

# ENERGY STAR Printer Buying Guide

Buying a printer that meets ENERGY STAR requirements can result in significant energy and paper savings for businesses. This printer buying guide will help you determine the printer type and features that will meet your business needs and enable you to save on energy, paper, and ink costs. Key savings mechanisms include:

- **Sleep mode and automatic shut off.** Features that automatically place the printer in a reduced power state after a specified period of inactivity can result in significant energy savings.
- **Automatic double-sided printing/duplexing.** Printers that can produce images on both sides of the paper by automatically flipping the paper make it easier to produce a double-sided page, which cuts down on paper use.
- **Various quality settings.** Many printers have more than one quality setting and using a lower quality or draft mode when printing draft or internal documents can save ink.
- **Inkjet tank configuration.** Printers that use one cartridge for all colors or one cartridge for all colors and a separate one for black tend to waste more ink. Since colors are used at different rates but the cartridge must be replaced once any one color has run out, you may have to replace the entire cartridge just to replace your black or magenta.
- **Choosing a printer with an ink monitor (and using it).** Knowing that a printer is low on ink can help you avoid sending a large print job to a printer and then seeing that most of the pages are illegible due to low ink and need to be reprinted once the ink is refilled.

These and other features that reduce energy and paper use will be discussed in the buying guide.

The following tips are important habits to consider that will cut down on resource use regardless of the printer that you choose to purchase:

- **Consider page design.** Keep usable space in mind when developing documents by using smaller margins and font sizes, and avoiding double spaces between lines.
- **Avoid printing blank pages or pages with little text.** Preview documents and websites before printing to avoid printing blank pages. When printing websites, use the printer-friendly view, if available, to remove any banners that take up page space. A free program called GreenPrint ([www.printgreener.com](http://www.printgreener.com)) analyzes pages and skips those with little to no content.
- **Recycle used ink cartridges.** Recycling programs reduce waste and can save money. Some office supply companies such as Office Depot and Staples offer a credit on future ink cartridge purchases when you drop off your used cartridges at the store.

## Consider Printer Types

**Laser printers:** Laser printers produce images using toner and are best suited for high-volume printing of black and white text. Laser printers produce black and white text faster and better-quality than inkjet printers. Color laser printers are also available, but are more expensive than, and typically do not produce the same quality color products as, inkjet printers. Laser printers typically have a lower cost per page rate than inkjet printers.

**Inkjet printers:** Inkjet printers use ink to produce images and are best suited for printing graphics, color text, and photos. They are less well-suited for black and white text (they produce pages slower and lower-quality black and white text than laser printers) and are typically supplemental printers. Inkjet printers can cost 4 to 5 times as much per page as laser printers, depending on the amount of ink used.

# Consider Your Primary Printing Needs

## What resolution do you need?

Resolution, the number of dots per inch (dpi), determines print quality and is usually expressed as a horizontal and vertical measurement. A resolution of 600 x 600 dpi is adequate for most black and white text printing needs, though smaller, crisper text or detailed images may require 1200 x 1200 dpi or more.<sup>1</sup> When considering only resolution, the more dots a printer puts on the paper, the more detailed the image. However, dot size, shape, and placement also affect quality and most printer vendors use different techniques. Due to these factors, some output from 600 x 300 dpi printers may have the same quality as that from a 600 x 600 dpi model.

## How fast does the printer need to be?

Printer speed, the number of pages that can be produced per minute, is measured in pages per minute (ppm). While this is an important consideration when choosing a printer, the manufacturer's performance specification is often unreliable, even for comparison purposes, because each company performs test in a different manner. Performance specifications can be used to ballpark performance between models, but the best way to compare printers is to use professional reviews of specific models.<sup>2</sup>

## Do you need color printing?

Most businesses with bulk black and white printing needs will have a black and white laser printer. For businesses with significant color printing needs, it may be cost-effective to also purchase a color inkjet printer, rather than outsourcing your color printing needs.

An inkjet printer typically uses four inks: black, cyan (greenish-blue), magenta, and yellow. An inkjet printer can have the following ink cartridge configurations:

- A single four-color cartridge.
- A tricolor (cyan, magenta, and yellow) cartridge and a separate black cartridge.
- Each color is in a separate cartridge

Since colors are used at different rates, if your printer has a configuration in which a single cartridge contains multiple colors, you may have to replace the entire cartridge just to replace your black or magenta. Choosing a printer that takes separate cartridges for each color typically avoids such waste, saving money and resources.

## How much memory do you need?

Printers have onboard memory, which must be able to hold full pages of the most complex items that you need to print. If you print large graphic-heavy files or have multiple users on your network, look for a laser with enough memory, or the ability to add more.

# Evaluate Printer Features

**Sleep mode:** A reduced power state that the printer automatically enters after a period of inactivity or at a user-set time of day (after business hours). ENERGY STAR required defaults for entering sleep mode

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<sup>1</sup> Amazon, 2013 and Ebay, 2013.

<sup>2</sup> Ebay, 2013.

range from 5 to 60 minutes of inactivity. An important consideration when purchasing a printer is the amount of time it takes a printer to achieve an active state from sleep mode.

**Automatic shut-off:** Similar to a sleep mode, an automatic shut-off option saves energy and decreases wear on a printer. However, an automatic shut-off option powers the machine off completely rather than putting it in a reduced power state. This saves more energy, but the printer will take longer to achieve an active state if the automatic shut-off has been activated.

**Ink monitor:** An ink monitor warns you when you're running low on ink, which can help avoid sending a large print job to a printer only to discover later that most of the pages are illegible due to low ink. Avoiding large print jobs on printers that are low on ink can help reduce paper waste.

**Double-sided printing:** Many business-sized printers incorporate built-in duplexers for automatically printing on both sides. Individuals can set their default printer preference to print double-sided, which cuts down on the amount of paper used. ENERGY STAR requirements include automatic duplexing as part of the base product in color printers with product speeds of 35 pages per minute (ppm) or more and in black and white printers with speeds of 37 ppm or more.

**Quality settings.** Many printers have more than one quality setting and using a lower quality or draft mode when printing draft or internal documents can save ink.

**Connectivity:** Most business-sized printers are designed for networking, which enables you to print from any computer in a wired or wireless network. Other connectivity options and features are: USB ports; Bluetooth, wi-fi, or infrared wireless connectivity; memory-card readers; and internet connectivity.

## References

Amazon. 2013. Amazon.com Buying Guide: Printers. Accessed August 6, 2013. Available on the internet at: <http://www.amazon.com/gp/feature.html?ie=UTF8&docId=761>.

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