PREPARATORY STUDY ON ECODESIGN FOR IMAGING EQUIPMENT AND ITS CONSUMABLES

COMMENTS ON DRAFT PREPARATORY STUDY FOR ECODESIGN - TASKS 1-4

12/5/2023

We welcome the publication of draft Tasks 1 to 4 of the preparatory study reports for "imaging equipment and its consumables" and the intermediate report on the User Behaviour Study. We reiterate that mandatory Ecodesign requirements for this product group could effectively tackle the environmental impacts of both printers and their consumables.

We appreciate that some of our previous comments on draft Tasks 1 and 4 were addressed within the latest published versions. However, some other comments were neglected and should be reassessed for the analysis to consider the highest environmental ambition. We also wish, through this paper, to provide additional comments for the new Task reports 2 and 3.

TASK 1 SCOPE

We welcome that the scope of the Task 1 report extends to a range of imaging equipment types as well as their associated consumables.
We understand that a comprehensive review of definitions has been undertaken and that proposed definitions have been developed based on the findings. We also acknowledge that many of our previous comments on the proposed definitions have been addressed.

However, some of our comments were not taken on board and should be reconsidered. This is particularly true for the definitions. Please note some minor modifications (as compared to our previous input) to some of those comments that have not been accepted.

DEFINITIONS – CIRCULARITY CONCEPTS

Circularity Aspect	Definition	ECOS Comments	ECOS Proposed Definition
Recovery	Process to divert cartridges and/or cartridge materials from the solid waste stream **into productive uses**.	The term "productive uses" should be defined or the term should be changed to "Energy Recovery".	Process to divert cartridges and/or cartridge materials from the solid waste stream **for the purpose of energy recovery**.

DEFINITIONS RELATED TO CARTRIDGES

We provided comments on the definitions associated with consumables and appreciate that many were addressed in the most recent draft of the Task 1 report. Some of our other comments were either not addressed or only partially addressed. We encourage the study team to reassess them. We have made some minor alterations to our previous suggestions where either a partial change has been made to the definition in the report or additional issues have been noticed.

Product	Definition	ECOS Comments	ECOS Proposed Definition
Consumable	A product integral to the functioning of the imaging equipment **product with the intent, when depleted or worn, to be replaced or refilled by the user** during the normal usage and life span of the imaging equipment.	The terms "worn" is not defined and could mean any wear on the consumable (e.g. wiper blade) that would occur during normal use. In addition, "depleted" is subjective as many consumables have remaining toner/ink even when the connected imaging device decides that the consumable is empty.	A product integral to the functioning of the imaging equipment **which, when used to its defined completion, is replaced or refilled** during the normal usage and life span of the imaging equipment.
Refilled cartridge	**The authors note "The definition of "refilled cartridge" has been removed from the list to avoid confusion with "remanufactured cartridge".**	The term "Remanufacturing" is defined elsewhere and makes it clear that "at least one change is made". As such, the refilling of a cartridge could be defined as "one change" and therefore allow "refilled consumables" to be defined as "remanufactured consumables". Refilled consumables may not provide the same level of	**Cartridge resulting from a process where an empty cartridge is refilled with ink or toner without replacement, refurbishment or repair of any components.**

		quality as a remanufactured consumable and should therefore be defined separately.	

SCOPE PROPOSAL

The proposed scope is welcomed, especially the specific inclusion of cartridges. However, as previously noted, we do not support removing Professional Imaging Products at this early stage of the study. The ENERGY STAR v2.3 specification for Imaging Equipment shows that it is practicable to detail a range of requirements for Professional Imaging Products such as on Automatic Duplexing Capability, Production Energy Requirements and Ready Mode Power Requirement. Automatic Duplexing Capability is especially important to consider given the large amount of paper professional imaging equipment use. There is, therefore, no valid reason for this product category to be left out of the scope. Doing so would leave a wide range of products unattended.

TASK 3 – USERS

We welcome the very detailed assessment made to users' behaviour which uncovers a great deal about users' thoughts, expectations and issues surrounding the use of imaging equipment.

It is clear from the results of the study that there is a need to address users' concerns over cartridge pricing, cartridge quality, cartridge yield, the expected life of the printer and the ability to use cartridges of their choice in their imaging equipment.

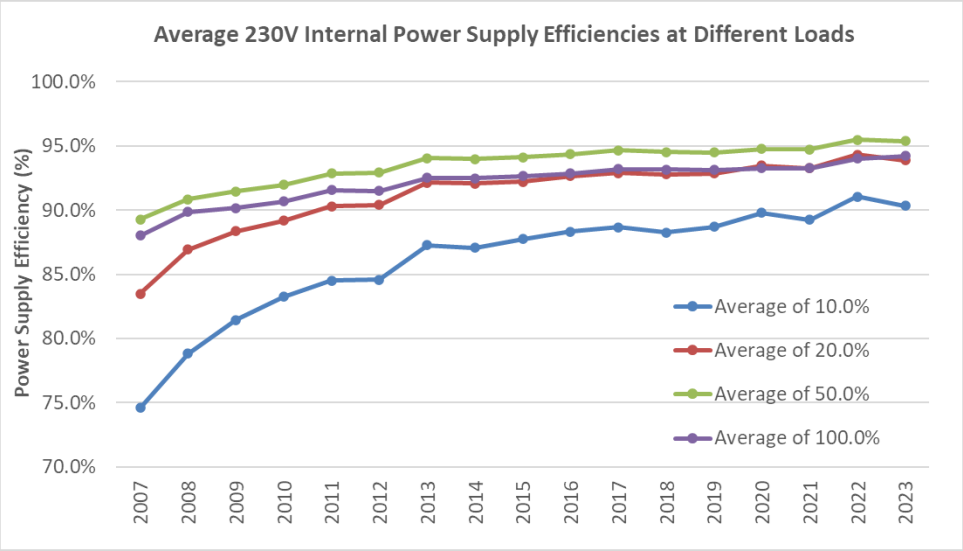
TASK 4 – TECHNOLOGIES

We appreciate that the Task 4 report includes a good overview of the technologies involved in the imaging equipment sector.

We note that discussions on fuser units do not include an evaluation of how their lifetime can be extended through enhanced durability. Increasing the thickness of the fluorocarbon polymer coating on the upper fuser roller can significantly increase the life of the component. This should be investigated in the report as the durability of this component can have a significant overall environmental impact.

We previously commented that internal power supplies of imaging equipment should be subject to further review in the study. This has not been undertaken within the latest Task 4 report. We would like to point out that no major environmental initiative has addressed the issue of internal power supply (IPS) efficiency within imaging equipment (except for IPS included in Digital Front Ends). Ecodesign regulations addressing ICT products generally include requirements on IPS, even where the minimum requirements take a duty cycle approach rather than a power demand approach (e.g. computers). We therefore call on the Commission and the study team to address the efficiency of IPS in imaging equipment as this could result in a significant amount of additional energy savings that have not been yet unlocked by other initiatives.

The graph below shows the average efficiencies, at different loads, of 230V internal power supplies registered with the 80Plus initiative (April 2023).[1] The results show significant improvements in the average efficiency of internal power supplies over time (especially at low loads). Imaging equipment tends to spend a considerable amount of time in low power modes and therefore at low load levels on the IPS.



The Task 4 report (Figure 35) illustrates the wide range of energy used by imaging equipment that provides similar functionality. The efficiency of the IPS used in these products could explain at least some of this divergence in energy use. As such, it is important that the Task 4 report addresses IPS efficiency so that requirements on this issue could be included in a future Ecodesign Regulation.

In addition to the above general comments, we have some specific comments as discussed below:

4.4.5 DEVICE REPAIRABILITY

We applaud that the preparatory study has investigated several aspects of the repairability of printers. This was facilitated by the UBA study of Ritthoff et al (2023), which is frequently cited in the report. It is crucial that the observations made in the report be transformed into effective policy to overcome the observed barriers. Specifically, it is noted that spare part prices are often in ranges that can prevent printer repairs, with several parts costing more than 75% of the price of a new product. To effectively address repairability, it is indispensable to set requirements for keeping spare prices within a reasonable proportion to new product prices.

4.5.10 CARTRIDGE RECYCLING

The report should investigate how cartridge design can impact cartridge recycling processes and the resulting material output. For example, cartridges that contain many different components and materials are likely to

[1] https://www.clearesult.com/80plus/

be more difficult to recycle, which is more likely to result in unusable materials arising from the recycling process.

4.6.1 DEVICE BASE CASES

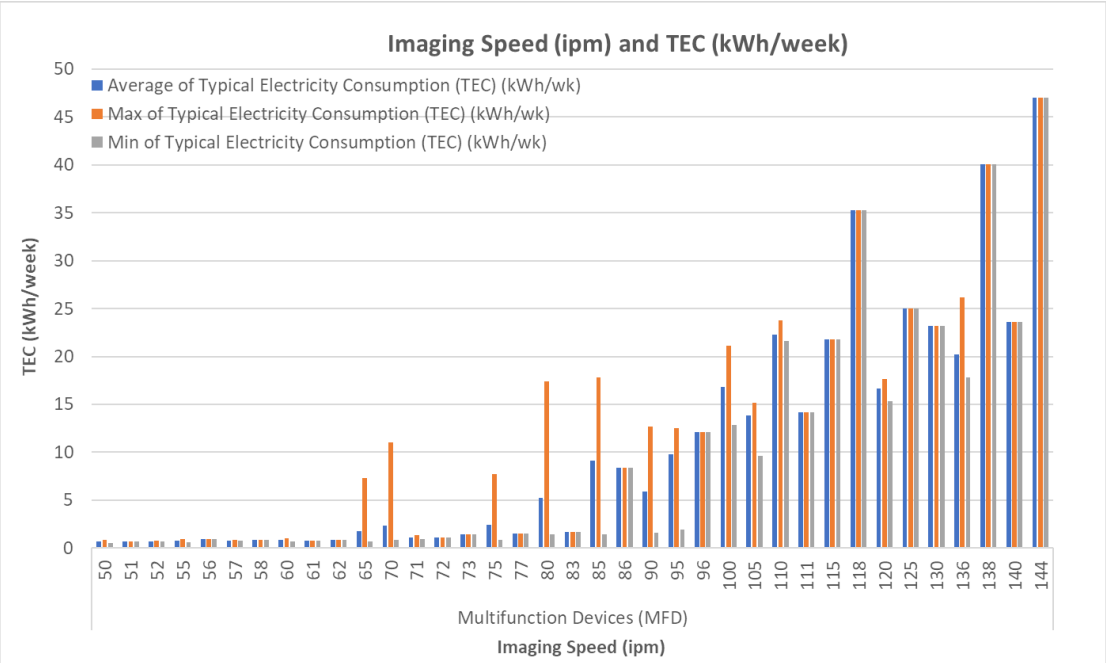
We are concerned that limiting the assessment to five base cases could result in misleading impact estimates. We believe that Laser multi-functional printers and laser printers should be further subdivided into mono and colour. This further sub-division will assist in identifying better cartridges impact values.

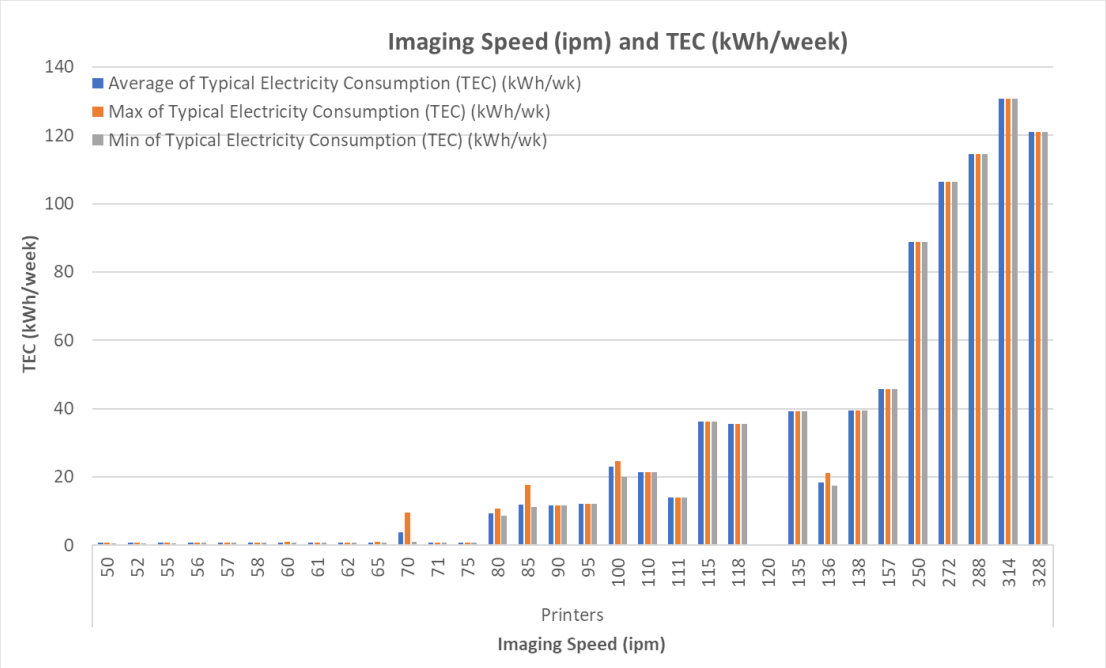
In addition, we are concerned that the cut off imaging speed of 60ipm for Laser multi-functional printers and 40ipm for Laser printers is too low. Failure to consider higher speed products could result in difficulties setting Ecodesign requirements on these product types as no assessment has been completed. This could have the perverse incentive of encouraging sales of higher speed products, which use more energy, as they are not subject to any Ecodesign criteria.

There is a significant number of products in the US ENERGY STAR database, which are designed and marketed for use in offices, which would fall outside of these speed limits. Examples include:

- Canon imageRUNNER ADVANCE DX 617i (65 ipm)
- HP LaserJet Enterprise Flow MFP M635z (61 ipm)
- Konica Minolta bizhub 658e (65 ipm)
- KYOCERA M3860idnf (62 ipm)
- Lexmark MS826de (70 ipm)
- Sharp BP-50M65 (65 ipm)
- Toshiba e-STUDIO6528A (65 ipm)
- Konica Minolta Muratec bizhub C750i (75 ipm)
- Lexmark MX826adtfe (70 ipm)
- Ricoh MP 7503SP (75 ipm)
- Sharp BP-70M75 (75 ipm)
- HP LaserJet Enterprise M612x (75 ipm)
- Canon imageCLASS X LBP1871 (75 ipm)
- Xerox AltaLink B8075 MFP (77 ipm)

The graphs below illustrate the mean, maximum and minimum TEC (kWh/week) for Standard Sized Laser Printers in the US ENERGY STAR Database (April 2023) according to imaging speed. The graphs clearly show a significant increase in energy use in products with imaging speeds of 80ipm and above. This is suggestive of products with imaging speeds of 80ipm being designed more for production usage rather than office usage. However, there is no significant energy increase (with the exception at 70ipm) for products with imaging speeds of between 50 and 79ipm.





If Professional Imaging Equipment and any products operating on three phase power are kept out of the scope of the study, and therefore any Ecodesign requirements, including base cases for speeds up to 79ipm would at least ensure that all products designed for use in offices can be covered by future Ecodesign requirements. This would not impact the availability of products used for production purposes. We suggest that the base cases are therefore expanded to include higher speed products, which are designed and marketed for use in offices, as well as separating the base cases into colour and mono products.

4.7.2.1 PAGE YIELD AND MATERIAL EFFICIENCY

We welcome the page yield and material efficiency assessment but suggest that it is further divided into cartridge types (as in the previous section of the report). It is important to consider how additional components such as external print heads and toner development components impact the material efficiency per printed page.

4.8.1 PRINTER EASY TO ACCESS PAGE COUNTER

Printer page counters are described as “Best Not Available Technology”. Page counters are already available on many, if not most, imaging equipment models. We suggest that the issue of page counters within imaging equipment is assessed in detail to ensure users can more accurately manage their fleets of devices according to actual usage. This is an important consideration that could significantly extend the useful life of imaging equipment in businesses.

Contact:
ECOS –Environmental Coalition on Standards,

Mathieu Rama, mathieu.rama@ecostandard.org