

# Green Technology Terms: Glossary

<https://www.techtarget.com/whatis/reference/Green-Technology-Terms-Glossary>

Learn about the many different terms, concepts and technologies used in the green computing movement.

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## **biodiesel**

Biodiesel is non-petroleum-based diesel fuel derived from vegetable or animal fats. Ethanol is the most common form of biodiesel, based on corn in the US or sugar cane in Brazil, though other forms that utilize pig waste, algae or switchgrass are being developed. ([Wikipedia](#))

## **blacksurfing**

Blacksurfing is surfing search engine results using an inverted palette, with white text on a black body. Shifting a high traffic website, like Google, from a white background to a black background can save substantial energy. An all-white web page uses about 74 watts to display on a CRT monitor as compared to an all-black page that uses only 59 watts. See [Blackle](#), an energy-saving search engine that uses Google's custom search. The efficacy of this practice is hotly debated, so be sure to consult Mark Ontkush's [post](#) on the topic before you suggest using it. ([ecolron](#))

## **cap-and-trade system**

A cap-and-trade system is a market-based approach to controlling pollution that allows corporations or national governments to trade emissions allowances under an overall cap, or limit, on those emissions. ([EPA](#)) ([Brookings Institute](#)) (Server Specs)

### **carbon footprint**

A carbon footprint is the measure of the environmental impact of a particular individual or organization's lifestyle or operation, measured in units of carbon dioxide. (WhatIs blog) ([New Yorker](#)) ([CarbonFootprint.com](#))

### **carbon neutral**

To be carbon neutral is to balance the amount of carbon dioxide released into the atmosphere by a particular activity, like flying, driving or operating a data center, with an equal amount of carbon sequestration or carbon offsets from a third party. To be considered carbon neutral, an individual or organization must reduce its carbon footprint to zero. ([CarbonNeutral.com](#))

### **carbon offset**

A carbon offset is a credit that an individual or organization can purchase to negate a carbon footprint, thereby achieving carbon neutrality. Revenue generated from the purchase of offsets is typically invested in environmentally friendly projects. The purchase of carbon offsets is a fast-growing industry in the wake of compliance legislation and the development of cap and trade systems. ([WikiHow.com](#))

### **CGO**

A CGO is a Chief Green Officer. A CGO is tasked with all aspects of making an organization greener, including energy-efficient construction, e-cycling and e-waste mitigation, recycling, LEED compliance, OSHA standards and clean production, if applicable. ([GreenerComputing.com](#))

### **clean computing**

Clean computing is when an organization's manufacture, use and disposal of IT equipment does not produce any harmful waste at any stage. Non-hazardous materials are used in chip construction and packaging. ([VIA](#))

### **compact fluorescent light bulb (CFL)**

A CFL is a fluorescent light bulb that has been compressed into the size of a standard-issue incandescent light bulb. Modern CFLs typically last at least six times as long and use at most a quarter of the power of an equivalent incandescent bulb. According to Arthur Rosenfeld, a physicist and member of the California Energy Commission, "If every home in the United States replaced just one incandescent light bulb with a compact fluorescent light bulb (CFL), the energy saved would prevent greenhouse-gas emissions equivalent to taking more than 1 million cars off the road." ([Boston Globe](#))

### **Data center infrastructure efficiency (DCIE)**

DCIE is a metric used to determine the energy efficiency of a data center. Like power usage effectiveness (PUE), the reciprocal of DCIE, the metric is calculated by dividing the amount of power entering a facility to the amount of power used by the equipment within it. Unlike PUE, DCIE is expressed as a percentage. A data center's DCIE therefore improves as it approaches 100%. The metric was created by members of The Green Grid. ([TheGreenGrid.org](#))

### **dot green**

Dot green is a shorthand way of describing the online green computing movement, including both hype and real innovation. The dot-green movement is considered to follow the dot-com boom model, with the same bubble of speculators profiting from the buzz. ([Bruce Sterling](#))

### **e-cycling**

E-cycling is the practice of reusing, or distributing for reuse, electronic equipment and components rather than discarding them at the end of their life cycle. Often, even non-functioning devices can be [refurbished](#) and resold or donated. Organizations such as Students Recycling Used Technology ([StRUT](#)), the National Cristina Foundation, and the Resource Area for Teachers ([RAFT](#)) collect and refurbish donated computer equipment for redistribution to schools and charities around the world.

## **e-waste**

E-waste is any refuse created by discarded electronic devices and components as well as substances involved in their manufacture or use. The disposal of electronics is a growing problem because electronic equipment frequently contains hazardous substances. According to the Environmental Protection Agency (EPA), more than four million tons of e-waste go to U.S. landfills each year. See WEEE ([EPA.gov](http://EPA.gov))

## **economizer**

An economizer is a mechanical device used to reduce energy consumption. Economizers are commonly used in data centers to complement or replace cooling devices like computer room air conditioners (CRACs) or chillers. Economizers can save money data center operators money by taking advantage of cooler outside temperatures to cool IT equipment inside a facility. According to GreenerComputing.org, economization has the potential to reduce annual cooling energy consumption costs by more than 60 percent. Unfortunately, economizers are only useful for data centers located in cooler climates. (Searchdatacenter.com)

## **Emergy-C**

Emergy-C is a low-wattage palette used by Mark Ontkush, a Boston-area blogger who frequently posts about green computing and sustainable IT. ([ecolron](http://ecolron)).

## **Energy Star**

Energy Star is a government-backed labeling program that helps people and organizations save money and reduce greenhouse gas emissions by identifying factories, office equipment, home appliances and electronics that have superior energy efficiency. The EPA estimates that if every U.S. household and business replaced old computers with new Energy Star-qualified models, more than \$1.8 billion in energy costs would be saved over

the next five years, avoiding greenhouse gas emissions equivalent to more than those produced by 2.7 million cars.

### **EPEAT (Electronic Product Environmental Assessment Tool)**

EPEAT is a ranking system that helps purchasers in the public and private sectors evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes. ([EPEAT.net](http://EPEAT.net) (EPEAT, green laptops and tablets))

### **geoengineering**

Geoengineering is the deliberate modification of a planet's environment by the addition or subtraction of a resource or energy input on a massive scale. Proposed geoengineering projects, often introduced as a means of combating climate change, have included space mirrors, sulfur-spraying in the stratosphere, cloud seeding and oceanic carbon sequestration.

### **green collar**

Green collar is any kind of employment that involves products or services that are environmentally friendly. Presidential candidates in the 2008 election cycle have endorsed the creation of green collar jobs to boost the economy, like "solar panel installation, weatherizing homes, brewing biofuels, building hybrid cars and erecting giant wind turbines." ([Green collar jobs at NYTimes.com](http://Green-collar-jobs-at-NYTimes.com))

### **green computing**

Green computing is the environmentally responsible use of computers and related resources. Such practices include the implementation of energy-efficient central processing units ([CPUs](#)), [servers](#) and peripherals as well as reduced resource consumption and proper disposal of electronic waste ([e-waste](#)).

### **green data center**

A green data center is a repository for the storage, management, and

dissemination of data in which the mechanical, lighting, electrical and computer systems are designed for maximum energy efficiency and minimum environmental impact. The construction and operation of a green data center includes advanced technologies and strategies. Building and certifying a green data center or other facility can be expensive up front, but long-term cost savings can be realized on operations and maintenance. (E-book on green computing and data center energy efficiency)

### **green networking**

Green networking is the practice of consolidating devices, relying more on telecommuting and videoconferencing, and using virtualization to reduce power consumption across the network. ([Special Report on Green Networking](#))

### **The Green Grid**

The Green Grid is a global industry consortium dedicated to advancing energy efficiency in data centers and business computing ecosystems. ([TheGreenGrid.org](#))

### **greenwashing**

Greenwashing is the practice of making an unsubstantiated or misleading claim about the environmental benefits of a product, service, technology or company practice.

### **hypermiling**

Hypermiling is the practice of mileage maximization in driving. Real-time fuel efficiency readouts in hybrid dashboards spawned a widely-dispersed network of fuel efficiency-obsessed drivers. Ownership of a hybrid is not required, though close monitoring of fuel efficiency is difficult without the integrated displays. ([hypermiling.com](#))

## **LEED (Leadership in Energy and Environmental Design)**

LEED is an ecology-oriented building certification program run under the auspices of the U.S. Green Building Council (USGBC). LEED concentrates its efforts on improving performance across five key areas of environmental and human health: energy efficiency, indoor environmental quality, materials selection, sustainable site development, and water savings.

(SearchDataCenter.com)

## **low wattage palette**

A low wattage palette is a color scheme for a Web page composed of the six lowest wattage colors, as determined by Energy Star's [wattage ratings for different colors](#). According to Jon Doucette, credited with its invention, the six colors that will draw the lowest wattage on displays are #822007 (rusty red), #000000 (black), #b2bbc0 (blue grey), #19472a (forest green), #3d414c (cobalt) and #ffffff (white). ([ecolron](#), a green computing blog that uses this palette in its theme)

## **MAID (massive array of inactive disks)**

A MAID is an array of hard disks, similar to [RAID](#), where data that does not experience high activity can reside on lower performance and more power-efficient storage. Also known as "lazy disks." MAID technology turns disks off that are not in use, only powering them on when an application requires access to data. MAIDs provide enterprises with an energy-efficient data storage tier for migrating data. ([ecolron](#))

## **paper battery**

A paper battery is a flexible, ultra-thin energy storage and production device formed by combining carbon [nanotubes](#) with a conventional sheet of cellulose-based paper. Non-toxic, flexible paper batteries have the potential to power the next generation of electronics, medical devices and hybrid vehicles, allowing for radical new designs and medical technologies. Paper batteries are also biodegradable, a need only partially addressed by current [e-cycling](#) and other electronics disposal methods increasingly advocated for by the [green computing](#) movement.

## **power management**

Power management is a feature included in many electrical appliances, like copiers, computers, monitors and printers, that turns off the power or switches the system to a standby mode when inactive. Power management features can save individuals and organizations substantial energy costs over time. Modern laptops and PCs have integrated power management control panels that allow a user to fine tune how quickly a screen turns off.

## **Power Usage Effectiveness (PUE)**

PUE is a metric used to determine the energy efficiency of a data center. PUE is determined by dividing the amount of power entering a data center by the power used to run the computer infrastructure within it. PUE is therefore expressed as a ratio, with overall efficiency improving as the quotient decreases toward 1. DCIE is the reciprocal of PUE and is expressed as a percentage that improves as it approaches 100%. PUE was created by members of the Green Grid. ([TheGreenGrid.org](http://TheGreenGrid.org))

## **renewable energy**

Renewable energy is any energy source that is naturally replenished, like that derived from solar, wind, geothermal or hydroelectric action. Energy produced from the refining of biomass is also often classified as renewable. Coal, oil or natural gas, on the other hand, are finite sources.

## **Restriction of Hazardous Substances (RoHS) Directive**

The RoHS is a set of criteria formulated by the European Union (EU) to regulate the use of toxic materials in electrical and electronic devices, systems, and toys. RoHS is often referred to as the "lead-free directive," although mercury, cadmium, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) are all restricted as well.

## **silent vampire**

A silent vampire is any electronic or computing device that still draws power from an outlet through a charger, even if the device is turned off or disconnected. Adapters for iPods, cellphones, electric drills and other devices draw electricity even when not connected to the device. Use power strips for chargers so that you can make sure that they are all off. See [standby power](#)



## **slush pile**

A slush pile is a mound of mixed snow, ice and ice water -- aka "slush" -- placed outside of a data center. Chilled melt water is pulled through a filter and used to cool IT equipment, saving cooling costs.

(SearchDataCenter.com)

## **standby power**

Standby power is electrical [power](#) that a device consumes when not in present use, but plugged in to a source of power and ready to be used. Standby power consumption is the amount of such power that is used even though the power drainage is not apparent. The terms apply to appliances such as television sets, computers, computer peripherals, and various other devices, including those that use battery chargers.

## **telecommuting**

Telecommuting is the use of telecommunication to work outside the traditional office or workplace, usually at home ([SOHO](#)) or in a mobile situation. Telecommuting can reduce greenhouse gases, save gasoline usage and associated purchase costs and reduce urban traffic congestion. (Undress4Success.com)

## **thin client**

A thin client is a low-cost, centrally-managed computer devoid of CD drives and expansion slots. As software as a service (SaaS) gains popularity, it is expected that thin clients and [blade PCs](#) will replace desktop PCs in many work and educational environments. In general, they are not as vulnerable to malware attacks, have a longer life cycle, use less power and are less expensive to purchase.

Replacement of desktops and even laptops with thin client terminals can help reduce energy consumption substantially. Enterprise Rent-A-Car recently cut carbon dioxide emissions by 6.5 million pounds each year by doing precisely that. According to GreenerComputing.com, a PC consumes 77.1 watt-hours while in an active state, compared to the 13.6 watt-hours consumed by thin clients. ([GreenerComputing.com](#))

## **virtualization**

Virtualization is the creation of a [virtual](#) (rather than actual) version of something, such as an [operating system](#), a [server](#), a storage device or network resources. Implementing [server virtualization](#), for instance, using [VMware](#) or open source competitor [Xen](#), drastically reduces the number of servers required in an

enterprise. That translates directly into reduced energy consumption, less maintenance and a smaller data center footprint.

### **volatile organic compound (VOC)**

A VOC is a toxic chemical, like formaldehyde, found in carpeting, plywood, subflooring, paint, and furnishings. Strong fumes are a frequent indicator of harmful gases. If you're remodeling or choosing a facility, choose lower-VOC options. Many products, including interior paint and some building materials, indicate whether they are "low-VOC" on the packaging.

### **[Waste Electrical and Electronic Equipment \(WEEE\) Directive](#)**

WEEE is a European Union law enacted in 2003 that, in concert with the RoHS Directive, defines collection, recycling and recovery targets for all types of electrical goods. WEEE places responsibility for the disposal of waste electrical and electronic equipment (WEEE), aka "e-waste," on the manufacturers of such equipment. ([GreenerComputing.com](#)) ([EU WEEE website](#))

### **[water cooling](#)**

Water cooling is an eco-friendly method used to lower the temperatures of computer processors, and sometimes other components such as graphics cards, using water rather than air as the cooling medium. Also known as "liquid cooling."

### **Web compression**

Web compression is a method of compressing textual content transferred from Web servers to Web browsers. Also known as "HTTP compression." According to [Serverwatch](#), website operators can save up to 50% on every bandwidth bill. The method uses standards-based gzip and deflate compression algorithms to compress XHTML, CSS, and JavaScript to speed up downloads and save bandwidth. ([WebSiteOptimization.com](#)) ([ecolron](#))



Is there a green technology term that you didn't see in our glossary? [Let us know](#) and we'll add it!

Do you think your "green IT IQ" is off the charts? Try our quiz, "Greening the Cube Farm," and find out! Aced it? Try the E-Cycling quiz.