

## **iPADS AND KINDLES ARE BETTER FOR THE ENVIRONMENT THAN BOOKS<sup>1</sup>**

**Brian Palmer<sup>©</sup>**

E-readers are everywhere, even at my local library. But what about the trees? You told us about reading the newspaper online vs. getting the print edition, so now tell us about e-books. Does reading on my Kindle represent a win for the environment? Environmental analysis can be an endless balancing of this vs. that. Do you care more about conserving water or avoiding toxic chemical usage? Minimizing carbon dioxide emissions or radioactive nuclear waste? But today the Lantern has good news: There will be no Sophie's Choice when it comes to e-books. As long as you consume a healthy number of titles, you read at a normal pace and you don't trade in your gadget every year, perusing electronically will lighten your environmental impact.

If the Lantern has taught you anything, it's that most consumer products make their biggest scar on the Earth during manufacture and transport, before they ever get into your greedy little hands. Accordingly, green-minded consumers are usually -- although not always -- better off buying fewer things when possible. Reusable cloth diapers, for example, are better than disposables, because the environmental costs of manufacture and transport outweigh those of washing.

Think of an e-reader as the cloth diaper of books. Sure, producing one Kindle is tougher on the environment than printing a single paperback copy of "Pride and Prejudice." But every time you download and read an electronic book, rather than purchasing a new pile of paper, you're paying back a little bit of the carbon dioxide and water deficit from the Kindle production process. The actual operation of an e-reader represents a small percentage of its total environmental impact, so if you run your device into the ground, you'll end up paying back that debt many times over. (Unless, of course, reading "Pride and Prejudice" over and over again is enough for you. Then, by all means, buy it in print and enjoy.)

Let's talk numbers. According to the environmental consulting firm Cleantech, which aggregated a series of studies, a single book generates about 7.5 kilograms (almost 17 pounds) of carbon dioxide equivalents. (That's the value of all its greenhouse gas emissions expressed in terms of the impact of carbon dioxide.) This figure includes production, transport and either recycling or disposal.

Apple's iPad generates 130 kilograms of carbon dioxide equivalents during its lifetime, according to company estimates. Amazon has not released numbers for the Kindle, but Cleantech and other analysts put it at 168 kilograms. Those analyses do not indicate how much additional carbon is generated per book read (as a result of the energy required to host the e-bookstore's servers and power the screen while you read), but they do include the full cost of manufacture, which likely accounts for the lion's share of emissions. (The iPad uses just three watts of electricity while you're reading, far less than most light bulbs.) If we can trust those numbers, then, the iPad pays for its CO<sub>2</sub> emissions about one-third of the way through your 18th book. You'd need to get halfway into your 23rd book on Kindle to get out of the environmental red.

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<sup>1</sup> Green Lantern column, Slate, Washington Post, August 24, 2010.  
<http://www.washingtonpost.com/wp-dyn/content/article/2010/08/23/AR2010082303>

So far, electronic readers -- not the machines, in this case, but their owners -- seem to be in a hurry to get out of that red zone. Forrester Research estimates that the average user purchases three books per month. At that rate, you could earn back your iPad's carbon dioxide in just six months.

Water is also a major consideration. The U.S. newspaper and book publishing industries together consume 153 billion gallons of water annually, according to figures by the nonprofit group Green Press Initiative included in the Cleantech analysis. It takes about seven gallons to produce the average printed book, while e-publishing companies can create a digital book with less than two cups of water. (Like any other company, e-book publishers consume water through the paper they use and other office activities.) Researchers estimate that 79 gallons of water are needed to make an e-reader. So you come out on top, water-wise, after reading about a dozen books.

E-readers also have books beat on toxic chemicals. The production of ink for printing releases a number of volatile organic compounds into the atmosphere, including hexane, toluene and xylene, which contribute to smog and asthma. Some of them may also cause cancer or birth defects. Computer production is not free of hard-to-pronounce chemicals, to be sure, but both the iPad and the Kindle comply with Europe's RoHS standards, which ban some of the scarier chemicals that have been involved in electronics production. E-readers do, however, require the mining of nonrenewable minerals, such as columbite-tantalite, which sometimes come from politically unstable regions. And experts can't seem to agree on whether we're at risk of exhausting the world's supply of lithium, the lifeblood of the e-reader's battery.

If you're not ready to plunk down \$139 for a Kindle or \$499 for an iPad, or if you just love the feel of dead tree between your fingers, there's one thing you can do to significantly ease the environmental impact of your reading: Buy your books online. Brick-and-mortar bookstores are very inefficient because they stock way more books than they can sell. Between a quarter and a third of a bookstore's volumes will ultimately be shipped back to the publisher and on to recycling centers or landfills. An even better option is to walk to your local library, which can spread the environmental impact of a single book over an entire community. Unfortunately, libraries are underutilized. Studies suggest that fewer than a third of Americans visit their local library at least once a month, and fewer than half went in the last year. Libraries report that the average community member checks out 7.4 books per year -- far less than the three per month consumed on e-readers -- and more than a third of those items were children's books.

Of course, you could also stop reading altogether. But then how would you know how much carbon you saved?