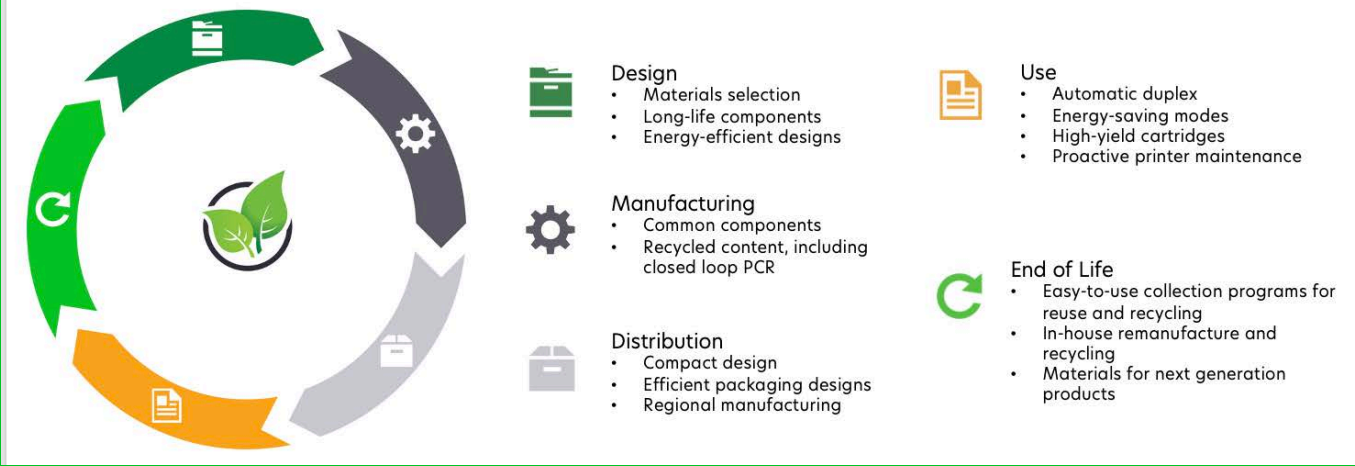


### The Lexmark product Lifecycle supports the circular economy



## LCA- Environmental Product Declaration

A **Life cycle assessment** is a standardized tool that evaluates the environmental impact of products throughout the entire life cycle. It analyzes and quantifies the direct and indirect environmental burdens associated with the product, a material, a process, or a system.

### Environmental Product Declaration (EPD)

- The Product Category Rules (PCR) for Printers and Multi-Function Printing Units provide the technical requirements and guidance for an Environmental Product Declaration (EPD).
- The EPD takes the LCA-derived information to assess the environmental performance of the products over the life cycle, from cradle to grave. Using the guidance from the PCR, the EPD standardizes how you communicate the LCA results.
- Lexmark uses software called GaBi to perform the life cycle assessment, and then to generate the EPD.
- Once the EPD is complete, it is reviewed and certified by a 3rd party for completeness and accuracy.

### What is the difference in Environmental Product Declaration (EPD) vs. Product Environmental Footprint (PEF)

Lexmark's EPDs report on 6 environmental impact categories: Global Warming Potential, Ozone Depletion Potential, Acidification Potential, Eutrophication Potential, Fossil Fuel Depletion Potential, and Mineral Resource Depletion Potential

Product Environmental Footprint (PEF) method - is comparable to the EPD method, but primarily used in Europe. The PEF can report on up to 16 environmental impact categories.

Lexmark selected the EPD methodology for EPEAT purposes. EPEAT (Electronic Product Environmental Assessment Tool) is a method for purchasers to evaluate the effect of a product on the environment.



## Key Take away information

- The primary information that most customers seek is in the Global Warming Potential section is the first environmental impact category in the Interpretation of the results section.
- Lexmark's EPD is broken into 3 phases: Printer Manufacturing, Use Phase, and the End-of-Life Phase
- The data output for each of the 3 phases can be analyzed 4 different ways (columns)
- The first 2 columns break out the results on a per 1,000-page basis.
- The final 2 columns break out the results on a per printer lifetime (5 years).
- Either method can include the paper carbon footprint effect, or not.
- Paper is the highest carbon footprint impact in the Use Phase.

## Global warming potential

	per 1000 pages including paper	per 1000 pages excluding paper	per printer lifetime including paper	per printer lifetime excluding paper
Printer	1.03E-01	1.03E-01	1.07E+02	1.07E+02
Lexmark use phase <LC>	7.83E+00	1.45E+00	8.14E+03	1.51E+03
Lexmark EoL phase <LC>	1.04E-03	1.04E-03	1.08E+00	1.08E+00

Table 4: Fossil GWP100 dominance analysis [kg CO2 equiv]

The carbon footprint results can be further broken down into various components or stages of the use phase.

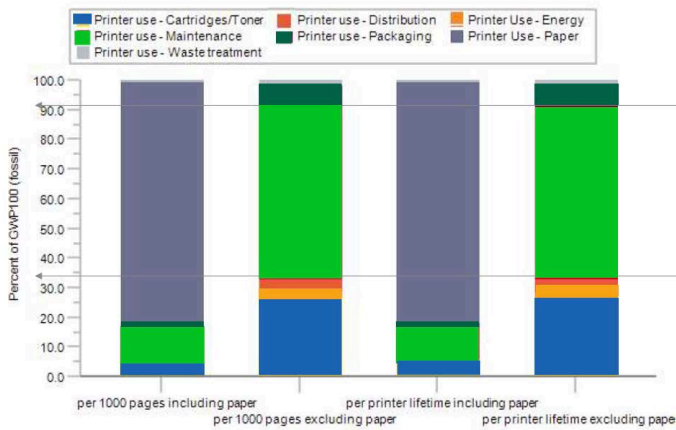


Figure 1: Fossil GWP100 dominance analysis of the use phase

Example: Maintenance Carbon Footprint Per Printer Lifetime Excluding Paper - Use Phase: 1.51E03 kg CO2 eq

Draw lines around Maintenance estimate % = 91% - 33% = 58%  
 $58\% \times 1.51E03 = 875.8 \text{ kg CO2 eq}$

