**RE: Invitation to participate in a questionnaire on the review study of Commission Regulation 2019/424 on the Ecodesign of servers and data storage products**

As part of our ongoing efforts to improve energy and material efficiency, we are conducting a review study on behalf of DG GROW on Commission Regulation 2019/424 on the Ecodesign of servers and data storage products. The latest version of this regulation can be found here: [EUR-Lex - 32019R0424 - EN - EUR-Lex (europa.eu)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019R0424).

The purpose of this study is to review the effectiveness of the regulation and identify areas for improvement for servers and data storage products. The background and scope of the study is further developed on our platform: [EU Servers Survey (europa.eu)](https://ec.europa.eu/eusurvey/runner/eco-servers-review-register). We are seeking inputs from stakeholders.

To achieve this, we are seeking your inputs as stakeholders. We would appreciate it if you could take a few minutes of your time to complete our questionnaire. Your responses will shape the direction of the study, to further understand the impact of the regulation.

The questionnaire covers topics such as energy efficiency, material efficiency, and operating conditions of computer servers and data storage products. It is designed to be quick and easy to complete, and we estimate that it will take approximately 60 minutes to finish. All responses will be treated confidentially and only used for the purpose of this study. The questionnaire closely aligns with the scope of this review, we have included the project scope questions which are labelled ***a to t****.* These items (a-t) have been placed in the corresponding sections that they relate to. The items have been added as a sub-title in each under each title, in blue text and italic. We welcome stakeholder feedback in each of these sections, but appreciate that some sections may be more relevant to certain stakeholder groups, such as:

- Manufacturers sections Questions 1 - 14

- Data centre facility managers Questions 6 - 14

- Recyclers and repairers Questions 8 & 14

Please submit your completed questionnaires as an attachment and send to the server’s review email: serversreview@icf.com.

The deadline for this questionnaire is the **28th of April 2023**. Please type your answers in the spaces provided beneath each question. For more information or if you have any questions, please use the server’s email address and we'll come back to you.

Questions

## Updating current Ecodesign requirements

**a)** to update the specific Ecodesign requirements on server active state efficiency;

**b)** to update the specific Ecodesign requirements for servers on idle state power.

1. What are your thoughts on the Ecodesign requirement for minimum active efficiency on servers?
2. The Ecodesign regulation sets active state efficiency requirements for 1-socket, 2-socket, blade and multi-node servers at 9.0, 9.5 and 8.0 respectively. Do you think the bulk of the market is above these requirements? As a result, do you think these regulatory requirements should be tightened?
3. What are your thoughts on the Ecodesign requirement for maximum idle state power on servers?

## Regulation definitions and scope

**c)** to update the definitions or the scope of the Regulation;

**e)** to exempt server appliances, large servers, fully fault tolerant servers and network servers from the scope of the regulation;

**f)** to exclude resilient servers, High Performance Computing (HPC) servers and servers with integrated APA from the Ecodesign requirements set out in Annex II point 2.1 and point 2.2 of Regulation 2019/424.

1. Do you have any views or concerns with regards to the definitions and scope set out in the regulation?
2. What are your views on the exclusion of server appliances from the scope of the regulation?
3. What are your views on excluding the server types listed below from the scope of the regulation?
	1. large servers
	2. fully fault tolerant servers
	3. network servers
	4. hyperconverged servers
4. What are your views on the exclusion of the following devices from the idle state and active efficiency requirements?
5. network servers
6. resilient servers
7. high performance computing servers
8. servers with integrated APA\*

***\*NB****: As defined under the Ecodesign regulation, an integrated APA means an APA that is integrated into the motherboard or CPU package. The APA is defined as: ‘Auxiliary Processing Accelerator’ (APA) means a specialized processor and associated subsystem that provide an increase in computing capacity such as graphical processing units or field programmable gate arrays. An APA cannot operate in a server without a CPU. APAs can be installed in a server either on Graphics or Extension add-in cards installed in general-purpose add-in expansion slots or integrated into a server component such as the motherboard.*

## Data Storage devices performance requirements

**i)** to set specific Ecodesign requirements on the efficiency, performance and power demand of data storage products.

1. Data storge products are currently not required to meet energy efficiency requirements in the Ecodesign regulation.

*Under the Ecodesign regulation, ‘data storage product’ means a fully-functional storage system that supplies data storage services to clients and devices attached directly or through a network. Components and subsystems that are an integral part of the data storage product architecture (e.g., to provide internal communications between controllers and disks) are considered to be part of the data storage product. In contrast, components that are normally associated with a storage environment at the data centre level (e.g. devices required for operation of an external storage area network) are not considered to be part of the data storage product. A data storage product may be composed of integrated storage controllers, data storage devices, embedded network elements, software, and other devices.*

What are your thoughts on the regulation setting out energy efficiency requirements for data storage products? Would the SNIA Emerald Power Efficiency Measurement method laid down in ISO/IEC 24091:2019 be an appropriate metric for this energy requirement?

1. How could the use of *capacity optimising methods* be increased in data storage devices?

## Processor Power Management Function

**g)** to set specific Ecodesign requirements on the Processor Power Management Function of servers.

1. What are your views on Ecodesign requirements on the Processor Power Management Function of servers?
2. What are your views on reducing voltage/and/or frequency through dynamic voltage and frequency scaling as a power management function?
3. What are your views on enabling processor or core reduced power states (C-states) when core or socket is not in use?

## Standby-Readiness for Servers

**p)** The technical and economic feasibility and relevance of product specific requirements on the standby readiness of servers (for instance allowing to move to and from idle mode in a fast and seamless manner), if not covered by the analysis on the Processor Power Management Function.

1. Do you have any insight into the feasibility of product specific requirements on standby readiness of servers (for instance allowing to move to and from idle mode in a fast and seamless manner)?
2. Would these be economically feasible?
3. What benefits could standby readiness unlock?

## **Parameters Information Requirements**

**r)** The technical and economic feasibility and relevance of product specific requirements related to:

a. the availability of information (temperature, (fan) speed, etc..) for open data exchange about the input/output air flow data of the server/data storage product, and/or.

b. the capability to enable external overriding of the internal fan speed control, in view of potential synchronisation of the product cooling system with the data center cooling system.

1. What are your views on the technical and economic feasibility of:
	1. Providing open data exchange about the input/output air flow data of server/data storage products?
	2. The capability to enable external overriding of internal fan speed control for synchronisation with data centre system cooling?

## Energy Label

**s)** The technical and economic feasibility and relevance of introducing an energy label for servers and data storage products, including a label and a detailed product information sheet comprising targeted indicators for the different possible uses of the product (e.g., as webserver, disk server, database server, file/disk server, etc.)

1. With regards to the introduction of an energy label on servers and data storage products:
	1. What are the feasibility considerations for their implementation?
	2. What Information would you recommend be included in such a label?
	3. Would it be helpful for such a label to include values such as idle power consumption or SERT workload scores on CPU, memory and storage?
	4. Should icons be included in the label to signify servers designed to deliver specific tasks?
2. With regards to the introduction of a detailed Product Information Sheet on servers and data storage products:
	1. What are the feasibility considerations for their implementation?
	2. What Information would you recommend be included in such an information sheet?
	3. Should detail such as the SERT worklet scores be included?

## Material Efficiency

**d)** to update the material efficiency requirements for servers and data storage products, including the information requirements on additional critical raw materials (tantalum, gallium, dysprosium and palladium), taking into account the needs of the recyclers;

**j)** on material efficiency aspects:

a. the provisions on disassemblability of certain components, also considering advancements in standards (mandate M/543) since the publication of the regulation;

b. an analysis of the benefits of the information requirements under Regulation 2019/424 already covering cobalt in the batteries and Neodymium in the hard disks.

**l)** an analysis of the standards, and of their relevance for regulatory purposes, developed/under development under the standardisation request M/573, ‘Commission implementing decision C (2021)14 of 12.1.2021 on a standardisation request to the European standardisation organisations in support of Regulation (EU) 2019/424 as regards ecodesign requirements for servers and data storage products’1

1. What are your views on material efficiency requirements for servers and data storage products?
2. Do you think these requirements should be updated, to include information requirements on additional critical raw materials (tantalum, gallium, dysprosium), taking into account the needs of the recyclers?
3. What type of recyclable material can be found in servers and data storage products?
4. What is the rate of materials recovered and recycled from servers and data storage devices?
5. What are your views on disassemblability of certain components, considering advancements in standards (mandate M/543)? In particular, would the principles outlined in Annex II, Section B, Part (5) of the [draft Ecodesign regulation](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12797-Designing-mobile-phones-and-tablets-to-be-sustainable-ecodesign_en) for smartphones be applicable for servers? These principles are:

*(i)fasteners shall be removable or reusable.*

*(ii)the process for replacement shall be feasible in at least one of the following ways:*

*–with no tool, a tool or set of tools that is supplied with the product or spare part, or basic tools, or*

*–with commercially available tools.*

*(iii)the process for replacement shall, as a minimum, be able to be carried out in a workshop environment,*

*(iv)the process for replacement shall, as a minimum, be able to be carried out by a generalist.*

1. What are your views of the benefits of the information requirements under Regulation 2019/424 already covering cobalt in the batteries and Neodymium in the hard disks?
2. What are the packaging materials and quantities to be considered for server and data storage products?
3. What are your views on the relevance of developing standards under the standardisation request M/573 to regulate the material efficiency of servers and data storage products?
4. With regards to networking equipment (such as routers and ethernet switches), are there measures that should be considered to increase their material efficiency? If so, what are they?
5. Standards have been requested with regards to energy efficiency, disassembly, critical raw material content, firmware availability, updates, and secure data deletion functionality. Are there additional standards you believe should be considered? What other standards are you aware of that apply to server and data storage products?

## Operating Conditions

**h)** to set specific Ecodesign requirements on the operating condition class;

**k)** analysis of the benefits of the information requirements under Regulation 2019/424 on the operating conditions of servers and data storage products.

1. What are your views on setting specific Ecodesign requirements on the operating condition class? Should there be a requirement for servers to operate at higher temperatures to limit HVAC energy consumption in data centres? Consider in your answer if the operating temperature range should align with what is recommended by ASHRAE.
2. The Ecodesign server regulation requires products to provide operating information on ASHRAE ranges A1-4. In your opinion, is providing this information useful for reducing energy consumption of data centres?

## System Performance Considerations

**m)** Technological, market and regulatory evolutions affecting the environmental performance/aspects of data centers, and how they would reflect at product specific level, for servers and data storage products.

1. How are technological, market and regulatory evolutions influencing the environmental performance of data centres? How are these changes affecting the product-specific level performance of servers and data storage products?
2. How has the average data centre Power Usage Effectiveness (PUE) evolved over the last few years, and how is PUE expected to develop in the future?
3. What are your views on the advantages and concerns around the PUE metric? Should another data centre performance metric be considered?
4. Are there any market developments of data centres facilities to be noted?

## Liquid Cooling Systems and Solutions

**n)** The technical and economic feasibility and relevance of product specific requirements on liquid cooling systems/solutions.

1. What are the different types of liquid cooling solutions available for servers and data storage products? How do these vary in terms of efficiency, cost, ease of installation and maintenance? What are the environmental considerations to be aware of?
2. Please expand on the previous question based on the following:
	1. Liquid cooling to product.
	2. Liquid cooling to the rack.
3. What do you expect is the market share of servers and data storage products that include a liquid cooling solution?

## **Waste Heat Recovery Systems and Solutions**

**o)** The technical and economic feasibility and relevance of product specific requirements on waste heat recovery systems/solutions

1. To your knowledge, how many data centres have had their waste heat recovered? What are the uses for recovered waste heat from data centres?
2. What are some of the most effective waste heat recovery systems/solutions used? How do they help to reduce energy consumption and costs?
3. Are there any negative environmental considerations to be aware of with regards to waste heat recovery? Do heat recovery systems disincentivise other energy efficiency efforts?

## Direct Current Power Supply for Servers

**q)** The technical and economic feasibility and relevance of product specific requirements on DC (direct current) power supply for servers.

1. What are the technical and economic feasibility considerations for implementing direct current (DC) power supply for servers? How do these impact the design, installation, and maintenance of such systems?
2. Does the use of DC power supply for servers reduce the overall consumption of servers? How does it impact consumption at product level and data centre level?
3. What are some of the key challenges and opportunities associated with integrating DC power supply for servers?
4. What do you expect is the market share of servers and data storage products that are powered by direct current?
5. Can the existing SERT V2 tool be modified to cover DC servers? How feasible is this solution for meeting the regulatory requirements for energy efficiency and sustainability in servers?

## Other topics

**t)** other topics, as emerged from consultations with stakeholders.

1. Are there other topics not raised in this questionnaire that this regulation review should consider?