

Chapter 1

What Is Green Computing?

In This Chapter

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Contrary to what Kermit the Frog says, today it's pretty easy to be green. Take a look at any media channel — TV, Web, or print — and you're sure to see an ad about the latest must-have green product for your home, car, kitchen, or office. Organic is *in* and consumers are spending more and more on items that manufacturers promise are earth friendly.

Computer manufacturers are right there in the mix. Dell is offering a laptop made of 95 percent recycled materials; Apple is touting its greenest MacBook yet; and most hardware vendors are busy producing four-color glossy marketing materials that tell you how environmentally conscious they are and how good you can feel when you write that check or sign the credit card slip.

This chapter gives you a quick look at what green home computing is — and isn't. (Hint: It doesn't mean going out and buying all new green-colored computer equipment.) Here, we also help you start thinking about simple ideas that you can put into action right away to begin making your computing — and your life — a little greener.

Knowing What Green Computing Means

You've probably noticed that people and corporations — *big* corporations — are suddenly all over the green. Perhaps that's happening because environmentalists' ideas about conserving energy and reducing waste are catching on and people want to begin making changes. Of course, it's also possible that businesses have discovered that green sells. And many people are discovering that real green technology is more efficient and can save them some real cash.

The result is that more and more people are becoming aware that they need to make good choices about the way they use the earth's resources — water, energy, land, and air. That's where green computing fits in.

The overall goal of green home computing is to use our systems efficiently and effectively, being smart about the energy we're consuming and responsible about the way we dispose of the components we no longer need.

Green home computing asks you to interrupt your day-to-day habits and consider these five simple ways you can reduce your consumption, make the most of what you have, and be more conscious of your earth-impacting computing choices:

1. Reuse what you can.
2. Rebuild or restore systems and peripheral devices.
3. Share resources.
4. Replace energy hogs with energy-efficient equipment.
5. Recycle safely.

Setting a green standard

A number of standards-setting organizations have been focused on greening technology for a while, and in this book, you find out how the resources each provides can guide you toward greener home computing.

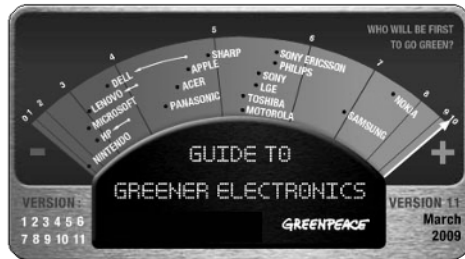
✓ **Energy Star:** One organization you may already be familiar with is Energy Star. Created in 1992 by the U.S. Environmental Protection Agency (EPA), Energy Star offers consumers a way to know whether the manufactured item that they're purchasing meets energy-efficient standards. You see the Energy Star logo on any electrical appliance or computer that meets the EPA's standards. Other countries have adopted similar standards to encourage conscientious use of energy.



To find out more about the Energy Star rating, go to www.energystar.gov.

- ✓ **EPEAT:** EPEAT is a program sponsored by the Green Electronics Council, which focuses on issues of electronics and sustainability. EPEAT is a green electronics “certification” program that helps consumers learn more about the energy use of laptops, monitors, and desktop computers they are considering purchasing.
- ✓ **Greenpeace Guide to Green Electronics:** In the summer of 2006, the international environmental group Greenpeace began rating technology companies to gauge their progress in promises to reduce emissions, increase energy efficiency, and discontinue using toxic chemicals in their product manufacturing processes. In Figure 1-1, the Guide to Green Electronics chart from Version 11 shows the results of the March 2009 rating. As you can see, by this rating, Nokia and Samsung lead the earth-friendly tech companies, and Nintendo and HP pull the rear.

Figure 1-1: Greenpeace connects the dots in the November 2008 Guide to Greener Electronics.



To see more of Greenpeace’s Guide to Greener Electronics, go to

www.greenpeace.org/international/campaigns/toxics/electronics/how-the-companies-line-up

Finding good green info

Searching online is always a good place to start when you want to find out more about any aspect of anything. But *green* is a popular topic, and it’s growing by leaps and bounds. In fact, if you just enter the word *green* in a search engine and press Enter, you’ll get more than one billion (yes, with a “b”) results! How can you narrow your search and find good information on the topics you want to research? Here are a few ideas to get you started:

- ✔ **Keep an eye out for greenwashing.** *Greenwashing* is the phrase used to describe companies that are using earth-friendly language to describe products that really aren't. In other words, their environmental consciousness is more marketing ploy than green effort. Throughout this book, you'll learn ways you can determine that a company is truly offering a green product or service, but in short, green companies who deliver on their promises care about energy efficiency, use materials and manufacturing processes that minimize the use of resources and the production of waste, and make it easy for consumers to dispose of equipment or devices they no longer use.
- ✔ **Stick with objective sources.** Computer manufacturers and vendors may give you the straight scoop on the green capabilities of the items they're selling, but when you're doing your homework to see how systems compare and what really matters in terms of energy efficiency, look for media sources (like www.treehugger.com/buygreen), university sites, or third-party research organizations that can supply data based on research.
- ✔ **Use wikis wisely.** Wikiagreen, at <http://green.wikia.com>, has a great green wiki that brings together all kinds of resources in one handy-dandy reference. As always, remember that open posting and editing of wiki entries means that not everything there is vetted; look for other sources to back up the information you find before you write a big check or otherwise wager something important.
- ✔ **Whenever possible, go straight to the source.** When you hear about a new study on global warming (released, for instance, by the Intergovernmental Panel on Climate Change), go directly to that organization's official site and see what they have to say. No need to search through blogs or articles when you can get the original document and see the charts and data yourself.
- ✔ **Know the names in the business.** If you're interested in one area more than another — say computer recycling is a big hot button for you — know who the experts are in that area and subscribe to their blogs, read their books, and follow the publications that their comments appear in.

As you dig deeper into green computing topics later in this book, you find help for researching specific topics and products, too.

Getting Started with Green Computing

Throughout this book, you build on the simple ideas of green computing in a variety of ways. Here you find an overview of how home computing can be greener and also how technology can improve efficiency and help you consume fewer resources.

What we cover in this section is just the tip of the rapidly melting iceberg. For details about how to get started with any of these topics, flip to the chapter we cross reference.

Assessing your impact

So now that you know a bit more about what's behind the need to green, you're probably wondering what you can do about it. Awareness is a good place to start. Take a moment and look around. Wherever you're reading — in the living room or your home office — notice the energy that's being used around you. What kind of lights are shining, and how many are there? Is the room (if you're in one) hot or cool? What's fueling that? Notice devices, computers, fans, and MP3 players. Anything that gleams, notice it. As I write this, I can see eight different devices that are drawing electric current (plus the furnace, which I can hear and feel but not see).

In Chapter 2, you can explore in detail the impact you make on your environment every day. You find steps for using a carbon footprint calculator to find out where you can conserve energy and see how your habits and practices contribute to increased carbon in the atmosphere.



In Chapter 4, you find tips and steps for assessing your home and home computing setup, including all the points where you're consuming power. Make tuning in to the power use in your surroundings part of your normal coming-and-going routine. Noticing your surroundings when you first enter a room, and again as you're ready to leave, will help you stay awake to the energy you can conserve. For example, when you leave an average 150-watt computer running for a year, it uses an amount of energy equal to half a ton of coal (that's 1,000 pounds) or more than 100 gallons of oil.



According to the Consumer Electronics Association's April 2008 *Market Research Report: Trends in CE Use, Recycle and Removal*, the average U.S. household includes approximately 24 electronic products.

If you're in your own home, of course, you can control the lights, the systems drawing power, the temperature, and the number of peripherals you leave on all day.

Exercising your purchasing power

People are voting green with their dollars more than ever before. The public reaction to earth-friendly products may be occurring, in part, because *An Inconvenient Truth*, the popular movie about the problem of global warming,

struck a chord. Perhaps the public is tired and suspicious of potentially hazardous chemicals, or craves a simpler, more pure life. Whatever the reasons, green marketing is at an all-time high, and you can be sure that green initiatives are growing.

When you purchase a new computer or mobile device, do the legwork to find out the science behind the manufacturer's promises. Find information from objective sources to help you evaluate the best and most environmentally responsible choice for your home and family. Read user ratings and reviews; talk to other users if possible; and put time into weighing out the right choice. Your new computer or device will be part of your life for a while — maybe several years — using energy you'll be paying for. Some manufacturers offer trade-in programs when you purchase new computers; they'll dispose of your old computer safely for you.

In Chapter 6, you find tips for cutting through the greenwashing and finding a truly green new computer. In Chapter 10, you can check out a few green gadgets to go with your new computer and other devices.

Thinking efficiency

We don't think people set out to be deliberately wasteful. But in the world in which we live, efficiency takes a little work, at least up front. It doesn't help that technology changes so rapidly that keeping up can be a part-time job. That's why we show you ways technology can help you achieve efficiency and then forget about it, or least achieve efficiency with as little maintenance as possible.

Chapter 4 helps you take stock and begin thinking about the systems in your house, whether it's your computer system or your method for recharging devices or plugging in all your electronics. You find out how to

- ✓ Become aware of your own energy use.
- ✓ Take steps to increase energy efficiency at home.
- ✓ Begin to look for alternatives to energy use or spending.
- ✓ Discover how much power your computer needs.

You can also improve efficiency by doing the following:

- ✓ Rebuild, purchase, or streamline systems and peripherals to green them up. (See Chapters 5 and 6.)

- ✔ Share resources to coordinate systems and peripheral use. (See Chapter 7.)
- ✔ Improve your system and manage its power. (Check out Chapter 9, which helps you set the power management features that come with your operating system.)

Being efficient with your computer use means powering up when you need it, consolidating tasks, and powering down when you're through. It means using only what you need and coordinating your peripheral use. With a little reorganizing and changing the way you work with your computer, you can get a little greener.

Reducing consumption

Consumers come in all stripes. Chances are, if you're looking for ways to be more efficient in the way you use your computer and other technologies, you can also trim back the way you consume collateral products and resources. For example:

- ✔ **Paper recycling and conservation** can make a huge difference not only in the volume of paper you go through in your office, but also in the way you feel about your green efforts and your overall impact on important, big-picture issues like reforestation and sustainable resources. You can reduce your paper consumption by as much as 50 percent when you adopt a simple plan to use only recycled paper for in-office documents; print on both sides of the page; and use electronic documents whenever possible. And that's not small potatoes, in terms of good care of the earth. In Chapter 11, we discuss greener printing in more depth.
- ✔ **Virtualization and telecommuting** can make the most of your time and resources. Working in a virtual environment and telecommuting enables you to complete your work without traveling to the office, which saves gas, travel time, and CO₂ emissions. You learn all about telecommuting — including making the case to your boss — in Part IV.

Reducing waste (and watching where you throw it)

Waste of all kinds is a huge problem. Landfills are brimming; communities are sprawling; wildlife has less room to roam and do what wildlife does. The problem of computer dumping has become a mountain of an issue for

developing countries. Because most computers — even those sold today — are manufactured with a number of toxic chemicals, they're a hazard when they're dumped without thought about proper disposal. Although it's illegal to do so, much of the toxic e-waste that we generate when we mindlessly toss out our computers, cellphones, televisions, and other devices is packaged and shipped to China and Africa, where families burn the materials to retrieve the precious metals and earn a small wage. The result is that children are growing up in villages where the streets are mounded with huge hills of discarded tech equipment, and the air has a sickening smog of burning chemicals.



For a disturbing look at the illegal practice of computer dumping, see this video report from *60 Minutes* at www.engadget.com/2008/11/10/video-chinas-toxic-wastelands-of-consumer-electronics-revealed.

To avoid these problems, you can make sure you get the most out of the computing equipment you have (see Chapter 5) and recycle your computers and devices safely. A number of computer manufacturers and vendors offer reuse and recycling programs that enable you to donate or recycle your electronics. Getting rid of your equipment safely is such a big issue that we devote all of Chapter 8 to this topic.

Speaking Green Jargon

Even though the word *green* can mean you're anything from financially flush to jealous to inexperienced to seasick, when you're talking about earth-friendly phrases, there's a whole new language developing. Here are a few green (as in, environment-friendly) words and phrases you can throw around at your next dinner party:

- ✓ **Biofuel** is energy created from renewable, biological sources, like plants, and used for heat, electricity, or fuel.
- ✓ **Biomimicry** uses designs based on patterns and processes in nature to solve human problems (for example, studying a leaf to design solar cells).
- ✓ **Brown power/energy** is the type of energy that results from the combustion of nonrenewable fuels (oil, gas, coal) and contributes to greenhouse gases.
- ✓ **Carbon footprint** refers to the human contribution to the emission of greenhouse gases in the atmosphere.
- ✓ **Closed-loop recycling** uses a recycled product to manufacture a new product.

- ✓ **Closed-loop supply chain** is a supply process in which all wastes created during the production of a product are reused, recycled, or composted.
- ✓ **Ecological footprint** is the overall human use of natural resources compared to the capability of the earth to replenish or renew them.
- ✓ **Fair trade** is an international trading partnership that focuses on equitable trade, especially among producers who have often been exploited in the traditional market system.
- ✓ **Geothermal energy** is a natural form of heat energy from steam and hot water sources below the earth's surface.
- ✓ **Global warming** is the increasing temperature of the earth's surface and atmosphere as a result of greenhouse gases.
- ✓ **Green design** is used to create products, buildings, services, and processes that are in tune with environmental needs, create greater efficiency, and reduce consumption.
- ✓ **Greenhouse effect** is the trapping of heat within the earth's atmosphere; this effect is caused by greenhouse gases such as carbon dioxide.
- ✓ **Renewable energy** is energy that comes from non-fossil fuel sources, and it renews naturally. It can include wind, hydro, geothermal, or solar energy.
- ✓ **Sustainability** refers to the ability to meet environmental, social, and economic needs effectively over time.
- ✓ **Zero waste** is a system of production that seeks to eliminate waste and toxic materials through conservation and recovery of resources.

