



TCO Certified – White Paper

Green IT – towards sustainability and a reduced carbon footprint

Contents:

- Introduction and Background**
- TCO Certified and Labelling of Green IT products**
- What does Green IT really mean?**
- Green IT – Definition**
- Green IT and Usability**
- The Future of Green IT**

Introduction and background

The term “Green IT” has become more common in the last two or three years, and it has rapidly become a widely accepted term for designating electronic products and services that are designed with an environmental profile. Many use the term when referring to energy consumption and to reduced carbon footprint. “Green IT” is also commonly used to promote software and services that replace a product or eliminate the need to travel (i.e. dematerialization and digital meetings). Sometimes even existing products and services are promoted as “Green IT” even though there has been no change made to increase the energy efficiency or reduce the environmental impact of that product. This misinformation is sometimes referred to as “greenwash”.

In one year (Feb 2008-Feb 2009) Green IT hits on Google went from 1 million to 7 million.

Considering this backdrop of rapid “greening” of markets and product claims, there is a need for an objective and verifiable definition of what Green IT really is. With our long history of certification programs for Green IT products, TCO Development is uniquely positioned to provide such a definition and guidance towards how Green IT can become part of a more sustainable, climate-friendly IT infrastructure. The purpose of this paper is to provide a definition of Green IT and how it can play a useful role in product comparisons and verification as well as act as a catalyst to the greening of IT production and usage in our world.



TCO-certified and labelling of Green IT products

The TCO-label is one of the leading eco- and usability labels for ICT-equipment in the world. By setting high standards based on environmental and human factor needs, the TCO-label has been a successful demand shaper and is today regarded as one of the most important factors driving environmental issues in the ICT-industry. This according to Display Search in the report “Green Technology in Flat Panel Displays: Market Technology and Trends”

http://www.displaysearch.com/cps/rde/xchg/displaysearch/hs.xsl/green_is_next_wave_in_flat_panel_displays011909.asp

TCO Development has worked with Green IT and usability criteria since the first TCO label – TCO’92- was launched in 1992 when requirements on low energy consumption and limits on electromagnetic emissions were among the key certification criteria. From TCO’95 criteria for visual ergonomics and environment were added and the existing requirements were tightened. See more at www.tcodevelopment.com

Subsequent labels, including TCO’99 and TCO’03 for displays, along with labels for other ICT products included stricter and broader criteria, in line with technology development. The latest TCO label – TCO Certified – was launched in April 2009 and also includes criteria for Corporate Social Responsibility.

What does Green IT really mean?

For us at TCO Development Green IT is more complex than merely energy efficient products or services. All TCO labels regulate hazardous substances, environmental performance and many more attributes that are part of the product life cycle. “IT” may include stand alone products such as a desktop or notebook computers and also embedded software that leads to improved environmental performance of cars and houses for example.

As you see, the term “Green IT” needs to be discussed in order to reach a common understanding of what it really is – and isn’t- in an effort to prevent greenwash on the market.

So far a commonly accepted definition of Green IT is lacking on the market. As a result of our years of collaboration with industry, researchers and user communities, we are proposing a definition of Green IT and hope to act as a catalyst to the greening of the IT-industry and IT-usage in our world.

“Gartner predicted that Green IT would be the No 1 Strategic Technology for 2008, accelerating and expanding the focus that came to the forefront in 2007.”
 (“Gartner predicts 2008 and beyond ”
<http://www.gartner.com>)



Green IT – the definition

We have divided our definition of Green IT into three sections;

1. Environmental aspects - which environmental issues should be included?
2. IT products – how to define them and achieve comparability
3. Definition and verification – combination of product and its environmental features

The most important aspect of Green IT is verification, in that Green IT is often a moving target. Verification can facilitate an easier comparison between products and increase the credibility of green product claims. We also argue that to become a Green IT product or service, its environmental benefits must be defined and verified.

Green IT definition - TCO Development, 2009:

- One or several documented positive and distinct environmental benefits
- All other green aspects are at least average compared to other products on the market
- Benchmarked against existing products on the market
- Third party verification

1. Environmental aspects

Environmental aspects of Green IT can be divided into five areas:

1. Production
2. The product
3. Product Usage
4. Reuse/recycle/End of Life handling
5. Services

Areas 1-4 represent the life cycle of an IT-product and the fifth area, services, represents IT-services that can reduce environmental impact in other parts of society.

TCO considers these five environmental aspects of Green IT as equally important and they need to be addressed in parallel.



1. Production

The IT industry has complex production methods which include many types of materials and chemicals, which can lead to hazardous emissions and waste. The production process also involves large consumption of water and energy. This part of the lifecycle is mainly dealt with in an indirect way through environmental management systems for the production facility and also through various forms of national legislation.

2. The product

Several materials and substances included in the product have a significant impact on the environment. PVC, heavy metals, and flame retardants are well known environmental hazards often found in IT products. Products can also be designed for long life, using less material and allowing for easy recycling. Green purchasing guidelines and environmental labels support the restriction of hazardous substances in IT products and influence manufacturers to develop more environmentally-responsible solutions.

3. Usage

There are over one billion Internet users around the globe. This increasing usage of IT products brings with it massive energy consumption. Studies have shown that the climate effect of IT use is equal to that of the global aviation industry.

(<http://www.gartner.com/it/page.jsp?id=503867>) . The main topics that need to be addressed in the usage phase are energy saving and energy efficiency.

How we use and care for equipment, as well as select and upgrade IT products can prolong product lifetime, which in turn decreases the environmental impact. Another important step is to influence user habits. In this area there are very few NGOs or companies offering guidance. It is also an area where great achievements can be made with small means. TCO Development, through its engagement with user communities, has a role to play in this area.

4. Reuse/recycle /end of life handling

Every year enormous amounts of electronic waste are generated around the globe and every year hundreds of millions of new products enter our society. The two main environmental topics are too short life length of products and irresponsible waste management and waste trade. These areas are dealt with in many types of legislation, international organizations and environmental labels.

Approximately 20 percent of the global climate impact comes from transportation and buildings. This can be reduced with improved and more widely spread IT services.
(<http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-ts.pdf>)

5. Services

IT services have a great opportunity to decrease the environmental impact in other sectors of our society. A good example is when business travel can be replaced by digital meetings and flexible working arrangements from home or close to home locations. Dematerialization is another field where IT services can contribute to decrease the environmental impact. The switch from paper to electronic invoicing is an



example. Different kind of IT solutions to control and optimize energy and material flows in buildings can also have significant effects when it comes to energy saving.

Another area is compilation and communication of environmental data. Due to the fact that the environmental effects of modern life and businesses are abstract and often not possible to see or feel, there is a huge need to make it more understandable and possible to measure. Here IT can make an important difference.

2. IT products and services – scope and definition

IT or ICT covers a broad scope of products and services. TCO Development defines “IT” in Green IT as a product or a service that is sold on the market as IT/ICT equipment, software or service.

Examples:

Hardware: Office and home electronics and accessories.

Software:

- Benchmarking of software that for the same task uses less energy from the computer and/or server.
- Software that compiles and communicates environmental data and performance.
- Software that increases usability of services.

Services: Systems for digital meetings, dematerialization, flexible work solutions and optimization of energy usage and material flows in buildings and equipment.

3. Definition and Verification

For consumers, institutional purchasers and companies it is important that the “Green” elements of IT products and services are marketed and communicated in an accurate and verifiable way. For this to happen, some kind of independent and commonly accepted definition is needed.

Based on these assumptions, TCO Development offers the following definition of “Green IT”:

1. A Green IT product or service shall have at least one documented positive and significant effect when it comes to reducing the environmental impact in our society.
2. A Green IT product shall in all other green aspects at least be average when compared with other products on the market
3. Green IT related to hardware and software is always a moving target and shall be benchmarked against its product segment’s average environmental performance at the actual time of marketing the product as “Green”. This is the same as for a TCO Certified product and several environmental labels on the market.
4. For Green IT services there is a need for good quality and usability to optimize the usage of such services. Therefore the definition of Green IT Services shall include

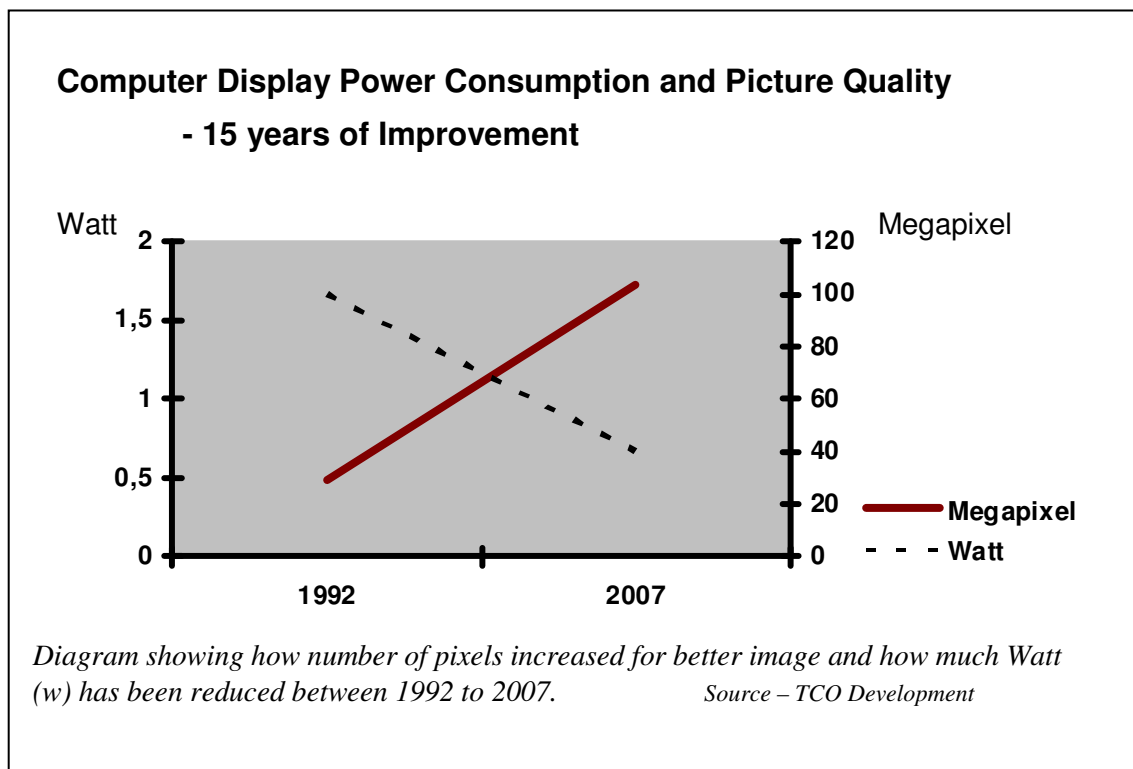
usability aspects. Hardware in Green IT services shall meet a standard set of environmental demands.

5. A credible Green IT claim shall be documented and third party verified.

Green IT and usability

Good usability can often boost the greening of IT products and services. Good usability can, for example, prolong the lifetime of a product and support more frequent use of digital meeting equipment. On the other hand poor usability can shorten the product lifetime and increase the amount of hazardous e-waste. Poor usability can also create resistance to adopting digital meeting habits.

Displays certified according to TCO-standards show a positive development for both performance and environmental factors since TCO started in 1992. In this way environmental- and high performance go hand in hand.





The future of Green IT

There are several parallel movements in the IT industry and in our society directed at influencing what we today recognize as being Green IT.

Cloud computing (e.g. “software as a service” provided on internet) is one development within the IT industry that will likely influence the way we use hardware and software. The development in society and business toward greater CSR, Corporate Social Responsibility, will also effect the way we recognize Green IT.

Most important for positive, sustainable development is to be open minded and bold when it comes to new thinking. The definition of Green IT shall always support and encourage new solutions.

This document is for informational purposes with the intention of clarifying TCO’s position on Green IT. As part of an overall strategy to make IT products more environmentally preferable, yet still an important part of our daily lives, we encourage consumers and institutional purchasers to choose TCO Certified equipment when making product choices. A complete listing of all TCO Certified products can be found at www.tcodevelopment.com

This document is developed by TCO Development. For more information please contact Helena Nordin, helena.nordin@tco.se or Anna Pramborg, anna.pramborg@tco.se, phone +46 8 782 9200.