

# *Printer Costs and the Environment*

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## **Printer Costs and the Environment**

You can save money and save the planet at the same time

When it comes to printers, a commitment to the environment and a desire to reduce costs are far from contradictory goals. Quite the opposite: fewer disposable components results in lower costs and less waste, and buying an eco-friendly printer will save you money in the long run.

We're sure you've heard the stats about how "E-waste" (that's waste from electronics) comprises a large and growing part of worldwide landfill. In 2005, the Economist reported that 8% of all municipal landfill in Europe was E-waste, and that E-waste comprises some of the most toxic materials that could be found in the landfill. Reports have ascribed roughly 40% of the lead in landfill to E-waste, and about 70% of the heavy metals in landfill, including toxic chemicals like mercury and cadmium, can be ascribed to E-waste.<sup>1</sup> Printing products, of course, make up a considerable proportion of E-waste.

What you've probably not heard so much about is how you can reduce the amount of waste your office produces by using eco-friendly printer designs. It's not uncommon for business managers to have the misconception that eco-friendliness is at best irrelevant, at worst a burden on the bottom line. When it comes to printing, however, nothing could be further from the truth.

It's an oft-repeated truism that the cost of feeding a printer, copier or MFD over the course of its lifespan is likely to far exceed the cost of buying it in the first place. In fact, it's likely that the initial purchase cost of a business printer will represent only a fraction, in some cases as little as 10-15%, of the money spent on that printer over the course of its life. This is often referred to as the "Total Cost of Ownership" or "TCO". Maintenance, power, toner and management – the ongoing costs of running a printer – are the larger cost elements that are often ignored by printer purchasers.

All of those consumable elements can be minimised with an eco-friendly printer design. The principal is simple: the fewer components you use, the lower your costs and the less you have to throw away. It's not a coincidence that printers with the highest printing costs per page are also the ones that produce the most waste. The "razor-and-razorblades" sales model (that is, sell the printer cheaply; make money on the consumables) used by many printer manufacturers actually encourages high-waste and high-cost consumable usage. It's time for you to get off that treadmill.

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<sup>1</sup> E-Waste Think Tank: Review and Synthesis. May/June 2008 by Elizabeth Noble

## **Elements of an eco-friendly and operationally efficient design**

An environmentally friendly printing system and service framework is the product of a number of components, not just in manufacturing but in aftermarket support services. These elements can work together to ensure that a printing system has both low running costs and minimal environmental impact.

### **1. Long life and reusable components**

One of the major flaws in many printer designs is the tendency to throw out components that have yet to reach the end of their useful life. An example of this is the integration of the imaging drum into cartridges, or the use of single cartridges for multiple colours. While this simplifies maintenance (since only one component needs replacing), it produces unnecessary waste as usable components are discarded along with unusable ones. There's no reason that an imaging drum that will last 50,000 pages should be discarded when it's associated 10,000-page cartridge empties, but that's the way many printer models work. In fact, most of the components of a printer should be durable enough to last its entire life – the only components that should really need replacing are parts that are literally consumable – the toner and in some cases, the fusing oil.

Ask your manufacturer about consumables – how many are there, and how often do they need to be replaced? Not only are they a huge component of the printing budget, they're also a large proportion of the E-waste your company produces.

### **2. Economic printing**

Not everything a printer outputs needs to be “presentation-ready.” In most offices, for example, a high proportion of the printer and copier output is for the personal reference of staff.

For this reason, a printer should support a range of paper and toner-saving modes, most notably eco-mode or “draft” printing to reduce toner usage and automated duplex printing to save paper.

Check whether the printer models you're considering support those features, and actually dig down into some of the specifications. How much does eco-mode printing actually save, for example?

### **3. Use of environmentally friendly and non-polluting materials**

There has been an important trend towards the use of non-toxic and recyclable materials in electronics, and a little digging can uncover the kind of materials a manufacturer uses in the construction of their printers. Greenpeace, for example, produces a range of reports on e-waste, rating vendors on the materials used in both manufacture and packaging.

You should try to look for a vendor that uses non-toxic and fully recyclable materials. Not only does it save the environment, it can make disposal of end-of-life products and consumables easier.

#### **4. Low power usage**

With increasing energy costs and a greater understanding of global climate change, the need for low-power appliances has never been greater. A well-designed printer should be, at the very least, Energy Star compliant and have multiple low-power sleep modes that reduce power consumption to even lower levels after long periods of inactivity.

Printer manufacturers (at least those with nothing to hide) should detail the power usage of the printer – when printing, when idle and when asleep. Remember to perform a comparison between printer models – and a quick back-of-the-envelope calculation about power usage may even show you some surprising lifetime cost savings for a low-power printer. Remember that it's not uncommon for an office printer to consume several hundred dollars worth of energy per year, and with a large fleet, that can really add up.

#### **5. Aftermarket recycling and reclamation support**

Look for a vendor that believes in the notion of product stewardship. That is, the manufacturer works with retailers and users to share responsibility for the impact of product – and its waste – from the time it comes off the factory floor to the time it's retired permanently. A number of electronics manufacturers (including Kyocera) have taken this positive step, introducing comprehensive waste recycling services and end-of-life disposal services.

We'd suggest asking your vendor three simple questions:

- Do they collect used consumables from you, and at what cost?
- When a printer or copier reaches the end of its life, will they come and take it away?
- What proportion of the printer or copier will get recycled when they do?

## The Kyocera Mita Case Study

Kyocera Mita has been at the forefront of environmental printing technology from their very beginnings. They realised early on that protecting the environment and reducing printer costs were complementary goals, and long before it became fashionable, Kyocera Mita was developing a range of products and systems designed specifically to meet the common goals of saving the environment and saving business money.

Kyocera Mita developed more durable, more reliable components and a printing system that produces less waste, uses less power and makes better use of consumables. The consequence of this development was a dramatic decrease in lifecycle costs for printers. These cost reductions were readily quantifiable, represented in large part by dramatically reduced costs for the consumable components of the laser printing process. Unlike the vast majority of printing brands, Kyocera Mita was not throwing out an imaging drum every time a user replaced a toner cartridge. In most cases, Kyocera laser printers have an imaging unit that lasts up to 300,000 pages, so you rarely need to replace it.

Kyocera Mita's technological and business practice developments have also been a boon to the new breed of environmentally conscious business buyer. With products built from the ground up to help the environment, all Kyocera Mita's consumable components are fully recyclable, and the printers themselves contain no hazardous substances.

Nothing needs to go into landfill, and Kyocera Mita will recycle all consumables for business clients for free and hardware for a minimal courier charge. At the same time, power-conscious buyers will appreciate the power savings offered on Kyocera Mita printers, copiers and MFDs – yet another way that Kyocera Mita saves both money and the environment at the same time.

So let's get down to specifics in this case study: what is it about Kyocera and its products that will help you save the environment and your balance sheet at the same time?

1. **ECOSYS.** At the heart of Kyocera Mita's eco-friendly design is its ECOSYS technology, currently in its 5th generation. ECOSYS is comprised of numerous components, the most notable being a cartridge-free design and a printing drum with a life so long that it's unlikely to ever need replacement. Kyocera Mita's printers, copiers and MFDs use a unique and patented amorphous silicon print drum, comprising a combination of ceramic and metal components. This imaging system has a hardness and durability rating unmatched in the industry. With expected duty cycles of around 300, 000 pages, it's highly unlikely to ever need replacement during the lifespan of a printer.

This feature is virtually unique in the printer and copier industry – all other vendors require either a periodic replacement of the imaging drum (increasing the cost per page) or actually build the drum into the toner cartridge, which means that you'll be paying an awful lot for cartridge replacements and throwing out a working drum every time you need new toner.

2. **Environmentally-friendly materials.** Kyocera Mita printers are built from non-toxic and recyclable materials. All Kyocera Mita products use chrome-free steel plating and lead-free electrical wiring. Resins from recycled plastic drink bottles are used in printer construction, along with halogen-free plastics which reduce dioxin emissions. All of Kyocera Mita's printers comply with, and indeed exceed by a considerable margin, the requirements of Europe's strict Restriction of Hazardous Substances (RoHS) Directive, a set of rules forbidding the use of lead, mercury, cadmium, hexavalent chromium and certain toxic flame retardant materials in electronics construction. Its printers produce negligible ozone emissions, and its manufacturing process meets the ISO 14001 environmental manufacturing standards.

Kyocera Mita's use of eco-friendly materials also extends to its packaging. All Kyocera Mita's packaging materials are foam free, and are constructed from biodegradable cardboard. Inks are produced from vegetable and soy dyes and have no impact on the environment.

3. **Low power usage.** All Kyocera Mita printers\* currently in production are Energy Star compliant, and most exceed the requirements by a considerable margin. They also all feature a power economy mode, where after a set period of inactivity they drop into a sleep mode in which power consumption is negligible.
4. **The world's best recycling program.** Kyocera Mita currently boasts an unrivalled recycling program for businesses large and small. Not a single component from a Kyocera Mita printer needs to go to landfill. Businesses with Kyocera Mita printers can sign up for the KyoCollect service. With KyoCollect, Kyocera Mita delivers a container to the participating business. The business can put all printer waste products – bottles, toner cartridges, fuser units and bulk toner – into the box. When the box is full, a Kyocera Mita representative will come by and collect all the waste products, which will be fully recycled by Kyocera Mita. What's more, this service is completely free for businesses within 50km of major CBDs. Businesses in rural areas incur a small fee for waste pickup.

For more on KyoCollect, visit [www.kyoceramita.com.au/KyoCollect.asp](http://www.kyoceramita.com.au/KyoCollect.asp). Kyocera Mita is also committed to a complete take-back service, which will recover printers from businesses at the end of the printer's life, saving the business and the government the cost of printer disposal. Like the consumables, materials from expired printers will be recycled and reused.

5. **Low noise and negligible ozone emissions.** Kyocera Mita printers are among the industry's quietest, and produce minimal ozone emissions. Sitting near the printing desk will no longer be a punishment for staff.

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\* All models except the FS-1100

**Table: Summary of Kyocera's environmental features**

<b>ECOSYS-Features</b>	<b>Ecological benefit</b>	<b>Economic benefit</b>
Toner is the only consumable	Reduces waste and protects natural resources	Reduces printing costs and avoids expensive recycling of complete cartridges
Duplex (printing on both sides) *	Saves material, halves paper consumption	Reduces the costs of paper and postage for correspondence
Long life printer drum	Minimisation of waste	Reduces printing costs, storage and logistics
Long life components	Reduces refuse and protects natural resources	Reduces maintenance and operating costs decisively
EnergyStar Rated *	Contribution to global reduction of power consumption	Reduces power costs
Ecomode toner-saving mode	Saves resources	Increases the coverage of the toner and therefore reduces costs
Modular paper options	Future-proof thanks to ability to be expanded, optimisation of resources	Protection of your investment and future-proof
Boxes which contain no colouring	The disposal of dyes is not required when producing recycled paper	Simplified and practical disposal
ECOSYS-Features	Ecological benefit	Economic benefit
Design suitable for recycling, ID-coding on plastic components	Simplifies recycling and enables the components to be re-used.	Reduces disposal costs
Small base area	Compact design minimises material consumption and packaging	Small space requirement, simple transportation
Low ozone emissions	Healthier air in the office	Replacing the ozone filter is not necessary
Low noise level	Improvement of the working environment	Extremely good workplace ergonomics

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\* All models except the FS-1100