



## **How to Reduce Printing Costs by 17%:** A Guide to Doing Well and Doing Good by Printing Less

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## Introduction

*Crucially, CSR has become profitable.*

In the past few years there has been a significant shift in corporate America and beyond toward a dual awareness of internal efficiency and environmental impact. “Carbon Neutral” was named word of the year in 2006 by The New Oxford American Dictionary,<sup>1</sup> which seems to be an accurate reflection of the shift that’s taking place in America. At the same time, the increased price of energy and nearly all other basic commodities has significantly increased the costs of doing business and necessitated cutting expenses. In the past, Corporate Social Responsibility had more to do with creating a philanthropic perception than with environmental accountability; however, there has recently been a marked shift in the paradigm: “Today CSR is about saving costs, being an attractive employer and partner, finding innovative solutions, and being competitive. Crucially, CSR has become profitable.”<sup>2</sup> This white paper examines how to accomplish both environmental and cost-saving goals by focusing on one key area of unnecessary environmental and financial waste: printing.

*Printing is a key area of unnecessary environmental and financial waste.*

Companies of all sizes and in all industries are feeling the pressure to streamline their operations in order to save money and simultaneously meet the growing demand for environmental responsibility and accountability. According to the Sustainable Investment Research Analyst Network (SIRAN), the number of S&P 100 companies who provide a corporate sustainability Web site increased by 58% between 2005 and 2007,<sup>3</sup> a testament to the need for large corporations to publicly display their environmental policies and impact. With companies from Dell to Wal-Mart substantively focusing on “green” initiatives, the emerging environmental perspective through which corporations are both viewing and promoting themselves is now a clear part of the business mainstream.

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<sup>1</sup> “Carbon Neutral: Oxford Word of the Year,” OUPblog, 13 November, 2006  
<[http://blog.oup.com/2006/11/carbon\\_neutral/](http://blog.oup.com/2006/11/carbon_neutral/)>.

<sup>2</sup> Burmeister, Klaus, “Megatrends and the future of Corporate Social Responsibility,” CSR News 4 August 2008  
<[http://www.nachhaltigwirtschaften.net/scripts/basics/forumcsrE/basics.prg?a\\_no=33](http://www.nachhaltigwirtschaften.net/scripts/basics/forumcsrE/basics.prg?a_no=33)>.

<sup>3</sup> “Sustainability Reporting by S&P 100 Companies Made Major Advances from 2005-2007,” SIRAN, ed. Leslie Anderson, 17 July 2008  
<<http://www.siran.org/pdfs/SIRANPR20080717.pdf>>.

Executives and consumers alike have come to the realization that their actions have an effect on our environment, one that can be traced back to the origins of the products they are manufacturing or purchasing. “We can no longer ignore the fact that all companies make an impact – they impact the environment, other companies, local communities and they impact the lives of their employees.”<sup>4</sup> In order to be accountable for their impact, companies must first identify where inefficiencies lie and how they can address them. From there they can establish a CSR roadmap which quantifies the environmental impact as well as increased efficiency and cost savings.

## The Real Cost of Printing

*The average employee uses 10,000 sheets of paper every year.*

As companies explore ways to reduce their carbon footprint and minimize costs, resolving inefficiencies associated with printing is unsurprisingly at the top of the list. It is estimated that the average employee uses 10,000 sheets of paper a year.<sup>5</sup> This volume of paper has an obvious environmental impact, and is a considerable expenditure for a company of any size. According to a Citigroup-Environmental Defense study, the actual cost of printing is 13 to 31 times the purchase price of the paper used, or somewhere between \$.06 and \$.13 per page.<sup>6</sup> At the low end of that range, the average employee’s printing costs the company \$600 per year and at the high end \$1,300. A substantial portion of this cost goes to pages employees never even intended to print. A study conducted by Lexmark found that an average of 17% of everything printed was considered waste<sup>7</sup> – pages the user didn’t want. Common examples of this are the page at the end of a Web printout with just a URL or banner ad at the top, multiple pages of legal

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<sup>4</sup> James C. Hood and Barbara A. Bedard, “Don’t ignore corporate social responsibility,” New Hampshire Business Review 15 August 2008 <<http://nhbr.com/apps/pbcs.dll/article?AID=/20080815/INDUSTRY04/946618636/-1/NEWS05>>.

<sup>5</sup> Copy This! Results of the Citigroup-Environmental Defense Partnership to Improve Office Paper Management (New York: Citigroup and Environmental Defense, November 2004) 4.

<sup>6</sup> Copy This! 4.

<sup>7</sup> “Retail Topped European League of Paper Wasters,” Lexmark International 22 May 2006 <[http://www.lexmark.com/uncomplicate/pressrelease/home/0.7071.295522\\_2483\\_730688098\\_en.00.html](http://www.lexmark.com/uncomplicate/pressrelease/home/0.7071.295522_2483_730688098_en.00.html)>.

jargon at the end of airline itineraries, or chain replies attached to an emailed meeting agenda.

*Companies are spending 1-3% of revenue on printing and copying.*

Although it is likely that most companies are aware that a lot of paper is used and wasted within their organizations, it is not as likely that they have a handle on the actual costs. With varied suppliers, printer fleets, branches, and employee habits, it can be an enormous challenge to quantify paper use and waste. In a 2001 study, the Gartner Group found that the mismanagement of output fleets (copiers, printers, fax machines) can cost an enterprise somewhere between 1 and 3 percent of revenue annually,<sup>8</sup> an incredible figure considering the entire 2007 advertising budgets<sup>9</sup> for companies such as Verizon,<sup>10</sup> Honda,<sup>11</sup> and Nissan<sup>12</sup> were less than 3% of their annual revenues. For a company like Wal-Mart<sup>13</sup> or Costco,<sup>14</sup> whose profits were 3% or less of revenue in 2007, adding 1-3% of revenue to the bottom line could mean a significant difference in annual profits.

*Printer ink costs nearly \$10,000 a gallon!*

A big part of the reason printing costs are so high is the ongoing outlay for printer maintenance and supplies. Printer ink costs about \$10,000 a gallon – nearly 2,500 times the current “exorbitant” cost of gasoline (see *Figure 1* for additional comparisons) – and toner cartridges and drums are not far behind. Taking this extremely expensive portion of printing into account, it’s easier to see where that 1-3% of revenue goes, which further highlights the importance of identifying ways these costs can be reduced.

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<sup>8</sup> Lundy, J. “Rightsizing Output Fleets: The Hidden Gold Mine,” Gartner Group (19 March 2001): DF-13-2054.

<sup>9</sup> “100 Leading National Advertisers,” Advertising Age 23 June 2008  
<[http://adage.com/datacenter/datapopup.php?article\\_id=127910](http://adage.com/datacenter/datapopup.php?article_id=127910)>.

<sup>10</sup> “Verizon Financial Statements,” Morningstar September 2008  
<<http://quicktake.morningstar.com/stocknet/Income10.aspx?Country=USA&Symbol=VZ&stocktab=finance>>.

<sup>11</sup> “Honda Financial Statements,” Morningstar September 2008  
<<http://quicktake.morningstar.com/stocknet/Income10.aspx?Country=USA&Symbol=HMC&stocktab=finance>>.

<sup>12</sup> Nissan Financial Statements,” Morningstar September 2008  
<<http://quicktake.morningstar.com/StockNet/Income10.aspx?Country=USA&Symbol=NSANY>>.

<sup>13</sup> “Wal-Mart Financial Statements,” Morningstar September 2008  
<http://quicktake.morningstar.com/stocknet/Income10.aspx?Country=USA&Symbol=WMT&stocktab=finance>.

<sup>14</sup> “Costco Financial Statements,” Morningstar September 2008  
<<http://quicktake.morningstar.com/stocknet/Income10.aspx?Country=USA&Symbol=COST&stocktab=finance>>.



Figure 1 – “Black Gold” from “Ink Inc.” in the *San Francisco Chronicle*<sup>15</sup>

## The Myth of the Paperless Office

As early as 1975<sup>16</sup> there was talk of a future “paperless office” stemming from the idea that the adoption of the personal computer would greatly reduce the need to print and that printing might eventually become entirely unnecessary. Unfortunately this has not been the case. In fact, worldwide paper use has increased dramatically over the last few decades, from about 70 million tons in 1980 to 140 million tons in 1996.<sup>17</sup> Over the next few years, it is expected to increase to about five times the 1980 level: a projected 396 million tons by 2010.<sup>18</sup> The authors of The Myth of the Paperless Office attribute a portion of this paper consumption increase to workers’ attachment to hard copies of Web documents: “the World Wide Web, far from decreasing paper consumption, served to increase the amount of printing done at home and in the office. With the Web, people could access more information more easily than before, but though they used

*Paper use is expected to exceed 396 million tons by 2010!*

<sup>15</sup> Said, Carolyn, “Ink Inc.,” *San Francisco Chronicle* 26 July 2004: F1.

<sup>16</sup> “The Office of the Future,” *BusinessWeek* 30 June 1975.

<sup>17</sup> Abigail J. Sellen and Richard H.R. Harper, The Myth of the Paperless Office (Cambridge: The MIT Press, 2002) 12.

<sup>18</sup> Copy This! 1.

digital means to find and retrieve information, they still preferred to print it out on paper when they wanted to read it.”<sup>19</sup> According to Lexmark, 20% of employees printed internet content daily at the office in 2002,<sup>20</sup> a number that has likely increased dramatically over the last six years as internet use has continued to grow. Understandably so, some of the commonly printed internet content is email, which, according to Lexmark, could stem from the desire by older users to keep copies for their archives (56% of 45-54 year olds).<sup>21</sup>

*56% of people ages 45-54 print internet material as a way of archiving.*

In spite of our continued need for paper copies of documents, there are numerous small steps that can be taken to help companies move toward a paperless office, though it seems unlikely that printing will be entirely eliminated at any point in the foreseeable future. Some of the following techniques are more effective than others, but all will help users become more aware of their printing habits, and can have incremental effects on paper use and the bottom line:

- **Duplexing:** Gartner found that organizations can potentially reduce annual paper costs by 30% by selecting duplex printing as the default option.<sup>22</sup>
- **N-Up Printing:** Selecting the “n-up” or “multiple pages per sheet” option within Printing Preferences can be an effective way of including two or more pages on one sheet of paper. However, readability and formality often eliminate N-Up as an option for corporate use.
- **Print Preview:** Although cumbersome and slightly inefficient (the user must return to the original document to make changes before printing), using the print preview function within most applications gives the user the opportunity to see an approximation of what they are about to print.

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<sup>19</sup> The Myth of the Paperless Office 8.

<sup>20</sup> “Lexmark survey dispels commonly believed myths; Nationwide study reveals Internet’s impact on paper use and provides glimpse of future printing environments,” Recharger Magazine 168 (2002), 1 January 2002 <<http://www.rechargermag.com/articles/33489/>>.

<sup>21</sup> “Lexmark survey dispels commonly believed myths” 168.

<sup>22</sup> Sharon McNee and Ken Wellerstein, “Cost Cutting Initiatives for Office Printing,” Gartner, Inc. (22 February 2008): G00155489.

- **Copy & Paste from Web Browsers:** When printing a Web document, many users try to copy and paste the text on its own into a text editor application such as Microsoft Word. This method is not always effective, as formatting, links, and images are often lost in the transfer, proving to be a frustrating experience, or as Katherine Boehret of the Wall Street Journal refers to it “a messy process that traps users into wasting time fixing formats and deleting ads,”<sup>23</sup> The cumbersome nature of this process means it is rarely adopted in the corporate world.
- **PDF Creation:** The popularity of the Portable Document Format, or PDF, is widespread: According to Adobe, PDF is a global printing standard, formally known as ISO 32000, covering the more than 1 billion PDF files in existence.<sup>24</sup> If a hardcopy is not necessary, a PDF is an effective alternative to printing as a means of archiving or sharing a document, although professional grade PDF writers can be expensive.
- **Print Management Tools:** For those organizations willing to invest the time and resources, it can be valuable to implement a comprehensive print management solution that allows for user authentication, tracking, quotas, and limitations on what employees can and cannot print. Again, cost can be a hindrance.

## Stacks of Wasted Pages at the Printer

In spite of the various techniques available to computer users, until recently there has not been a comprehensive way to entirely eliminate wasteful printing, particularly when printing Web documents. The amount of waste generated by Web printouts is profoundly frustrating. As Jim Lyons, a writer for a leading printing industry trade journal asks: “Why, after all these years, are we still hassling with chopped-off Web pages and that seemingly ever-

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<sup>23</sup> Boehret, Katherine, “Printing Parts of the Web,” *The Wall Street Journal* 26 September 2007 <<http://solution.allthingsd.com/20070926/printing-parts-of-the-web/>>.

<sup>24</sup> “Adobe and PDF,” *Adobe.com* September 2008 <<http://www.adobe.com/products/acrobat/adobepdf.html>>.



present nearly blank last page that is printed?”<sup>25</sup> In response to the increase in printing from the Web, several additional tools have been developed by established software and hardware companies attempting to make the process easier and more efficient, although none of them seem to address the entire problem of wasteful Web printing. Both Lexmark and HP have released plug-ins for Web browsers that attempt to solve the problem, and Microsoft has modified its browser, Internet Explorer 7, to try to accommodate the demand for better Web printing. However, in many cases these solutions have been half-hearted attempts to solve a problem that significantly benefits the printing industry's bottom line, and thus have been largely ineffective.

Nearly everyone who works in an office of any size has had the experience of arriving at the printer only to find unintentionally printed pages (either their own or someone else's) ranging from several pages of legal jargon at the end of an airline itinerary, to a single line of text or a banner ad at the end of a Web printout. These wasted pages litter print stations around the world, adding up to a significant environmental problem, as well as costing large organizations millions of dollars a year.

*Printing from the Web is a frustrating experience.*

According to another Lexmark survey, printing from the Web is especially frustrating for the average computer user because “lengthy advertisements are printed, words or images are cut off, unwanted images are printed, pictures can't easily be printed separately, and paper and ink or toner are wasted.”<sup>26</sup> Given the frustration, cost, and environmental impact of printing, both companies and consumers alike have been searching for ways to streamline the process and print more efficiently and cost effectively, yet in most cases have had a great deal of difficulty finding a solution. Walter Mossberg hones in on this common frustration in his Wall Street Journal Column: “You pull up a Web page, and you decide to print it out for easier reading, or for filing. But you wind up with one or more wasted pages, usually

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<sup>25</sup> Lyons, Jim, “Observations: Printing from the Web – Are We Reaching the End Point?” Jim Lyons Observations 13 June 2006

<<http://jimlyonsobservations.blogspot.com/2006/06/observations-printing-from-webare-we.html>>.

<sup>26</sup> “File, Print, Frustration: Lexmark survey says Web has great info but it's a pain to get it 'to go',” Lexmark International 29 June 2006

<[http://www.lexmark.com/lexmark/pressrelease/home/0.6930.204816596\\_653271419\\_770380111\\_en.00.html](http://www.lexmark.com/lexmark/pressrelease/home/0.6930.204816596_653271419_770380111_en.00.html)>.

at the very end, consisting of mostly blank space with just one line of useless text — perhaps just a copyright notice. Or, you waste a lot of ink printing images on the Web page that aren't germane to the article.” Mossberg also mentions a few of the common workarounds for this typical problem, although he is not optimistic about their effectiveness: “There are ways to minimize this. You could use the “printer friendly” option on many Web sites. That may eliminate some unwanted graphics and text, but not all, and it doesn't solve the problem of the wasted page at the end. Or, you can use a print preview feature, hope the preview is accurate, and then manually try to adjust the range of pages printed. But this doesn't always work and it's time consuming.”<sup>27</sup> Mossberg has clearly articulated the problem, one that frustrates millions of people around the world every day, and for which there has been no comprehensive solution available – until now.

## The GreenPrint Solution

Out of frustration with the ubiquitous and unnecessary wasted pages at the end of print jobs, the resulting stacks of paper next to the printer, and the obvious enormous cost to any business, a patent-pending software tool called GreenPrint has recently been created. GreenPrint is a simple program: the combination of a virtual print driver and a client side application. It works somewhat like a spam filter for printing, intercepting all print jobs, scanning them for waste, and automatically removing unnecessary pages before they are printed. In addition to the methods discussed in the previous sections, GreenPrint's solution can help companies reduce print costs by an extra 17% and entirely eliminate wasted pages.

*GreenPrint is a “simple solution to an annoying and wasteful problem.”*

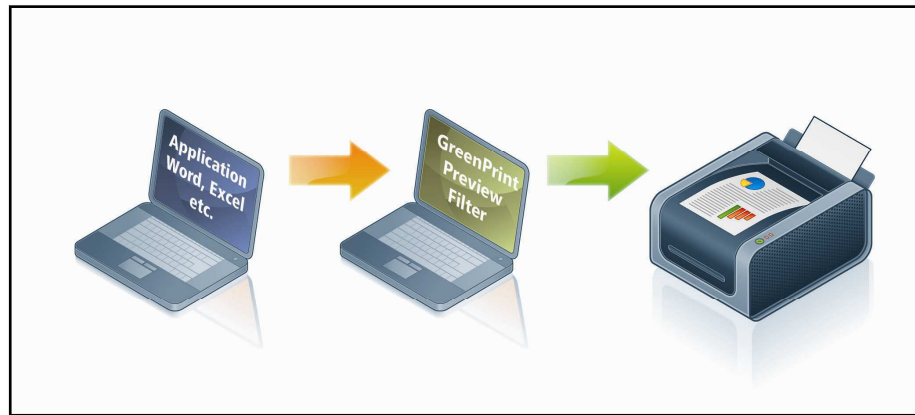
From a user perspective, GreenPrint is a very intuitive experience, what Walt Mossberg called “a simple solution to an annoying and wasteful problem.”<sup>28</sup> GreenPrint is unique in that it becomes the default printer for the system, automatically removing waste from every print job. After selecting “File – Print” as the user normally would to print from an application, GreenPrint

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<sup>27</sup> Mossberg, Walter, “How to Eliminate That One-Word Page That Trails a Print Job,” The Wall Street Journal 7 December 2006 <<http://ptech.allthingsd.com/20061207/saving-paper-print-job/>>.

<sup>28</sup> Mossberg, “How to Eliminate That One-Word Page That Trails a Print Job”.

runs an analysis on the printout and the GreenPrint preview appears with all pages shown on the screen at once for easy viewing. Waste pages are prominently highlighted in red to show that they will not be printed. The user can then quickly and easily make additional modifications (e.g. remove additional pages, remove images, or remove text), and then the document is printed. The printed document appears exactly as it did in the preview with wasted pages removed. The diagram in *Figure 2* shows the flow of data from the application through to the printer:



*Figure 2: GreenPrint Data Flow Chart*

*GreenPrint is effective because it highlights the size and content of the print job.*

Often a significant portion of GreenPrint's savings comes from the elimination of subjective waste, such as the several full pages of legal jargon at the end of an airline itinerary, unchanged pages of a second draft of a document, or the replies attached to an emailed meeting agenda. By showing users what's about to be printed, and making it easy for them to remove what they don't need, the amount they print is often significantly reduced – e.g. by highlighting the fact that an entire 80 page PowerPoint presentation is about to be printed, GreenPrint users will often just pick the couple of slides they wanted a hard copy of, rather than printing the whole document. A big part of the reason GreenPrint is so effective is because it highlights the size and content of the print job and makes it extremely easy for users to only print what they need.

*Figure 3* is an example of a typical wasted page from a Web printout. The user intended to print the Google Map and Directions on the first page, but is

presented with two pages to be printed, the second with only one line of text. GreenPrint has automatically highlighted this page in red, and will stop it from printing. At this point the user could also remove images from the first page if the maps were not useful, or conversely remove text if only the maps were necessary.

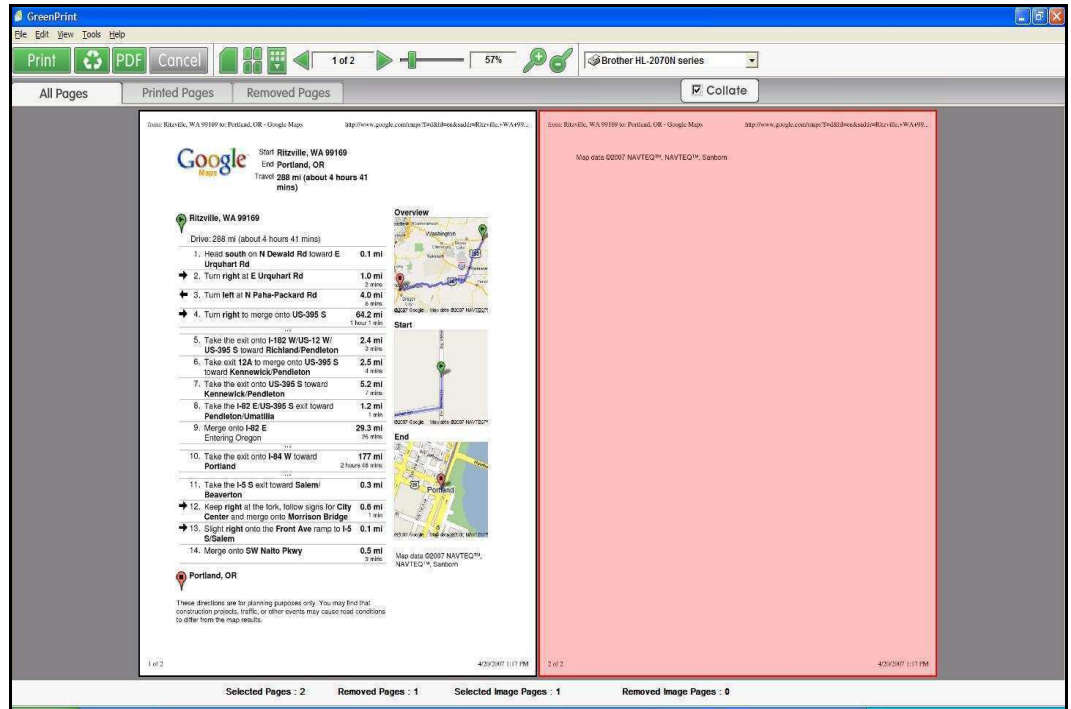


Figure 3: GreenPrint Preview of Google Map printout, 1 wasted page

Several features within GreenPrint add significant value to the solution and help to address many of the problems associated with printing beyond the single wasted page:

- **Automatic Waste Detection:** Intuitively shows users which pages are unnecessary and eliminates them from the print job.
- **PDF:** A commercial grade PDF writer is included in the software; a “PDF” button appears in the preview next to the “Print” button, allowing for simple and intuitive PDF creation.

*Average savings with GreenPrint are upward of \$100 per user per year.*

- **Image and Text Removal:** With a couple of clicks, images or text can be removed from a single page or multiple pages, providing significant ink or toner savings.
- **Track Cost Savings:** Individuals can see how many pages they have saved and what that equates to in dollars; Administrators can track company-wide page and dollar savings. Average savings per user per year are upward of \$100. Average overall print reduction is 17%.<sup>29</sup>
- **Track Environmental Impact:** Users can see what impact they have had and administrators can track savings for the entire organization with access to total pages, trees and greenhouse gasses saved. Integrates easily into CSR reports.

GreenPrint provides comprehensive savings reports with precise metrics around both environmental and financial savings, providing substantive figures for corporate sustainability reports and financial statements. The administrator can cut the data in multiple ways – by workstation, printer, and in the future by application and numerous other metrics – creating a deeper understanding of resource allocation and additional potential cost-saving opportunities.

*Figure 4* is an example of the GreenPrint Enterprise Administrator report, with data shown in the Workstation view. In the last three months, the combined saving of the organization's 20,000 employees was more than 8.5 million pages and \$545,173. This reduction in printing equates to an impressive environmental impact as well: saving 946 trees<sup>30</sup> and over 6 million pounds of greenhouse gasses<sup>31</sup>.

*Average overall print reduction using GreenPrint is 17%.*

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<sup>29</sup> Based on real-world pilots with various companies conducted by GreenPrint in 2007.

<sup>30</sup> "How much paper can be made from a tree?" Conservatree September 2008  
<<http://www.conservatree.org/learn/EnviroIssues/TreeStats.shtml>>

<sup>31</sup> Method for Calculating Carbon Sequestration by Trees in Urban and Suburban Settings – Voluntary Reporting of Greenhouse Gases (Washington, D.C.: U.S. Department of Energy – Energy Information Administration, April 1998).



Figure 4: GreenPrint Enterprise Administrator Report

## GreenPrint Case Study: Savills

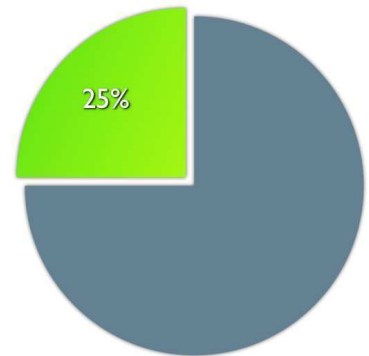
Since its launch in November of 2006, GreenPrint has conducted numerous pilots with large organizations, many of them Global 500 companies. The largest of the pilots run to date was with Savills.

Savills is a large, UK-based real estate firm with approximately 18,000 employees worldwide. The pilot was conducted with 500 employees in multiple London offices over a 30-day period in 2007.

This pilot group presented a challenging printing environment in that real estate agents print an enormous amount of material to provide to clients when showing properties. The agents were initially quite averse to using a program like GreenPrint, as they saw it as a barrier to producing the collateral they felt was essential to their sales process.

Although they were not excited about the pilot, Savills was eventually able to convince a group of 500 employees to give the software a chance. Within a week or two of the trial's start most users reported being accustomed to it – many even requested it not be removed at the end of the pilot. The results were particularly impressive given the initial aversion to trying GreenPrint. Results are shown in *Figures 5 and 6*:

Pages Printed Through GreenPrint	2,975,228
Pages Saved by GreenPrint	749,587
Overall Print Reduction	25%



*Figure 5: Savills Pilot Results*

*Figure 6: Printing Reduction*

The results highlight both the large quantity and large percentage of printed pages saved, and the very short ROI timeframe – 13 days. The projected annual cost savings are \$15.5 million, with an ROI of less than three work weeks, as shown in *Figure 7*:

Number of Employees	18,000
Annual Savings Per User	\$864
Annual Savings Enterprise-wide	\$15.5 million
Return On Investment	13 days

*Figure 7: Projected Annual Cost Savings for Savills*

Aside from the impressive cost-saving benefits of GreenPrint, these results can be translated into considerable environmental implications as well. Based on the pilot results, Savills could significantly reduce its carbon

footprint by using GreenPrint. In one year it would save over 259 million pages. The equivalent environmental impact is shown in *Figure 8*<sup>32</sup>:



*Figure 8: Potential Annual Environmental Impact for Savills*

The combination of a quick ROI and a clear environmental impact create a compelling argument for organizations of any size to implement GreenPrint. As the printing consultant at Savills managing the pilot put it, “We are totally sold on the benefits on the GreenPrint solution.” Savills and GreenPrint are in discussions about rolling out GreenPrint company-wide.

## **Summary**

The Savills pilot is a great example of GreenPrint’s potential benefits. With the shift in the corporate world toward an acute awareness of both environmental impact and cost savings, reducing waste associated with printing provides an opportunity for companies to make significant progress in both areas. GreenPrint provides an easy-to-use tool that streamlines the printing process, providing both cost savings and a clear environmental

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<sup>32</sup> Conservatree and Method for Calculating Carbon Sequestration by Trees



impact. GreenPrint is one of the few solutions that appeals equally to the CFO and the head of CSR because it significantly reduces a company's carbon footprint while improving the bottom line.

## Contact Information

GreenPrint offers a free 30-day pilot for any business interested in seeing the potential savings firsthand. Pilots generally consist of between 20 and 100 users depending on the size of the organization, but larger pilots are possible.

**To take the first step toward reducing print costs in your office by 17% or more, email [sales@printgreener.com](mailto:sales@printgreener.com).**



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