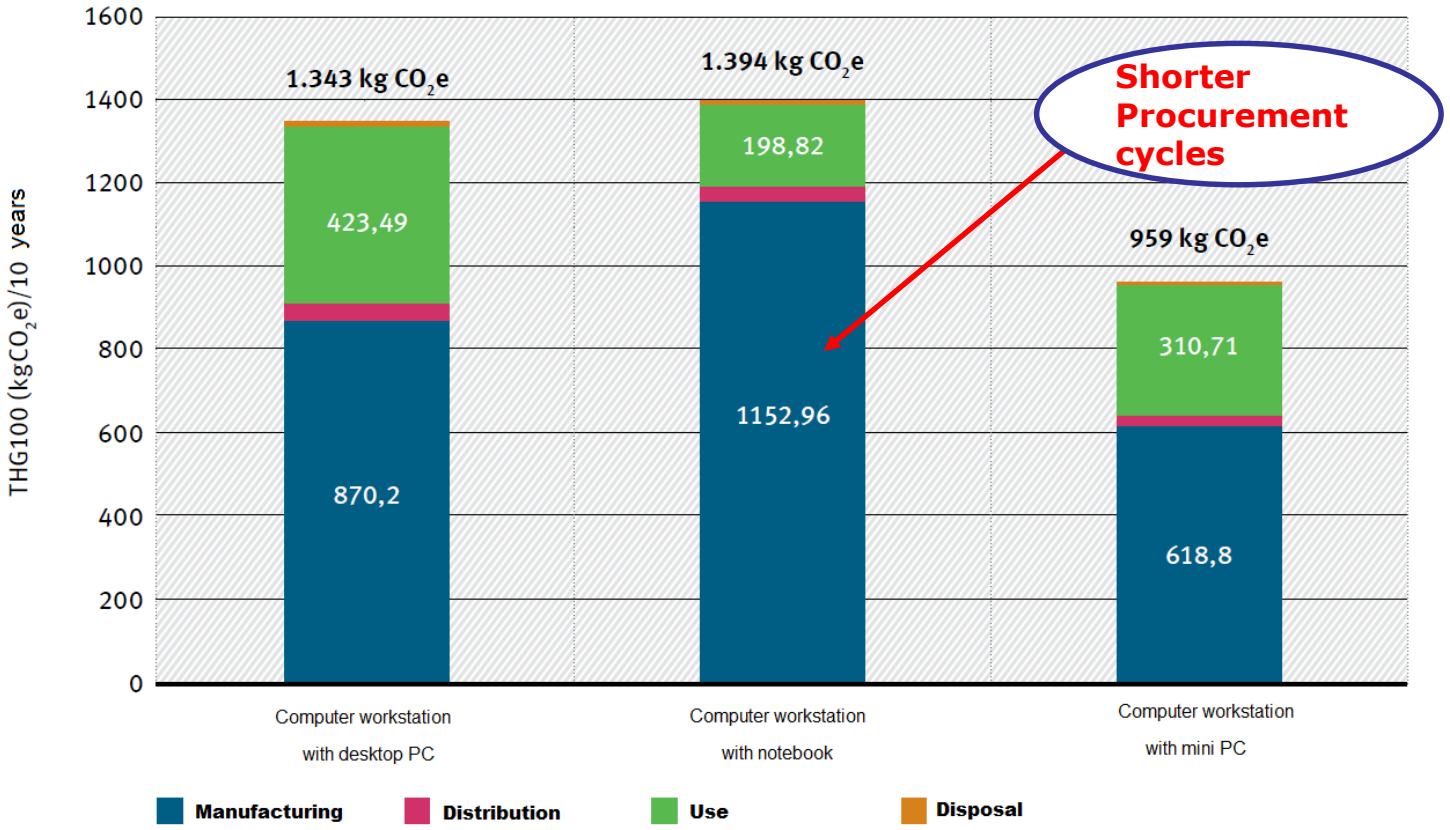
The life cycle of a computer: hotspots



Procurement cycle:

- 5 years for desktop computers and mini PC
- 3 years for notebooks

Prakash et al. (2016) Computer am Arbeitsplatz: Wirtschaftlichkeit und Umweltschutz - Ratgeber für Verwaltungen. Umweltbundesamt

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The life cycle of a ICT devices: hotspots

- Manufacturing impacts for computers tablets and smartphones are significantly higher than the contribution of the use stage
- Considering the whole lifecycle impact of an average desktop computer, manufacturing of the monitor can account for around 25% of total GHG lifecycle emissions.
- Energy efficiency gains cannot compensate in realistic time periods the manufacturing impacts.

- Extending the lifetime of ICT devices is a key strategy to reduce impacts.

The life cycle of ICT devices: hotspots

- Production of PCBs and Integrated Circuits (ICs) is the most relevant aspect in terms is of components
- The higher the performance of a device in terms of processing capacity or memory, the larger the content of PCBs and ICs.
- From the other hand low performance can be a reason for faster replacement cycles.

Avoid overprovisioning / insufficient provision

Measures aimed at helping organizations make the right choice in terms of performance of ICT equipment that they purchase, will have a significant positive impact on their overall footprint.

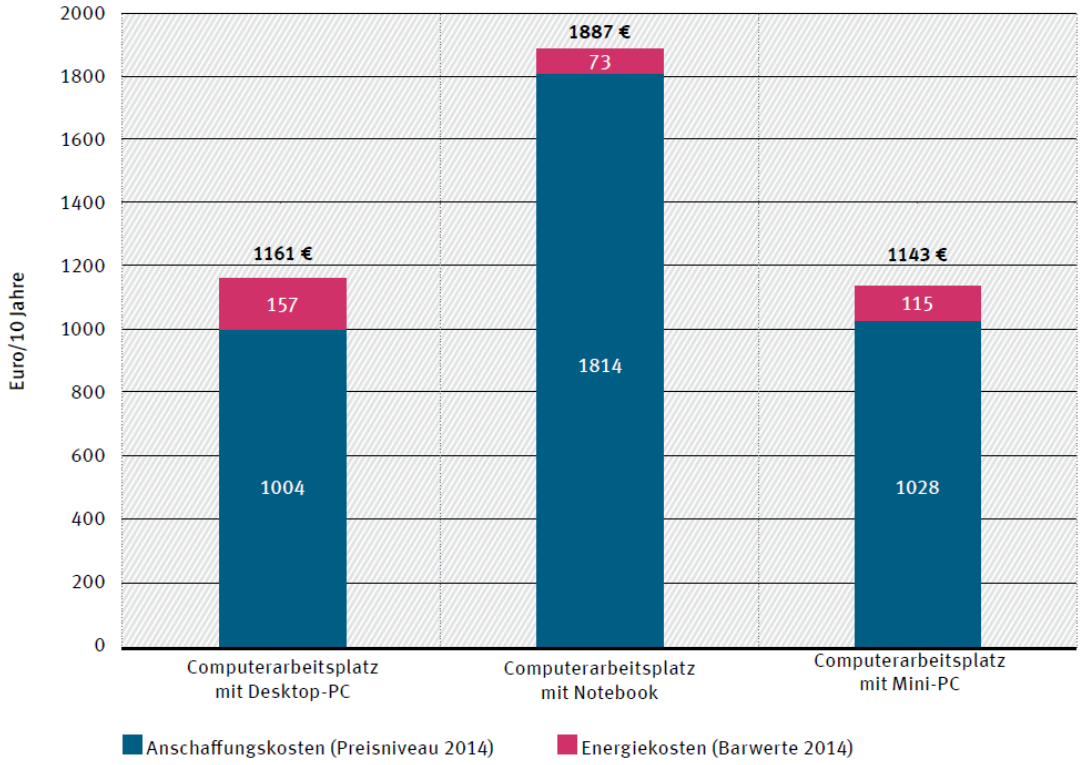
Life Cycle costing

durch die häufigere Neubeschaffung werden insgesamt mehr Treibhausgase emittiert als bei Desktop-PCs.

umweltschonendste, sondern auch die wirtschaftlichste Variante.

Abbildung 2

Vergleich der Lebenszykluskosten der drei Computerarbeitsplätze



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Life cycle costs: assessment tools

- Specific LCC tools for computers in Denmark, Germany, Sweden, and under development in France.
- Specific LCC tool for computers developed by the European Commission: https://ec.europa.eu/environment/gpp/lcc.htm
- Other general LCC tools have been developed in Austria, Germany, Croatia

Relevant initiatives considered in the development of the proposed criteria

- Ecodesign Regulation for computers and computer servers (617/2013); currently under revision (ongoing)
- Ecodesign Regulation for servers (EU 424/2019)
- Ecodesign Regulation for electronic displays (XX/2019)
- Energy label Regulation for electronic displays (XX/2019)
- Ecodesign Regulation for external power supplies (XX/2019)
- RoHS Directive 2011/65/EU
- REACH Regulation (EC) No 1907/2006
- EU POPs Regulation (EC) No 850/2004

Relevant voluntary initiatives considered in the development of the proposed criteria

Ecolabel	Criteria document
'Blue Angel Computers'	DE-UZ 78 for Computers (as of 01/2017)
'Blue Angel Mobile Phones'	DE-UZ 106 for Mobile Phones (as of 07/2017)
'EPEAT Computer & Display (IEEE)'	Based on IEEE Std. 1680.1TM-2018 for computers (as of 02/2018)
'EPEAT Mobile Phones (UL 110)'	Based on UL 110 Standard for Sustainability for Mobile Phones (Second Edition, Dated March 24, 2017 (including revisions through September 28, 2018))
'Nordic Ecolabelling'	Version 5.0 for rechargeable batteries and portable chargers (as of 06/2018)
‚TÜV Green Product Mark Computers'	2PFG-E 2354:07.2018 for Portable Computers (as of 07/2018)
‚TÜV Green Product Mark Mobile Phones'	2 PfG E 2073:07.2018 for Mobile Phones (as of 07/01/2018)
'TCO Accepted Substance List'	Accepted Substance List (as of 11/2018)
'TCO Computers'	Generation 8 (as of 2018) for displays, notebooks, tablets, desktops, all-in-one PCs
'TCO Smartphones'	Generation 8 (as of 2019) for smartphones

Other relevant studies / initiatives

- EU Ecolabel Electronic Displays (under revision) –Technical Report for final consultation
- Personal, notebook and tablet computers are no longer covered by the scope of the EU Ecolabel
- Analysis and development of a scoring system for repair and upgrade of products – FINAL REPORT
- Analysis of material efficiency aspects of personal computers product group – Technical Report
- Material Efficiency of smartphones - JRC Report (2nd draft version) - → final version soon available
- EU GPP Criteria for Data Centres – final version soon available

Relevant Standards

Energy
IEC 62623:2012 Desktop and notebook computers - Measurement of energy consumption

Durability - Batteries
IEC 61960-3:2017 Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for portable applications - Part 3: Prismatic and cylindrical lithium secondary cells and batteries made from them

Reparability
Several ISO standards to identify tools

Data Erasure
Guidelines for Media Sanitization (800-88) by NIST (2014)

Resistance to stress
IEC 60068-2 2019 Environmental testing. Part 2-1: A Cold; Part 2-2: B Dry Heat; Part 2-31: Ec (Freefall, procedure 1); Part 2-27: Test Ea and guidance: Shock Part 2-47 Test - Mounting of specimens for vibration, impact and similar dynamic tests
MIL-STD-810G Environmental Engineering Considerations and Laboratory Tests
IEC 605129:2013 Degrees of protection provided by enclosures (IP Code)

Relevant Standards

Interoperability

IEC 63002:2016 Identification and communication interoperability method for external power supplies used with portable computing devices

IEC 62680-1-3:2018 - Universal serial bus interfaces for data and power - Part 1-3: Common components - USB Type-C™ Cable and Connector Specification

Recommendation ITU-T L.1002. External universal power adapter solutions for portable information and communication technology devices

Hazardous substances / End of life

IEC 62902:2019 Secondary cells and batteries - Marking symbols for identification of their chemistry

IEC 62474 Database: Material declaration for products of and for the electrotechnical industry, http://std.iec.ch/iec62474

IEC TR 62476:2010 Guidance for evaluation of product with respect to substance-use restrictions in electrical and electronic products

IEC 62321-3-1:2013 Determination of certain substances in electrotechnical products - Part 3-1: Screening - Lead, mercury, cadmium, total chromium and total bromine using X-ray fluorescence spectrometry.

Relevant Standards

Recyclability of plastic

ISO180 Plastic - Determination of Izod Impact Strength – Instron
ISO 11469:2016 Plastics - Generic identification and marking of plastics products
ISO 1043-1:2011 Plastics - Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics

Critical raw materials

EN 45558:2019 'General method to declare the use of critical raw materials in energy-related products'

ISO 17025 TESTING AND CALIBRATION LABORATORIES

Types of GPP Criteria

- **Selection criteria (SC)** assess the suitability of an economic operator to carry out a contract

- **Technical specifications (TS)**, the required characteristics of a product or a service including requirements relevant to the product at any stage of the life cycle of the supply or service and conformity assessment procedures;

- **Award criteria (AC)**, qualitative criteria with a weighted scoring which are chosen to determine the most economically advantageous tender

- **Contract performance clauses (CPC)**, special conditions laid down that relate to the performance of a contract and how it shall be carried out and monitored

Two ambition levels

The **Core criteria** are designed to allow for easy application of GPP, focussing on the key area(s) of environmental performance of a product and aimed at keeping administrative costs for companies to a minimum.

The **Comprehensive criteria** 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.

CRITERIA AREAS

Criteria Area 1: Energy Consumption

Criteria Area 2: Hazardous Substances

Criteria Area 3: Product Lifetime Extension

Criteria Area 4: End of life Management

LCA, LCC, Standards and Improvement Potential
Questions

- Are our finding on Life Cycle Environmental Impacts and Costs representative?
- Do the improvements areas identified seem appropriate?
- Are the most relevant standards and metrics identified?

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Criteria Area 1: Energy Consumption

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Overview of the criteria area Criteria Area 1 – Energy Consumption

Improvement area – Criteria proposal	Criterion code	Description	Application level
Energy Conumption	TS1	Minimum energy performance of computers	CORE
	TS2	Minimum Energy Performance of Monitors	CORE
	TS3	Thin Client devices in a server based environment	COMP
	AC1	Improvement in the energy consumption upon the specified Energy Consumption threshold for computers	COMP
	AC2	Improvement in the energy consumption upon the specified Energy Consumption threshold for monitors	COMP

Overview of Criteria Area 1 – Energy Consumption

GPP 2016	TR v1.0 Proposal
TS1 Minimum Energy Performance of Computers (based on Energy Star) *(core and comprehensive)*	TS1 Minimum Energy Performance of Computers (based on the IEC Standard 62623:2012)
TS2 Minimum Energy Performance of Monitors (based on Energy Star) *(core and comprehensive)*	TS2 Minimum Energy Performance of Monitors (based on Energy Label) *(core and comprehensive)*
	New! TS3 Thin Client devices in a server based network
AC 1 Improvement of energy consumption upon the specified Energy Star Standard *(core and comprehensive)*	AC1. Improvement in the energy consumption upon the specified Energy Consumption threshold for computers (based on the IEC Standard 62623:2012)
	AC2. . Improvement in the energy consumption upon the specified Energy Consumption threshold for monitors (based on Energy Label)

Policy background

- Ecodesign / Energy Label measures for electronic displays (adopted in 2019)
- Ongoing revision of the Ecodesign Regulation (EU) No 617/2013 for Computers
- Termination of the EU - US Energy Star Agreement (February 2018)

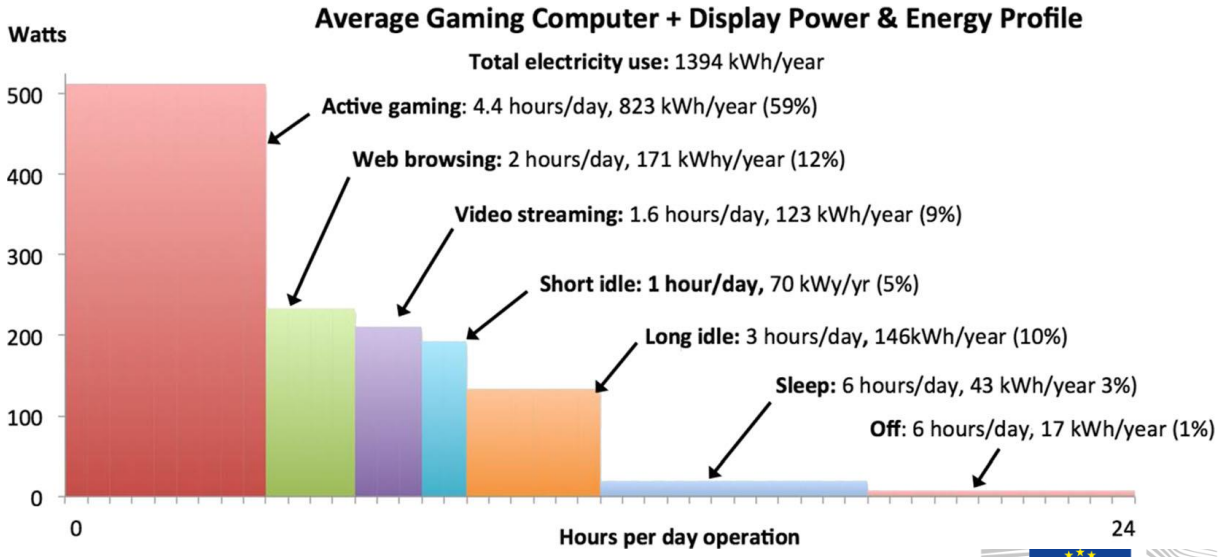
Computers efficiency - Metrics

Typical Energy Consumption (TEC) in kWh

- Based on IEC/EN 62623, "Desktop and Notebook Computers – Measurement of Energy Consumption" Edition 1.0, 2012-10
- Combination of testing in off-mode, idle and sleep mode
- IEC/EN 62623 limitation: does not cover active state calculations

Computers efficiency - Metrics

- Is the TEC a good proxy of the energy consumption under an office working environment?
- Activities that require high speed performance of powerful graphic cards and CPUs (e.g. gaming) seem to notably increase the level of energy consumptions when used at full load
- Short idle seems to be quite representative of normal use in office environment.



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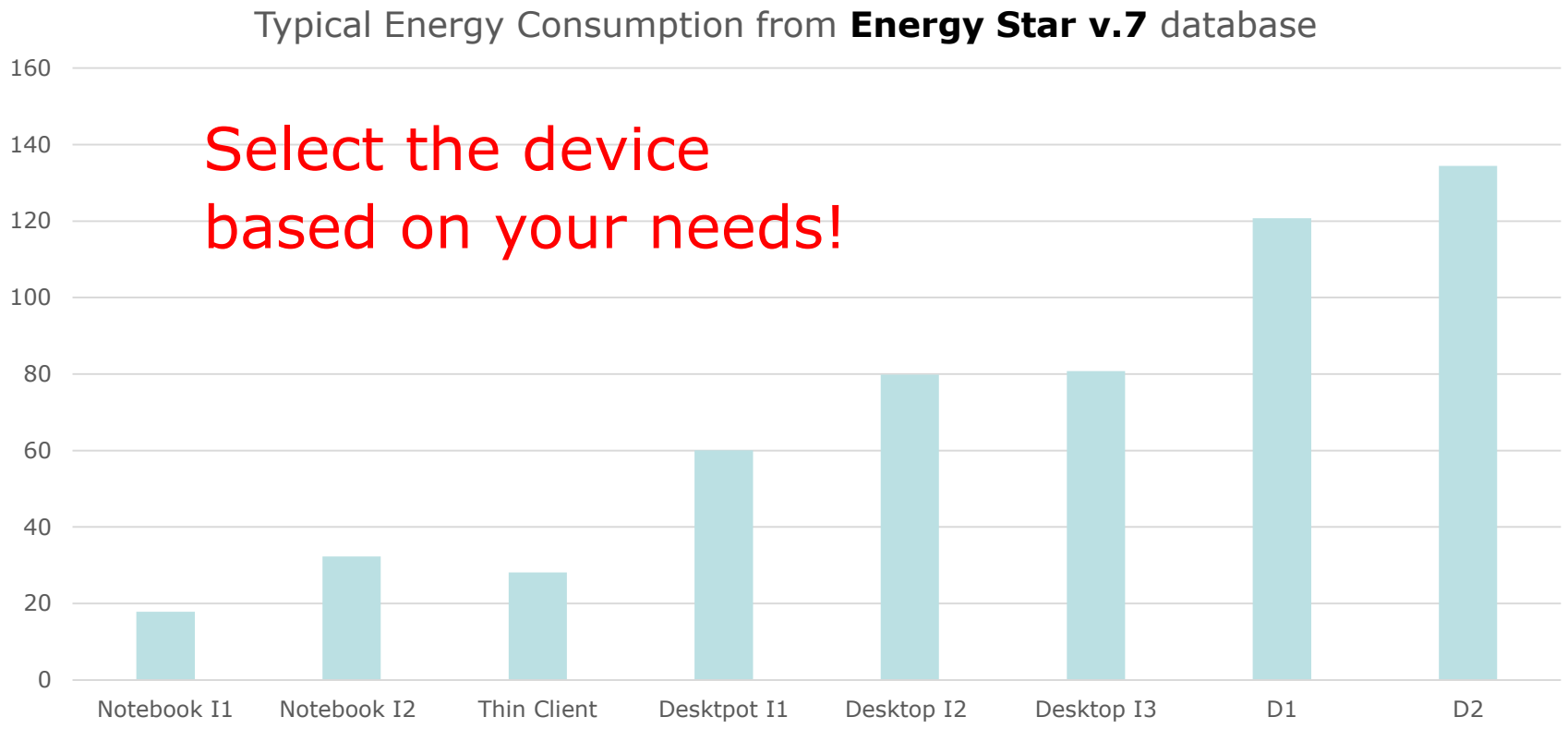
Ecolabels and energy efficiency

- EPEAT / TCO Certified / Blue Angel → refer directly to the Energy Star requirements.
- Most of the labels take the 'latest' version of the Energy Star Program Requirements as basis for setting thresholds
- TCO Certified makes direct reference to version 6.1 of the Energy Star program requirements for the energy efficiency requirements;

Typical Energy Consumption (kWh)

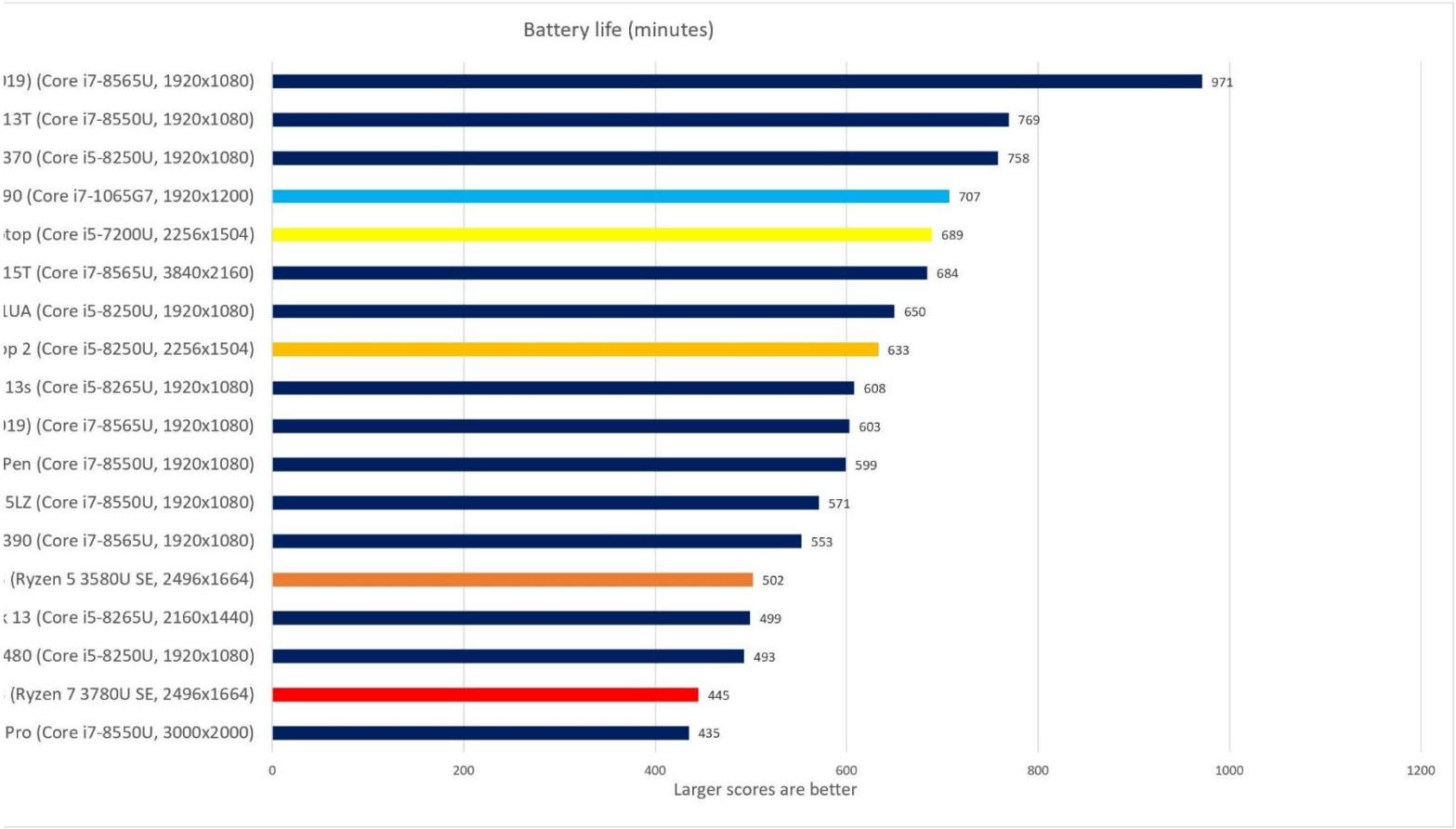


Notebook I1 Lower Processor Speed
Notebook I2 Higher Processor Speed

Desktpot I1 Dual Core - Base Processor Speed Per Core around 2 -3 GHz
Desktpot I2 Dual Core - Base Processor Speed Per Core around 3 -3.5 GHz
Desktpot I3 Dual Core - Base Processor Speed Per Core around 3.5 -3.8 GHz
Desktpop D1 Dual Core - Base Processor Speed Per Core 3 -4 GHz + Discrete Graphic Unit
Desktopt D2 8 Core - Base Processor Speed Per Core 3 -4 GHz + Discrete Graphic Unit

Benchmarking tools

Interesting tools for the assessment of notebooks battery life duration under different tasks



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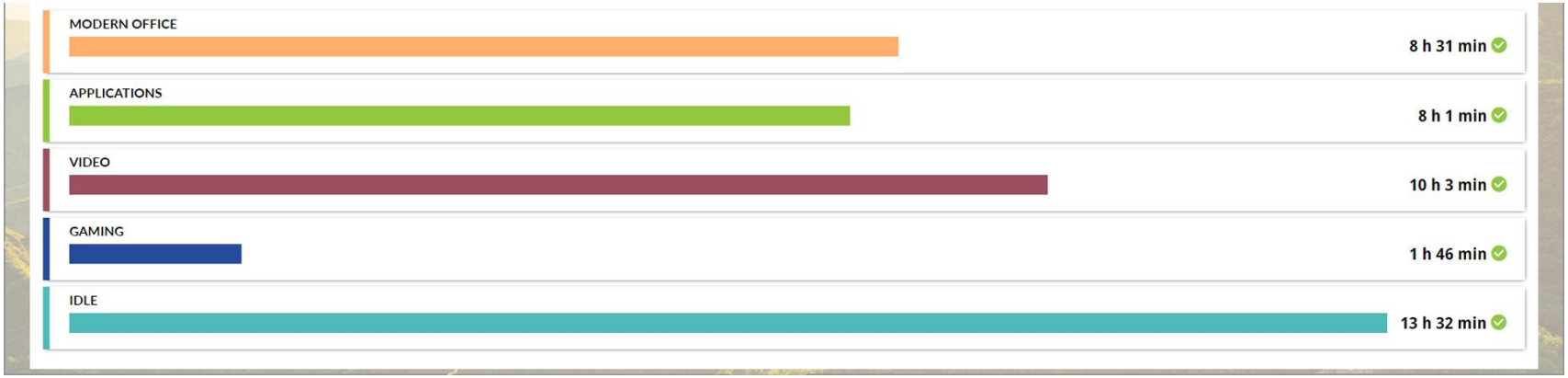
Benchmarking tools

- Benchmarking tools are available on the market to test energy performance under active state and specific tasks
- Performance is a combination of battery capacity and device efficiency
- Advanced competences needed
- Standardization needed on this topic



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PROPOSED CRITERIA TS1

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATIONS	
TS1. Minimum Energy performance for computers The calculated Typical Energy Consumption (E_{TEC}) for each equipment delivered as part of the contract must be less than or equal to the Maximum E_{TEC} requirement as for the Annex I **Verification:** Tenderers must report the Typical Energy Consumption (E_{TEC}) value, based on testing and calculations according to the IEC Standard 62623:2012. Products holding a relevant Type I Eco-label or other labelling schemes fulfilling this specified requirement will be deemed to comply. In particular holding one the following labels is considered as proof of compliance: • Energy Star Version 6.1 • TCO Certified Version 8 As alternative test results obtained by accredited ISO17025 test bodies according to the IEC 62623:2012 standard are accepted as proof of compliance.	**TS1. Minimum Energy performance for computers** The calculated Typical Energy Consumption (E_{TEC}) for each equipment delivered as part of the contract must be less than or equal to the Maximum E_{TEC} requirement as for the Annex II **Verification:** Tenderers must report the Typical Energy Consumption (E_{TEC}) value, based on testing and calculations according to the IEC Standard 62623:2012. Products holding a relevant Type I Eco-label or other labelling schemes fulfilling this specified requirement will be deemed to comply. In particular holding one the following labels is considered as proof of compliance: • Energy Star Version 7.0 or 7.1 • TCO Certified Version 8 (only in case the certificate show compliance with Energy Star 7.0 version) • EPEAT 2018 for Computers [based on IEEE 1680.1™ – 2018 Standard for Environmental and Social Responsibility Assessment of Computers and Displays] (as for 02/2018) • Blue Angel DE UZ-78 Version 2 (as for 02/2017) • TÜV Green Product Mark 2PFG-E 2354:07.2018 for Portable Computers As alternative test results obtained by accredited ISO17025 test bodies according to the IEC 62623:2012 standard are accepted as proof of compliance

PROPOSED CRITERIA AC1

AWARD CRITERIA	
AC1. Improvement in the energy consumption upon the specified Energy Consumption threshold for computers *It is recommended to use this criterion in conjunction with TS1 for desktop computers if the products specified are for graphics intensive uses.* Points will be awarded if the product is more energy efficient than the E_{TEC_MAX} value required under TS1. A maximum of x points [*to be specified*] may be awarded. Points must be awarded in proportion to the improvement in energy efficiency as follows: • 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 **Verification:** Tenderers must report the Typical Energy Consumption (E_{TEC}) value, based on testing and calculations according to the IEC Standard 62623:2012.	**AC1. Improvement in the energy consumption upon the specified Energy Consumption threshold for computers** *It is recommended to use this criterion in conjunction with TS1 for desktop computers if the products specified are for graphics intensive uses.* Points will be awarded if the product is more energy efficient than the E_{TEC_MAX} value required under TS1. A maximum of x points [*to be specified*] may be awarded. Points must be awarded in proportion to the improvement in energy efficiency as follows: • 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 **Verification:** Tenderers must report the Typical Energy Consumption (E_{TEC}) value, based on testing and calculations according to the IEC Standard 62623:2012.

Electronic Displays - Energy Efficiency

- For electronic displays the Ecodesign and Energy label regulations shall entry into force and apply from 1 March 2021 (Ecodesign and Energy label regulations for electronic displays)

- most of the displays on the market would fall at the entry into force of the rescaled labels in the class range D to F.

- Based on this, class **E** is proposed as threshold for the Core Criterion and class **D** as threshold for Comprehensive Criterion.

- Moreover, the comprehensive threshold proposed is in line with the proposal for the revision of EU Ecolabel for displays. It is also proposed applying additional points based on the Energy Efficiency Classes as Award Criteria.

Electronic Displays - Metrics

Energy efficiency class	Energy Efficiency Index (EEI)
A	EEI < 0.30
B	0.30 ≤ EEI < 0.40
C	0.40 ≤ EEI < 0.50
D	0.50≤ EEI < 0.60
E	0.60 ≤ EEI < 0.75
F	0.75 ≤ EEI < 0.90
G	0.90 ≤ EEI

$$EEI = \frac{(P_{measured} + 1)}{\left(3 \times \left[90 \times tanh\left(0,02 + 0,004 \times (A - 11)\right) + 4\right] + 3\right) + corr}$$

$P_{measured}$ is the measured power in Watts in on mode in the normal configuration, in standard dynamic range (SDR);
A represents the screen area in dm²;
Corr is a correction factor for OLED displays:

PROPOSED CRITERIA TS2

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATIONS	

TS2. Minimum energy performance of monitors The Energy Efficiency Index for each model delivered as part of the contract must be in the range of Energy Classes A-E as for the energy efficiency classes set out in the Annex I of the Commission Delegated Regulation (EU) No XX of XXXXX[1] **Verification** The tenderer must provide for each model delivered the valid Energy Label issued according to the EU's Energy Labelling framework Regulation (2017/1369). Products labelled as Class A, B, C, D or E will be deemed to comply	**TS2. Minimum energy performance of monitors** The Energy Efficiency Index for each model delivered as part of the contract must be in the range of Energy Classes A-D as for the energy efficiency classes set out in the Annex I of the Commission Delegated Regulation (EU) No XX of XXXXX **Verification** The tenderer must provide for each model delivered the valid Energy Label issued according to the EU's Energy Labelling framework Regulation (2017/1369). Products labelled as Class A, B, C, D will be deemed to comply

PROPOSED CRITERIA AC2

AWARD CRITERIA

AC2. Improvement in the energy consumption upon the specified Energy Consumption threshold for monitors

Points will be awarded if the product is in an energy class higher than E.

A maximum of x points [*to be specified*] may be awarded. Points must be awarded in proportion to the improvement in energy efficiency Class as follows:

Energy efficiency class	Energy Efficiency Index EEI	Points
A	EEI < 0.30	x point
B	0.30 ≤ EEI < 0.40	0.75x points
C	0.40 ≤ EEI < 0.50	0.50x points
D	0.50≤ EEI < 0.60	0.25x points

AC2. Improvement in the energy consumption upon the specified Energy Consumption threshold for monitors

Points will be awarded if the product is in an energy class higher than D.

A maximum of x points [*to be specified*] may be awarded. Points must be awarded in proportion to the improvement in energy efficiency Class as follows:

Energy efficiency class	Energy Efficiency Index EEI	Points
A	EEI < 0.30	x point
B	0.30 ≤ EEI < 0.40	0.66x points
C	0.40 ≤ EEI < 0.50	0.33x points

Thin Client solutions

Thin Client computers have several advantages:

- Lower energy consumption than desktop computers (around 30 kWh / year)
- Less hardware than desktop computers
- But additional ICT infrastructure in the (local area network (LAN), servers, as well as auxiliary equipment)
- Long service life?
- Using client computers in a server-based network can potentially extend the replacement cycle

PROPOSED CRITERIA TS3

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATIONS	

	New! TS3: Thin Client devices in a server based environment, *The inclusion of this Technical Specification can be generally taken into consideration where a certain number (e.g. >15 personal workplaces) equipment is used in a cloud based working environment.* The equipment delivered as part of the contract must be classified as "thin client". The Typical Energy Consumption (E_{TEC}) for each equipment delivered must be lower than the E_{TEC_MAX} for Thin Clients calculated as for the explanatory note below) **Verification** Tenderers must report the Typical Energy Consumption (E_{TEC}) value in kWh, based on testing and calculations according to the IEC Standard 62623:2012 and demonstrate compliance with the E_{TEC_MAX} threshold calculated as for the Explanatory Note below . Products holding a relevant Type I Eco-label fulfilling this specified requirement will be deemed to comply.

Energy Consumption Criteria Questions

- Considering the expiration of EU – US Energy Star agreement, do you agree with the revised energy criteria?
- Do you consider relevant the issue of Active vs Idle state energy consumption?
- Use of benchmarking tools/software to assess the energy consumption / battery life under specific tasks. Is it relevant? → further discussion in the criteria area on lifetime extension
- Energy consumption in the manufacturing phase. Do you think GPP should deal with it?

The European Commission's science and knowledge service

Joint Research Centre

Criteria Area 2: Hazardous Substances

Seville - 11th December 2019

European Commission

Overview of Criteria Area 2 – Hazardous Substances

Important criteria area in order to guarantee that the devices purchased are safer for the manufacturers, users and recyclers

Improvement area – Criteria proposal	Criterion code	Description	Application level
Hazardous Substances	SC1	Substance controls	COMP
	TS4	Declaration of Substances of Very High Concern (REACH Candidate List substances)	CORE / COMP
	TS5	Restriction of halogenated substances in plastic parts	CORE / COMP
	AC3	Restriction of Substances of Very High Concern	AWARD
	AC4	Avoidance of phthalates	AWARD

Overview of Criteria Area 2 – Hazardous Substances

GPP 2016	TR v1.0 Proposal
SC1. Restricted substance controls	SC1. Substance controls
TS3. Declaration for REACH Candidate List substances	TS4. Declaration of Substances of Very High Concern (REACH Candidate List substances)
TS4. Plasticisers in external cables	TS5. Restriction of halogenated substances in plastic parts
AC2(a) Hazardous end of life emissions from the main Printed Circuit Board (motherboard)	AC3 Restriction of Substances of Very High Concern
AC2(b) Hazardous end of life emissions from external power cables	New! AC4 Avoidance of phthalates

Substance controls

- 2019 Survey
  - Importance of SCs is recognised especially to limit the exposure of workers to process chemicals
  - Not applied by respondents due to lack of knowledge about these standards and uncertainty on market uptake and recognition of the IEC 62476 standard / IEC 62474 database
- Manufacturers produce their restricted substance lists
  - But are there controls implemented along the supply chain?

Substance controls

- This criterion has been kept from the current set of criteria
- Demonstrate implementation of a framework for the operation of Substance Controls along the supply chain
- As a minimum, to REACH Candidate List substances
- Verification:
  - Documentation describing the system, procedures and proof of implementation
  - Prepare an example of reporting to encourage/facilitate the implementation

PROPOSED CRITERIA – SC1

Core criteria	Comprehensive criteria
SELECTION CRITERIA	
	SC1. Substance controls The tenderer must demonstrate implementation of a framework for the operation of Substance Controls (SCs) along the supply chain for the products to be supplied. Product evaluations according to the SCs should, as a minimum, cover the following areas: - Product planning/design; - Supplier conformity; - Analytical testing. The SCs must apply, as a minimum, to REACH Candidate List substances. The IEC 62474 material declaration database [1] must be used as the basis for identifying, tracking and declaring specific information about the composition of the products to be supplied. The SCs 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. Supplier declarations of conformity with the SCs must be collected and maintained 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 SCs procedures must ensure that product and supplier compliance is re-evaluated when: - restricted substance requirements change; - if supplied materials, parts and sub-asemblies change; - if manufacturing and assembly operations change. Implementation of the SCs must be with reference to the guidance in IEC 62476 or equivalent and the IEC 62474 material declaration database. **Verification:** The tenderer must provide documentation, which describes the system, its procedures and proof of its implementation.

SVHC – REACH Candidate List Substances

- 2019 Survey
  - This criterion is reported to be applied by some PPs
  - Doubts if a simple declaration / letter from the CEO could be considered sufficient
- Manufacturers produce their restricted substance lists
- Apple already claims to restrict the SVHC to all materials (unless preapproved by the company). Lenovo states that it *'aims to eliminate all SVHCs in a concentration of more than 0.1% w/w in the article by December 31th, 2020'*
  - Propose to award efforts by manufacturers with such restrictions

PROPOSED CRITERIA – TS4

Core criteria	Comprehensive criteria
TECHNICAL SPECIFICATIONS	
TS4. Declaration of Substances of Very High Concern (REACH Candidate List substances) The tenderer must declare the presence of any Substance of Very High Concern (SVHC, REACH Candidate List substances) at a concentration of greater than 0.1% (weight by weight) in the whole product **Verification:** The tenderer must provide a declaration identifying Substances of Very High Concern that are present.	**TS4. Declaration of Substances of Very High Concern (REACH Candidate List substances)** The tenderer must declare the presence of any Substance of Very High Concern (SVHC, REACH Candidate List substances) at a concentration of greater than 0.1% (weight by weight) in the whole product and in each of the following sub-assemblies: - Populated motherboard (including CPU, RAM, graphics units); - Display unit (including backlighting); - Casings and bezels; - External keyboard, mouse and/or trackpad; - External AC and DC power cords (including adapters and power packs) **Verification:** The tenderer must provide a declaration identifying Substances of Very High Concern that are present.

PROPOSED CRITERIA – AC3

AWARD CRITERIA	
AC3 Restriction of Substances of Very High Concern Points must be awarded when no REACH Candidate List substances are intentionally added above 0.1% (weight by weight) in the whole product. Compliance to be ensured for the latest version of the SVHC list available at the moment of tendering. **Verification:** The tenderer must provide a declaration of compliance with the criterion. Documentation based on the IEC 62474 or similar (e.g. documents produced according to Substances Control system as analytical testing and supplier's conformity assessments) can be used. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.	**AC3 Restriction of Substances of Very High Concern** Points must be awarded when no REACH Candidate List substances are intentionally added above 0.1% (weight by weight) in the whole product and in each of the following sub-assemblies: - Populated motherboard (including CPU, RAM, graphics units); - Display unit (including backlighting); - Casings and bezels; - External keyboard, mouse and/or trackpad; - External AC and DC power cords (including adapters and power packs) Compliance to be ensured for the latest version of the SVHC list available at the moment of tendering. **Verification:** The tenderer must provide a declaration of compliance with the criterion. Documentation based on the IEC 62474 or similar (e.g. documents produced according to Substances Control system as analytical testing and supplier's conformity assessments) can be used. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

Halogenated substances

- 2019 Survey
  - A 'Halogen Free Criterion' is supported by several respondents
- Restriction on halogenated flame retardants it is well covered among the existing eco-labelling schemes (EPEAT, TCO, TÜV and Blue Angel)
- Three front-running manufacturers ban halogenated FR for all their products and one to some, which claims that brominated flame retardants are phased out in notebooks
- Revised Ecodesign regulation on displays includes a ban of halogenated FR (enclosure and stand)
  - HFRs represents a major issue in the recycling of plastics of electronic displays

Halogenated substances

Scheme	Criterion	Exemptions
EPEAT	Each plastic part in the product exceeding 25 g shall not contain greater than 1000 ppm chlorine or greater than 1000 ppm bromine at the homogeneous level	a) when exceeding the limits the manufacturer shall demonstrate that the compound used has a GreenScreen Safer Chemical Benchmark score of 2, 3, 4 or that no alternatives can achieve those scores b) parts with >25% post-consumer recycled content the maximum level is 5000ppm c) PCBs, cables and wiring, fans, and electronic components
TCO 8	Parts that weigh more than 25 grams (10 g for headsets and 5 g for smartphones) and are made mainly of plastics must not contain flame retardants or plasticizers with halogenated substances or intentionally added halogens as part of the polymer.	PCB laminates, electronic components and all kinds of cable insulation
Blue Angel	Halogenated polymers shall not be permitted in housings and housing parts. Nor may halogenated organic compounds be added as flame retardants. Nor shall any flame retardants be permitted which are classified under the CLP Regulation as carcinogenic of Category Carc. 2 or as hazardous to waters of Category Aquatic Chronic 1	a) Fluoro-organic additives (as, for example, anti-dripping agents) used to improve the physical properties of plastics, provided that they do not exceed 0.5 weight percent b) plastic parts weighing 25 grams or less
TUV	Covers product materials	Cables

PROPOSED CRITERIA – TS5

Core criteria	Comprehensive criteria
TECHNICAL SPECIFICATIONS	
TS5. Restriction of halogenated substances in plastic parts The use of halogenated substances is not permitted in plastic parts that weigh more than 25 grams (5 g for smartphones). Exemptions are: Printed Circuit Boards and cable insulation. **Verification:** The tenderer must provide documentation which proves that the requirement has been met by either: • Test data showing that the part contains less than 1000 ppm chlorine and less than 1000 ppm bromine (test methods used can be IEC 62321-3-1 or IEC 62321-3-2), or • Documentation based on the IEC 62474 or similar (e.g. documents produced according to Substances Control system as analytical testing and supplier's conformity assessments). In case exemptions are used a declaration by the manufacturer must be provide. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.	**TS5. Restriction of halogenated substances in plastic parts** The use of halogenated substances is not permitted in plastic parts that weigh more than 25 grams (5 g for smartphones). **Verification:** The tenderer must provide documentation which proves that the requirement has been met by either: • Test data showing that the part contains less than 1000 ppm chlorine and less than 1000 ppm bromine (test methods used can be IEC 62321-3-1 or IEC 62321-3-2), or • Documentation based on the IEC 62474 or similar (e.g. documents produced according to Substances Control system as analytical testing and supplier's conformity assessments). Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

Phthalates

- 2019 Survey – (Plasticisers in external cables)
  - This criterion is reported to be applied by some PPs
  - It is suggested to refer directly to RohS as it applies to the entire product
- RoHS Directive has been amended and the four phthalates included in the current criterion are now in Annex II
  - Propose to remove the current criterion on plasticizers in external cables
- A new AC is proposed to award manufacturers that reduce the usage of phthalates in plasticizers with safer alternatives
  - Suggestions for the assessment and verification are welcome

PROPOSED CRITERIA – TS5

Core criteria	Comprehensive criteria
AWARD CRITERIA	
	New! AC4 Avoidance of phthalates Points must be awarded when safer substances are used to substitute phthalates. Points are awarded based on the average score obtained by a rating system for substances (e.g. GreenScreen Certified™). **Verification:** The must provide evidence that the substances used are included in a positive list, e.g. GreenScreen Certified™.

Hazardous end of life emissions from external power cables

- 2019 Survey
  - Some respondents consider that the hazardous EoL emissions can be reduced by EoL criteria directed towards ensuring proper recycling
  - The fire tests are considered by some respondents not to be possible in practice (costly and difficult)

AC2(a) Hazardous end of life emissions from the main Printed Circuit Board (motherboard)	AC2(b) Hazardous end of life emissions from external power cables
This criterion shall not apply to monitors. Points shall be awarded where the main Printed Circuit Board is *'halogen free'* in conformance with IEC 61249-2-21 and a fire test simulating improper WEEE disposal shows carcinogenic Polycyclic Aromatic Hydrocarbon (PAHs) emissions to be ≤ 0.1 mg TEQ /g.	Points shall be awarded where the external power cables are *'halogen free low smoke'* in conformance with IEC 62821 whereby a fire test of the power cord polymer shows halogen acid gas emissions to be less than 5.0 mg/g.

Hazardous end of life emissions from external power cables

- New criterion TS5 banning halogenated substances
  - Comprehensive criterion includes PCBs and cable insulation
- Secured recycling can be covered with criterion TS28 – Secure computer collection, sanitization, reuse and recycling
- It is proposed to remove the current criterion and propose the banning of halogenated substances in general (TS5)

Hazardous Substances Questions

How to ensure the hazardous chemical control along the supply chain (Selection Criteria 1)?

What do you think about an approach based on a positive list of safer chemicals (e.g. Green Screen)?

The European Commission's science and knowledge service

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Criteria Area 3: Product lifetime extension

Seville - 11th December 2019

European Commission

Overview of Criteria Area 3 – Product Lifetime Extension

Improvement area – Criteria proposal	Criterion code	Description	Application level
Reparability, Reusability and Upgradeability	T6a	Service Agreement	CORE / COMP
	T6b	Manufacturer Warranty	CORE / COMP
	T7a	Availability of spare parts	CORE / COMP
	T7b	Design for reparability	CORE
	T8	Refurbished Products	COMP
	T9	Secure Data Deletion	COMP
Rechargeable battery life and endurance	T10	Rechargeable battery endurance	CORE / COMP
	T11	Electrical Performance of the battery	COMP
	TS12	Information on battery state of health	CORE
	TS13	Battery protection software	CORE / COMP
	AC5	Further rechargeable battery endurance	AWARD
Mobile equipment durability testing	TS14	Drop Testing	CORE
	TS15	Temperature Stress	COMP
	TS16	Ingress Protection Level	COMP
	AC6	Mobile equipment durability testing	COMP
	AC7	Ingress Protection Level – Semi Rugged and Rugged Devices	AWARD

Overview of Criteria Area 3 – Product Lifetime Extension

		Standardized connectors	
Interoperability and reusability of components	TS17	Standardized Connectors	CORE
	TS18	Standardized External Power Supply	COMP
	TS19	External Power Supply: Detachable Cables	COMP
	TS20	Backward compatibility: adapters	COMP
	TS21	ICT Equipment without accessories	COMP
Criterion 3.6 (new!) – Recycled Content	TS22	Content of recycled plastic	COMP

Overview of Criteria Area 3 – Product Lifetime Extension

GPP 2016	TR v1.0 Proposal
TS4. Warranty and service agreements	TS6. Provision of an extended warranty
TS5(a) Continued availability of spare parts	TS7(a) Continued availability of spare parts
TS5(b) Design for repairability	TS7(b) Design for reparability
TS5(c) Ease of replacement for rechargeable batteries	
	New! TS8 Refurbished Products
	New! TS9. Functionality for secure data deletion
AC2. Cost competitiveness of spare parts	
AC3. Longer warranties and services agreements	
AC4. Tablet and all-in-one notebook memory and storage	
	CPC1 Service Agreement

Service Agreement
Background to the proposal

The aim is to stimulate that procurement of products is associated to services intended to ensure the expected product lifetime.
The 2-years legal guarantee does not cover the B2B sector.

- Access to the Manufacturer's warranty
- Pick up and return
- Management of failures
- Access to diagnostic and repair tools
- Battery coverage
- Battery replacement policy
- Provision of failure statistics
- Incident management / Problem management / Preventive maintenance
- Repair / Replacement activities
- Commitment to Repair / upgrade as first remedy

LCA / LCC Considerations

- Trade-offs between environmental benefit and life cycle costs must be considered when the product is closer to the replacement point (comprehensive criteria 3-4 years)

PROPOSED CRITERIA TS6 (a) (b)

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATIONS	
TS6 (a). Provision of an extended services agreement The tenderer must provide a minimum of **two years** services as detailed in the Service Level Requirements document (See explanatory note below) **Verification:** The tenderer must provide a written declaration that the products supplied will be warrantied in conformity with the contract specifications and the related service level agreement.	**TS6 (a). Provision of an extended services agreement** The tenderer must provide a minimum ***[three] – [four] years*** services as detailed in the Service Level Requirements document (See explanatory note below) **Verification:** The tenderer must provide a written declaration that the products supplied will be warrantied in conformity with the contract specifications and the related service level agreement.

TS6(b) Manufacturer's warranty The tenderer must provide products covered by at least two years of manufacturer's warranty **Verification:** The tenderer must provide written evidence of the manufacturer's warranty.	**TS6(b) Manufacturer's warranty** The tenderer must provide products covered by at least three years of manufacturer's warranty **Verification:** The tenderer must provide written evidence of the manufacturer's warranty

Explanatory note TS6a

EXPLANATORY NOTE: A Service Level Requirements document describes how the service should be delivered to the customer. Examples of possible Service Level Requirements to be included are listed below:

- **Access to the Manufacturer's warranty:** register the manufacturer's warranty; manage any documentation or proof required to invoke Manufacturer Warranty; invoke the Manufacturer Warranty on behalf of the Public Administration (during the Manufacturer Warranty's duration); follow up with the manufacturer in order to ensure that the terms of the Manufacturer Warranty are met;
- **Pick up and return**: pick-up the product(s) from a specified location at the Public Administration premises and return it/them to a specific location at the Public Administration premises.
- **Management of failures:** the provision of an efficient single point of contact for technical issues and problem escalations, a person responsible of following through the progress of the case, reporting, transparent access to a warranty database (whomever manages this warranty data) to verify warranty status, incident status for open incidents.
- **Access to diagnostic and repair tools:** access to all technical tools available to the tenderer to perform hardware diagnostics and corrections; access to any technical training required to become a certified repair technician; non-exclusivity to become a certified technical partner (perform warranty repairs).
- **Battery coverage**: the service explicitly covers battery defects for applicable products with rechargeable batteries as failure to charge or faulty battery connection. A progressive drop in battery capacity due to usage must not be considered to be a defect unless it is covered by the battery replacement policy of the bullet below.
- **Battery replacement policy**: the service covers replacing batteries not fulfilling the minimum performance conditions related to endurance in number of cycles (see TS on rechargeable batteries endurance)
- **Provision of failure statistics** provision of a high level, aggregate, anonymized and not traceable back statistics of incident types in nature and quantities, problems and diagnostics concerning the products in the scope of the contract
- **Incident management / Problem management / Preventive maintenance**: this service include all the operations necessary to maintain the ICT products in perfect working order, or to restore a defective product or one of its components to perfect working order, including incident management, problem management and preventive maintenance.
- **Repair / Replacement** activities: repair or replace any products which become damaged or defective in the course of normal use during the Extended Warranty period with products which have identical or better performance characteristics. Breakdowns related to firmware are also covered. If part of an item is replaced, the replacement part must be covered by the same Extended Warranty level and duration as the replaced part. The Extended Warranty applies to both hardware and software, unless explicitly agreed otherwise
- **Commitment to Repair / upgrade as first remedy** in case of failures and, whenever compatible with costs and time, the service provider commits to implement a repair / upgrade of the equipment instead of an equipment substitution.

Repair Criteria
Background to the proposal

- Besides EU GPP, most of the analysed EU Ecolabel schemes have applied criteria for the availability of spare parts and disassemblability of key components.
- Requirements on spare parts are included in the adopted EU Ecodesign regulation on displays which will apply from March 2021
- Criteria on spare parts availability and disassemblability are proposed for a EU Repair Scoring System

Repair Criteria
LCA / LCC Benefits

- Facilitate the repair, upgrade and reuse of IT products
- Reduction of repair complexity and costs
- Possibly extend the lifetime
- Reduce environmental impacts and total cost of ownership

Proposed Criteria TS7(a)

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATIONS	
TS7(a) Continued availability of spare parts *This criterion is not relevant in case repair / replacement of components is already covered by a service agreement.* The tenderer must guarantee the availability of spare parts (critical components), including as a minimum those identified in criterion TS5(b), for **at least X years** from the date of purchase. All critical components identified must be: • available to be purchased • or replaced by a service network for repair and maintenance **Verification:** The tenderer must provide a declaration that critical components will be available. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.	**TS7(a) Continued availability of spare parts** *This criterion is not relevant in case repair / replacement of components is already covered by a service agreement.* The tenderer must guarantee the availability of spare parts (critical components), including as a minimum those identified in criterion TS5(b), for **at least y years** from the date of purchase. All critical components identified must be: • available to be purchased • or replaced by a service network for repair and maintenance **Verification:** The tenderer must provide a declaration that critical components will be available. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

Proposed Criteria TS7(b)

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATIONS	

TS7(b) Design for reparability

The following parts (critical components) must be easily accessible and replaceable by common available tools (or no tools):

- **Notebooks:** Battery. Display Panel/Display assembly, Storage (SSD, HDD, RAM), External/internal PSU, Keyboard, System/motherboard

- **Desktops:** CPU, GPU (PCIe), External/internal PSU, Storage (SSD, HDD, ODD, RAM), System/motherboard

- **All-in-One PCs:** External/internal PSU, Storage (SSD, HDD, ODD, RAM), System/motherboard

- **Tablets:** Battery, Display Panel / Display assembly, External/internal PSU

- **Smartphones:** Battery, Display Panel/Display assembly, Charger

- **Displays:** Connectivity cables, Power cables, External PSU

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:

- Statement that the applicable parts are replaceable by the end-user and/or technician

- The service manual with the Instructions on how to replace the parts by a direct link to the document on the manufacturer's website.

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

Refurbished Products
Background to the proposal

- Extending product lifetime can be achieved by different strategies, including buying refurbished products.
- Second-hand IT equipment could be a procurement option in some scenarios (e.g. education).
- Both OEMs and independent retailers are offering refurbished products
- Some experience across Europe on procuring refurbished products.
- Issue of differentiating "remanufactured" from "refurbished" products

Refurbished Products Verification

- Still missing a “standardized definition”
- **Remanufactured:** like new products - obligation of original manufacturer
- **Refurbished:** second hand products - minimum technical performance for acceptance specified in the tender specifications
- Some examples:
  - » **Operating status**: in perfect working order and cleanliness
  - » **Aesthetic grade:** micro scratches, invisible to more than 20cm
  - » **Battery state:** new and compatible, with the same technical specifications of the original one
  - » **Accessories:** New and compatible charger, USB cable, headphones.
  - » **Warranty:** a minimum **one year** extended warranty services offered with the product

Proposed Criteria TS8

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATIONS	
	New! TS8 Refurbished Products An X% of the equipment provided as part of the contract must be a refurbished products. Minimum requirements in terms of quality for refurbished products must be set (see the explanatory note for examples). **Verification** The tenderer must provide details of the products refurbished, including confirmation of compliance with minimum technical performance for acceptance specified in the tender specifications (see the explanatory note below).
Explanatory note: examples of requirements for refurbished ICT products **Operating status:** in perfect working order and cleanliness **Aesthetic grade:** micro scratches, invisible to more than 20cm **Battery state:** new and compatible, with the same technical specifications of the original one **Accessories:** New and compatible charger, USB cable, headphones. **Warranty:** a minimum **one year** extended warranty services offered with the product	

Secure data deletion

- Data deletion aims to facilitate both the reparability/reusability of the whole products without the risk of transfer of any sensitive and personal data in reused equipment.

- 'secure data deletion' defined in the Ecodesign Commission Regulation (EU) 2019/424 for servers;

- Secure data deletion tools should be built-in (or as second option made available on request).

- compliant with specific standards? (e.g. Guidelines for Media Sanitization 800-88 by NIST (2014)).

Secure data deletion

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATIONS	
	New! TS9. Functionality for secure data deletion Functionality for secure data deletion must be made available for the deletion of data contained in all data storage devices of the product (see also explanatory note). Instructions on how to use this functionality, the techniques used and the supported secure data deletion standard(s) must be provided in the user manual. **Verification.** The tenderer must provide specifications of the data erasure functionality provided with the product. Relevant reference for compliance can be the NIST 800-88 Revision 1 guidelines, for the level of "Clear". Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply. Labels currently fulfilling this requirement include among others TCO Certified.
Explanatory Note A functionality for secure data deletion could be implemented by means of technical solutions such as, but not limited to: • a functionality implemented in firmware, typically in the Basic Input/Output System (BIOS), • a functionality implemented in the software included in a self-contained bootable environment provided in a bootable compact disc, • digital versatile disc or universal serial bus memory storage device included with the product, or in software installable in the supported operating systems provided with the product.	

Reparability, Reusability and Upgradeability
Questions

- Do you agree with the distinction between the warranty by manufacturer and service agreement criteria?
- Do you agree with the list of critical spare parts proposed for the different product groups?
- Are you aware of any certification schemes / third party verification for refurbished products?

Criterion 3.2 – Rechargeable battery life and endurance

GPP 2016	TR v1.0 Proposal
	TS10. Rechargeable battery endurance
	New! TS11. Minimum requirements on the electrical performance
	New! TS12. Information on battery state of health
	New! TS13. Battery protection software
AC5. Rechargeable battery life and endurance	AC5. Further rechargeable battery endurance

Criterion 3.2 – Rechargeable battery life and endurance– Background to the proposal

- short life of main batteries installed in portable ICT products can be a reason of premature product replacement
- worn-out batteries generate environmental impacts and additional operational costs
- Different criteria on capacity retentions and number of cycles are applied so far in various ecolabel schemes
- A correct management of the battery state of charge by provision of information and protection software can extend the battery lifespan.

Standardized test methods - IEC EN 61960:3-2017

Parameter	Description	Acceptance Criteria Battery
Discharge performance at 20 °C (Rated Capacity)	This test verifies the rated capacity of the battery.	100% of the rated capacity (C5 Ah)
Discharge performance at –20 °C (Rated Capacity)	This test determines the capacity of the battery at low temperatures	30% of the rated capacity (C5 Ah)
High rate discharge performance at 20 C	This test determines the capacity of the battery when discharged at high rate. This test is not required if the battery os not designed to be used at this rate (1 ItA)	60% of the rated capacity (C5 Ah)
Charge (capacity) retention and recovery	This test determines firstly the capacity which a battery retain after a storage for an extended period of time (28 days) and secondly the capacity that can be recovered by a subsequent recharge.	60% of the rated capacity (C5 Ah)
Charge (capacity) retention after long term storage	This test determines the capacity of a battery after extended storage(90 days) at 50% state of charge, followed by a subsequent charge	85% of the rated capacity (C5 Ah)
Endurance in cycles	This test determines the number of charge/discharge cycles which a battery can endure before its capacity has been significantly depleted.	60% of the rated capacity (C5 Ah) after 300 cycles
Electrostatic discharge	This test is to evaluate the ability of a battery to with stand electrostatic discharge.	Operational

Information and protection software

- battery "state of health" information
- the number of full charge cycles already performed from the battery/accumulator
- pre-installed software to enable a limit on the battery state of charge (SoC) when the computer is used systematically in grid operation.
- pre-installed software to enable function for the optimization of the battery state of charge (SoC) in the 20-80% boundary

Proposed criteria – TS10 – TS11

Frist criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATION	
TS10.Rechargeable battery endurance *Applicable to mobile equipment (laptops / tablets and smartphones)* The battery endurance must be greater than 300 battery cycles (with SoC ≥80%). Tests must be carried out according to the standard IEC EN 61960-3:2017 at 20 ± 5ºC and at a rate of 0.5 I_t A (accelerated test procedure) **Verification:** Tenderers must provide test results obtained by accredited ISO17025 test bodies according to the IEC EN 61960-3:2017 standard. Equipment holding the following Type I Eco-labels will be deemed to comply: • Blue Angel • TCO Certified equipment (with the certificate the 80% capacity retention) • EPEAT certified equipment (with evidence of fulfilling the optional criteria 4.4.1.2)	**TS10. Rechargeable battery endurance** *Applicable to mobile equipment (laptops / tablets and smartphones)* The battery endurance must be: greater than 500 cycles (with SoC ≥80%), Tests must be carried out according to the standard IEC EN 61960-3:2017 at 20 ± 5ºC and at a rate of 0.5 I_t A (accelerated test procedure). **Verification:** Tenderers must provide test results obtained by accredited ISO17025 test bodies according to the IEC EN 61960-3:2017 standard. Equipment holding the following Type I Eco-labels will be deemed to comply: • Blue Angel
	New! TS11. Minimum requirements on the electrical performance The battery must be compliant with the electrical test acceptance criteria according to standard IEC EN 61960-3:2017 **Verification** Tenderers must provide test results obtained by accredited ISO17025 test bodies.

Proposed criteria – TS12 – TS13

Frist criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATION	
New! TS12. Information on battery state of health The tenderer must provide the equipment with a pre-installed software to determine and monitor the Battery/Accumulator status and allowing the reading of the battery's/accumulator's "state of health", and "state of charge", as well as the number of full charge cycles already performed from the battery/accumulator and to display these data for the user. The software must also provide tips for users to maximize battery lifespan **Verification:** The tenderer must provide the specifications and version the software.	
New! TS13. Battery protection software The tenderer must provide the equipment with a pre-installed software (as default setting) to enable a limit on the battery state of charge (SoC) when the computer is used systematically in grid operation. Such functionality must prevent the battery to be loaded at full charge. The user manual has to be provided with the software **Verification:** The tenderer must provide the specifications and version the software. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.	**New! TS13. Battery protection software** The tenderer must provide the equipment with a pre-installed software able to limit the battery's/accumulator's charge to a value smaller than the maximum amount of usable electricity (e.g. 80% of full charge capacity) to extend the battery's life. **Verification:** The tenderer must provide the specifications and version the software. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

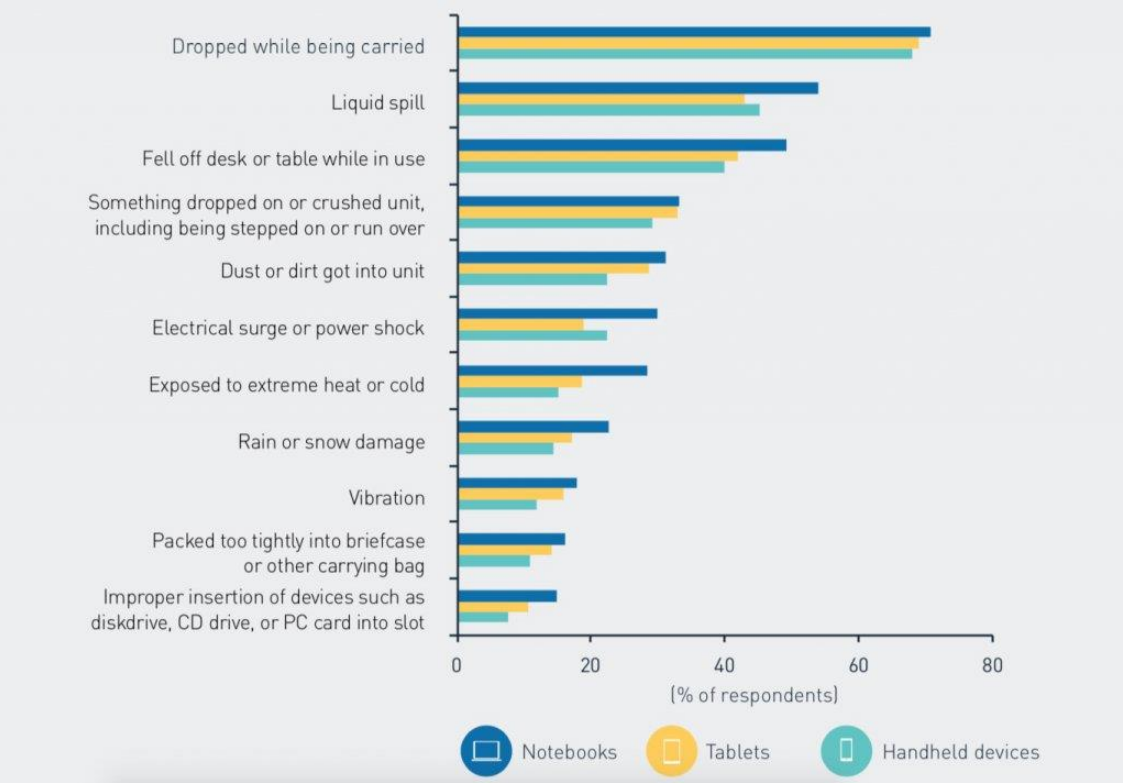
Proposed criteria – AC5

AWARD CRITERIA	
	AC5. Further rechargeable battery endurance Additional points will be awarded If the battery endurance is granter than 500 cycles (with ≥80% capacity retention of the initial rated capacity) proportionally to the additional number of cycles ensured. . **Verification:** Tests must be carried out according to the standard IEC EN 61960-3:2017 at 20 ± 5ºC and at a rate of 0.5 I_t A (accelerated test procedure) Tenderers must provide test results obtained by accredited ISO17025 test bodies.
EXPLANATORY NOTE: Definition of battery cycle and State of Charge (SoC) **Battery cycle:** One battery cycle is completed when the battery is fully discharged from 100% down to 0% and then charged back up to 100%., This could be performed by partially charging-discharging the battery multiple times on different State of Charge (SoC) levels as long as the total amount of charge-discharge percentage is the same as one full charge-discharge cycle. **State of charge (SoC):** The remaining battery capacity expressed as a percentage of full-charge capacity (SBS-IF, 1998).	

Questions

- Do you agree with the thresholds (300 – 500 cycles) proposed for battery endurance?
- Do you agree with the 60% threshold?
- Do you agree with the additional criteria proposed?

Mobile equipment durability testing - Background to the proposal



IDC (2016) International Data Corporation - White Paper Pay Now, Save Later: The Business Case for Rugged Devices.

Mobile equipment durability testing

- voluntary approaches of front-running companies are based on US MIL-STD-810G or IEC 60068 product durability tests.

- Type of tests covered:
  - **Accidental drops**
  - **Temperature stress (cold / hot)**
  - **Shock**
  - **Vibration**
  - **Screen load**

- Ingress protection tests focuses on the resistance to water and dust ingress. Standard IEC 60529 classifies and rates the degree of Ingress Protection (IP)

Mobile equipment durability testing

GPP 2016	TR v1.0 Proposal
	New! TS14 Drop testing
	New! TS15: Temperature Stress
	New! TS16 Ingress protection level
AC6. Notebook computer drives	AC6: Mobile equipment durability testing
	New! AC7: Ingress Protection Level – Semi Rugged and Rugged Devices

Proposed criteria – TS14

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATION	
New! TS14 Drop testing The equipment must be tested according to the following standards: • IEC 60068 Part 2-31: Ec (Freefall, procedure 1), or • MIL-STD-810G w/CHANGE 1 Drop test: Method 516.7 - Shock (procedure IV) with a drop height of 45 cm. Functional performance requirements in Annex III of the criteria document must be met by the equipment after the exposure to the drop test. **Verification** The tenderer must provide test reports showing that the model has been tested and has met the functional performance requirements for durability. Testing must be carried out by a test facility accredited according to ISO 17025. Existing tests for the product, carried out to the same or a stricter specification, will be accepted without the need to retest. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.	

Proposed criteria – TS15 – TS16

	New! TS15: Temperature Stress The equipment must be tested according to the following standards: • IEC 60068 Part 2-1: A Cold Part 2-2: B Dry Heat, or • MIL-STD-810G w/CHANGE 1 High temperature: Method 501.6 - Basic Hot (A2) and Low temperature:Method 502.6 - Basic Cold (C1) with the modified storage / operational temperatures described in Annex III. Functional performance requirements in Annex III of the criteria document must be met by the equipment after the exposure to the temperature stress tests. **Verification** The tenderer must provide test reports showing that the model has been tested and has met the functional performance requirements for temperature stress. Testing must be carried out by a test facility accredited according to ISO 17025. Existing tests for the product, carried out to the same or a stricter specification, will be accepted without the need to retest. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.
	New! TS16 Ingress protection level The equipment delivered as part of the contract must have passed durability tests carried out according to IEC/EN 60529, The degree of protection provided by enclosures must be classified as level IP54 or higher. **Verification** The tenderer must provide test reports showing that the model has been tested and has met the functional performance requirements for ingress protection level. Testing must be carried out by a test facility accredited according to ISO 17025. Existing tests for the product, carried out to the same or a stricter specification, will be accepted without the need to retest. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

Proposed criteria – AC6

AWARD CRITERIA
AC6: Mobile equipment durability testing *The tests applicable* must *be specified in the tender in order to reflect the conditions of use defined for the product.* Points will be awarded for offers including products that have passed durability tests carried out according to IEC 60068, US MIL810G or equivalent. A maximum of x points [*to be specified*] may be awarded: • Accidental drop (x/4 points)* • Resistance to shock (x/4 points) • Resistance to vibration (x/4 points) • Screen resilience (x/8 points) • Temperature stress (x/8 points)* Functional performance requirements and test specifications are provided in Annex III of the criteria document. * Only applicable if not already required by TS17 and TS18 **Verification:** The tenderer must provide test reports showing that the model has been tested and has met the functional performance requirements for durability. Testing must be carried out by a test facility accredited according to ISO 17025. Existing tests for the product, carried out to the same or a stricter specification, will be accepted without the need to retest. Equipment holding the relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

Questions

Do you consider necessary the definition of different thresholds for different product group?

Do you consider the stress aspect covered sufficient?

Criterion 3.5 – Interoperability and reusability of components – Background to the proposal

- New criteria are proposed based on the use of standardized components aiming to increase the ICT equipment interoperability and reusability: in particular regarding connection cables and external power supply units.

- By using one standardized interface (USB Type-C) for charging and data transfer, fewer cables need to be manufactured and the reuse of chargers and data cables can increase, with a possible saving of resources

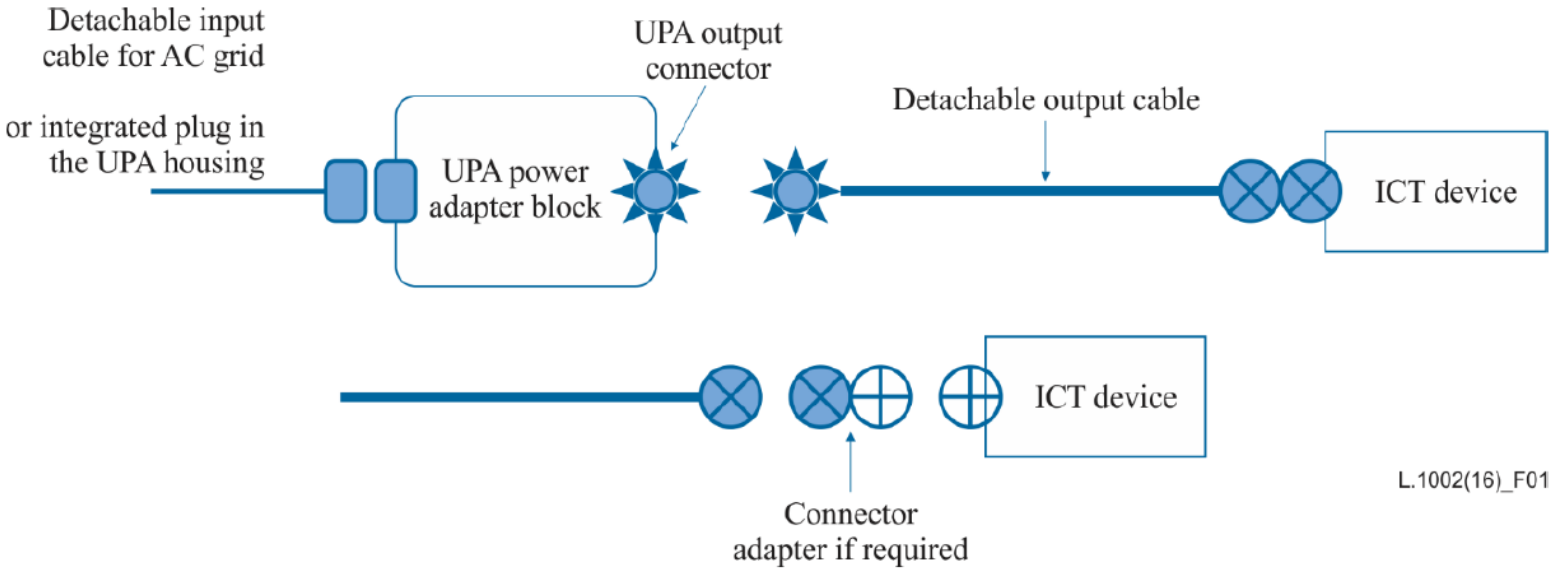
Criterion 3.5 – Interoperability and reusability of components – Background to the proposal

GPP 2016	TR v1.0 Proposal
	New! TS17 Standardized connectors
	New! TS18. Standardized External Power Supply
	New! TS19. External Power Supply: Detachable Cables
	New! TS20 Backward compatibility: adapters
	New! TS21. ICT Equipment without accessories

Standardized connectors and EPS

- Standardized: USB type-C electric receptacles are specified in the IEC 62680-1-3
- Interoperability of EPS under 100 watts for portable computing devices, with a focus on power delivery application for notebook computers, tablets, smartphones and other related multimedia devices.

Detachable cables



- Recommendation ITU-T L.1002. External universal power adapter solutions for portable information and communication technology devices
- DC cable is generally the weakest point of the portable power supply and the main point of failure.
- Adapters which have captive cables, in case of failure of the latter, require all the rest of the equipment and in particular its active part, to be discarded.

Proposed criteria – TS17 – TS18

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATION	
New! TS17 Standardized connectors The equipment delivered as part of the contract must carry at least one standardized USB Type-C™ receptacle for data exchange that is backward compatible with USB 2.0 according to the standard IEC 62680-1-3:2018. **Verification** The tenderer must provide a product manual for each model provided, which must include an exploded diagram of the device illustrating the types of connectors used. Equipment holding a Type I Eco-label fulfilling the specified requirement will be deemed to comply. *The label that currently ensuring the use of at list one USB Type-C connector is TCO Certified 8.*	
EXPLANATORY NOTE: Standardized USB Type-C™ The USB Type-C™ receptacle is defined according to the standard IEC 62680-1-3:2018 - Universal serial bus interfaces for data and power - Part 1-3: Common components - USB Type-C™ Cable and Connector Specification.	
	New! TS18. Standardized External Power Supply *Applicable to portable computing devices with power supplies up to 100 W.* The equipment delivered as part of the contract must carry a USB Type C standardized receptacle for power supply according to the standard EN/IEC 63002:2017. **Verification** The tenderer must provide a product manual for each model provided, which must include an exploded diagram of the device illustrating the types of EPS used.
EXPLANATORY NOTE: Standardized External Power Supply Interoperability guidelines for external power supplies are defined according to the IEC 63002:2016 - Identification and communication interoperability method for external power supplies used with portable computing devices.	

Proposed criteria – TS19 – TS20 – TS21

	New! TS19. External Power Supply: Detachable Cables The External Power Supply (EPS) configuration must consists of an EPS with a detachable input cable (or integrated in the EPS housing) and a detachable output cable to the ICT device **Verification** The tenderer must provide a product manual for each model provided, which must include an exploded diagram of the device illustrating the types of EPS used.
	New! TS20 Backward compatibility: adapters The following adapters [to be selected from the list below] must be available to be separately procured: ○ *USB-C to USB Type-A receptacle* ○ *USB-C to VGA* ○ *USB-C to HDMI* ○ *USB-C to RJ45 (Ethernet Port)* **Verification** The tenderer must provide a product specifications and a price list for the adapters required.
	New! TS21. ICT Equipment without accessories *Applicable in the context of a Framework Agreement* The equipment model must be available in a version without the following accessories: • External Power Supply. (EPS) • Cable • Headphone These accessories must be available to be procured separately. **Verification** The tenderer must provide a quotation of the model with and without these accessories and a separate quotation for each one of the accessories.

Criterion 3.6 (new!) – Recycled Content

- Focus on recycled plastic

- The analysis of voluntary approaches of companies presented in the preliminary report revealed that many of the manufacturers already make efforts to use postconsumer recycled plastic in their computer and monitor products.

- The main issue in this context is the verification of the claimed performance -→ traceability / mass balance issues

Proposed criteria – TS22

First criteria proposal	
Core criteria	**Comprehensive criteria**
TECHNICAL SPECIFICATION	
	New! TS22: Content of recycled plastic *This criterion should be used in conjunction with the contract performance clause CPC2 in order to ensure that the claimed content of recycled is respected during the contract performance.* The tenderer must provide equipment with a minimum 10 percentage (%) of post-consumer recycled plastic by weight of total weight of plastic parts included in the ICT equipment supplied. **Verification:** The tenderer must provide a) Supplier letter(s) stating percentage of applicable content(s) in plastic(s) supplied to manufacturer or to manufacturer's part supplier. b) Documentation of calculation (mass balance), including plastic part name(s) or other part identifiers and the total weight of their plastic content c) If excluding parts, list of excluded parts and reason for exclusion. Certification schemes with conformance assessment based on mass balance and chain of custody requirements can also be accepted as proof of compliance.
CONTRACT PERFORMANCE CLAUSE	
	CPC2: Content of recycled plastic The contractor must provide monthly and annual data for the recycled content of the ICT equipment supplied.

Recycled Content Questions

- How to address the issue of the recycled content?

The European Commission's science and knowledge service

Joint Research Centre

Criteria Area 4: End-of-life management

Seville - 11th December 2019

European Commission

Overview of Criteria Area 4 – End-of-life management

Environmental benefits

- Appropriately EoL management of ICT equipment can have a significant beneficial effect on impact categories such as GWP, Human Toxicity and Freshwater Ecotoxicity

- Valuable materials can be recovered at EoL, diverted from landfills and used again in other devices

  - Glass from LCD screens
  - Aluminium alloys
  - Plastics
  - Precious metals in PCBs

- Two subareas:
  - Design for recycling
  - EoL Management

Overview of Criteria Area 4 – End-of-life management

4.1 Design for recycling

GPP 2016	TR v1.0 Proposal
TS7(a) Recyclability of plastics casings, enclosures and bezels	TS23(a) Recyclability of plastics casings, enclosures and bezels
TS7(b) Recyclability of plastic casings, enclosures and bezels	TS23(b) Recyclability of plastic casings, enclosures and bezels
	New! TS24 Plastic composition recyclability
TS8. Marking of plastic casings, enclosures and bezels	TS25. Marking of plastic casings, enclosures and bezels
	New! TS26 Battery packs marking for the correct identification of their chemistry
	New! TS27 Declaration of Critical Raw Materials

Plastic composition / recyclability

- 2019 Survey
  - Not targeting real issues → automated recycling facilities

    → Devices are shredded and separated by chemical or mechanical processes
  - Other stakeholders reported that plastics to be separated and recycled
  - Verification with ISO 180 challenging and costly

Plastic composition / recyclability

- Metal inserts, coatings and flame retardants can impact the quality of the recycled resin obtained

  Physical/mechanical properties

- To eliminate barriers for recycling it is proposed to maintain the current EU GPP criteria on material composition of plastics

- Verification

  - Same as current version

  - Add another option like in EPEAT → A statement from plastics recyclers

PROPOSED CRITERIA – TS23(a)(b)

Core criteria	Comprehensive criteria
TECHNICAL SPECIFICATIONS	
	TS23(a) Recyclability of plastics casings, enclosures and bezels Parts must not contain moulded-in or glued-on metal inserts unless they can be removed with commonly available tools. Disassembly instructions must show how to remove them. **Verification:** The tenderer must detail the tools required to remove any plastic parts containing metal inserts. Visual evidence must be provided to support compliance. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.
	TS23(b) Recyclability of plastic casings, enclosures and bezels The presence of paints and coatings must not significantly impact upon the resilience of plastic recyclate produced from these components upon recycling and when tested according to ISO 180 [1] or equivalent. **Verification:** The tenderer must provide valid mechanical/physical test reports carried out according to ISO 180 or equivalent. Third party test reports obtained from plastics recyclers, resin manufacturers or independent pilot tests must be accepted. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

Plastic composition / recyclability

- New TS to use resins compatible with recycling technologies
- To eliminate further barriers for recycling
- Similar requirements are already implemented by schemes like EPEAT, Blue Angel and Green Product Mark

- Verification
  - List of resins used and its compatibility with recycling
  - For blends → statement from recyclers

PROPOSED CRITERIA – TS24

Core criteria	Comprehensive criteria
TECHNICAL SPECIFICATIONS	
	New! TS24 Plastic composition recyclability Plastic parts with a mass greater than 25 g must be comprised of a single resin or a blend of different resins that is compatible for recycling. **Verification:** The tenderer must provide a list of the plastic parts > 25g including the resin type used and its compatibility with recycling. If the plastic part > 25g is made from a blend of resins, the tenderer must provide a statement from a minimum of three plastics recyclers individually, or at least one plastics recycler processing plastics from electronics and working under an independent entity (e.g.,not contracted/associated with the manufacturer or contracted with a trade organization), confirming the resin blend does not negatively impact the recyclability of the plastic. Equipment holding a relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.

Marking of plastics

- The current EU GPP criterion on plastic marking has been updated
  - Core criterion → parts heavier than 50g
  - Comprehensive criterion → parts heavier than 25g
- Aligned with the revised Ecodesign requirement for displays and the existing ecolabel schemes
- Marking of plastic parts is implemented by some manufacturers that have own initiatives for closed loop recycling

PROPOSED CRITERIA – TS25

Core criteria	Comprehensive criteria
TECHNICAL SPECIFICATIONS	
TS25. Marking of plastic casings, enclosures and bezels External plastic casings, enclosures and bezels with a weight greater than 50 grams must be marked in accordance with ISO 11469 and ISO 1043-1. Plastic parts are exempted from marking in the circumstances described by the explanatory note below. **Verification:** The tenderer must identify the plastic parts by their weight, their polymer composition, and their ISO 11469 and ISO 1043 markings. The dimension and position of the marking must be visually illustrated. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.	**TS25. Marking of plastic casings, enclosures and bezels** External plastic casings, enclosures and bezels with a weight greater than 25 grams (5 grams for smartphones) must be marked in accordance with ISO 11469 and ISO 1043-1. Plastic parts are exempted from marking in the circumstances described by the explanatory note below. **Verification:** The tenderer must identify the plastic parts by their weight, their polymer composition, and their ISO 11469 and ISO 1043 markings. The dimension and position of the marking must be visually illustrated. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.
Explanatory Note: Plastic components are exempt from marking requirements in the following circumstances: (i) the marking is not possible because of the shape or size; (ii) the marking would impact on the performance or functionality of the plastic component; and (iii) marking is technically not possible because of the molding method. For the following plastic components no marking is required: (i) packaging, tape, labels and stretch wraps; (ii) wiring, cables and connectors, rubber parts and anywhere not enough appropriate surface area is available for the marking to be of a legible size; (iii) PCB assemblies, PMMA boards, optical components, electrostatic discharge components, electromagnetic interference components, speakers; (iv) transparent parts where the marking would obstruct the function of the part in question.	

Battery marking for recycling

- The increased demand of portable ICT devices has stimulated the market of battery recycling
- Batteries collected at the EoL mostly appear as mixtures and are subject to manual sorting according to their chemistries
- The logos are sometimes missing, making identification and sorting difficult
- TS proposal on battery marking → reference IEC 62902
  - Needs to be adapted for volumes ≤ 900 cm^3
- Including also the indication of the metals in weight percentage higher than 1 → improve EoL management
  - E.g cobalt, manganese, nickel

PROPOSED CRITERIA – TS26

Core criteria	Comprehensive criteria
TECHNICAL SPECIFICATIONS	
New! TS26 Battery packs marking for the correct identification of their chemistry *Applicable to mobile equipment* Battery packs and cells (including those incorporated into battery packs) must be marked with marking symbols for the correct identification of their chemistry. The marking symbol must be durable and legible and in line with the requirements of the IEC 62902:2019 Indication of the all metals (e.g. cobalt, nickel, lithium, etc.) with >1% in mass percentage ranges, as 1-2%, 2-5%, 5-10%. Referring to cell only or battery pack, which would include the charging electronics as well. **Verification** The tendered must provide attestation of conformity from independent certification bodies. Equipment holding relevant Type I Eco-label fulfilling the specified requirements will be deemed to comply.	

Declaration of CRM

- CRM → materials that are important, difficult to substitute and have supply risks
- Based on EN45558:2019
- CRM identified under this scope → complete?

Part	CRM
Battery (portable devices)	Cobalt
HDD (all type of devices)	Neodymium and other rare earth elements
Display panels	Indium
Vibration module	Tungsten
PCBs	Palladium

- Declare also the indicative weight range of the CRMs present in the parts listed → define thresholds for reporting?

PROPOSED CRITERIA – TS27

Core criteria	Comprehensive criteria
TECHNICAL SPECIFICATIONS	
New! TS27 Declaration of Critical Raw Materials The tenderer must provide an indicative weight range (less than 5 g, between 5 g and 25 g, above 25 g) at component level, of the following critical raw materials: a) Cobalt (present in batteries) b) Neodymium and other rare earth elements (present in HDD) c) Indium (present in display panels) d) Tungsten (present in vibration module) e) Palladium (present in PCBs) **Verification:** The tenderer must provide a declaration identifying the CRMs that are present together with the indicative weight range and the corresponding part.	

Overview of Criteria Area 4 – End-of-life management

4.2 Design for dismantling

- Survey 2019
  - The AC Product dismantling potential is not supported by respondents from industry in absence of standardized methods
- Reparability Scoring System
  - This parameter can be relevant since the repair duration affects repair costs, disassembly time is also covered indirectly by other parameters (e.g. disassembly depth, fasteners, tools, availability of repair information)
  - Methodological developments are still needed before such parameter can be measured in a standardised and not-too-burdening way
- Propose to remove

Overview of Criteria Area 4 – End-of-life management

4.3 End-of-life management

GPP 2016	TR v1.0 Proposal
TS1. Secure computer collection, sanitisation, re-use and recycling	TS28. Secure computer collection, sanitisation, re-use and recycling
AC1. Inventory tracking system	
AC2. Dismantling to facilitate recycling	
CPC1. Reporting on equipment status	CPC3 Reporting on the end-destination of ICT equipment
CPC2. Operation of reuse and recycling facilities	

EoL Management

- In Europe the collection and recycling is regulatory approached by the WEEE legislation with extended producer responsibility for the participation and/or financing of collection and recycling processes

- Tenderers have to provide the following services: collection, secure data deletion, reuse and recycling

- Go beyond WEEE to further enhance recycling processes
  - Reporting the proportion of equipment prepared or remarketed for re-use
  - Proportion of equipment prepared for recycling

PROPOSED CRITERIA – TS28

Core criteria	Comprehensive criteria
SUBJECT MATTER	
Procurement of end-of-life management services for Computers and Monitors	
TECHNICAL SPECIFICATION	

TS28. Secure computer collection, sanitisation, re-use and recycling

Tenderers must provide a service for the re-use and recycling of the whole product or of components requiring selective treatment in accordance with Annex VII of the WEEE Directive for equipment that has reached the end of its service life. The service must comprise the following activities:

- Collection (take back system);
- 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 for recycling.

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 the (recast) WEEE Directive 2012/19/EU and with reference to the list of components for selective treatment [*see accompanying explanatory note*].

Verification:

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 of the WEEE handling facilities to be used.

PROPOSED CRITERIA – CPC3

CONTRACT PERFORMANCE CLAUSES

CPC3 Reporting on the end-destination of ICT equipment

To be used in conjunction with T30

The contractor must provide a report on the status of the equipment in the inventory once all items have been processed for re-use, recycling or disposal. The report must identify the proportion of items re-used or recycled, and whether they remained in the EU or were exported.

For equipment and components recycled in the EU, the following means of proof for the handling facilities must be accepted:

- a permit issued by the national competent authority in accordance with Article 23 of the Directive 2008/98/EC, or
- a third party certification of compliance with the technical requirements of EN 50625-1 or an equivalent compliance scheme.

Where equipment and components are exported for re-use or recycling, contractors must provide the following shipment and treatment information:

- shipping information for equipment intended for re-use, in accordance with Annex VI of WEEE Directive 2012/19/EU.

For WEEE exported to be treated outside the EU, a third party certification of compliance with the minimum WEEE requirements laid down in the criterion, or with the technical requirements of EN 50625-1 or an equivalent compliance scheme[1].

End-of-life management
Questions

Do you agree with the list of CRM?

What thresholds should be applied to report their presence?

Concluding remarks and next steps

Written comments on the first criteria proposals are invited and should be posted on the BATIS system **at the latest by Monday 3rd February 2020**

Thank you for your attention

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