

# VALUE OF GREEN COMPUTING IN THIS ERA

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## ABSTRACT

The evolutional change in IT field, advanced computers and other electronic items are the necessity of humans. Due to rapid technological advancements, excessive dependence and tremendous use of electronic items, carbon emission, global warming, climate change and saving our environment and ecology have become hot issues. Public as well as private sectors and societies have a new important agenda of tracking environment issues and adopting environment friendly practices in the sector of computing as well. To reduce computer's environmental problems and to create a sustainable environment, we need to move towards Green Computing. Green Computing benefits the environment by improving energy efficiency, lowering greenhouse gas emissions using less harmful materials and encouraging reuse and recycling of the various components of electronic waste. This paper highlights the impact of green computing on our environment.

**Keywords:-** Green computing ,E-waste, Energy saving ,Environment, Hazardous waste.

## Introduction:

Green Computing, Green ICT as per IFG International Federation of Green ICT and IFG standard ,Green IT , or ICT sustainability is the study and practice of environmentally sustainable computing or IT."Green" has become a popular term for describing things that are good for the environment, generally healthful and more recently, economically sensible. "Going Green "implies reducing one's energy use and pollution footprint. In 1992, The U.S Environmental Protection Agency launched Energy Star. The Swedish organization TCO Development launched the TCO Certification program to promote low magnetic and electrical emissions from Cathode Ray Tube based computer displays. Green computing also called green technology. Government regulatory also actively work to promote green computing concepts. By 2008, 26 Us states established state wide recycling programs for obsolete computers and consumer electronics equipment. There are several facts to achieve green computing such as designing, manufacturing, using and disposing computing components including hardware and software.

## The ideas or design of Green Computing has to go through the following steps:

1. Green use:- reducing the energy consumption of computers and other information systems as well as using them in an environmentally friendly manner.
2. Green disposal:- reusing old computers and properly recycling unwanted computers and other electronic equipment.
3. Green design:- designing energy efficient and environmentally sound components, computers, servers, cooling equipment and data centres.
4. Green manufacturing: - Manufacturing electronic components, computers and other associated subsystems with minimal impact on the environment.

## Programs running globally to promote 'Green Computing'

- US Environmental Protection Agency's project 'Energy Star's a program that is designed to promote and identify energy efficiency in climate control equipment, monitors and other

technologies. Energy star reduces the amount of energy consumed by a product by automatically switching it into sleep mode when not in use or reducing the amount of power used by a product when in standby mode.

- VIA Technologies a Taiwanese company that manufactures motherboard chipsets, CPUs, and other computer hardware, introducing its initiative for 'Green Computing' in 2001. VIA's developed fully solar powered devices that are non-polluting, silent and highly reliable.
- HP's Planet Partners recycling service or recycling facilities helps in recycling discarded computers. Thus reducing the amount of discarded computers in landfill, to reducing toxin metal and other harmful emissions
- The Climate Servers Computing Initiative (CSCI) has introduced a catalogue that helps people choose green products.
- Restriction of Hazardous Substances Directive (ROHS) adopted by European union in 2003 restricts the use of six hazardous materials in manufacture of various types of electronics and electrical equipment.
- Waste Electrical and Electronic Equipment Directive (WEEE), which sets collection recycling and recovery targets for electrical goods that aims to reduce the huge amounts of toxic e-waste.

### **Steps that can be taken to reduce carbon footprint and to utilize green computing techniques**

An increase in the concentration of the main greenhouse gases like carbon dioxide, methane, nitrous oxide and fluorocarbons are responsible for Earth's increasing temperature which could lead to severe floods and droughts, rising sea levels and other environmental effects, affecting both life and world's economy. After 1997 Kyoto Protocol for the United Nations Framework Convention on Climate Change, the world has finally taken the first step in reducing emissions.

1. Offsetting carbon dioxide can be achieved in different ways. One way is to plant trees that absorb carbon dioxide (CO<sub>2</sub>) as they grow.
2. Wetlands also provide a great service in sequestering some of the carbon dioxide emitted into the atmosphere. Wetlands are capable of absorbing 20 to 25 percent of the atmospheric carbon dioxide.
3. Solar computing is an effective technique to utilize green computing technique.
4. Reduce the paper consumption by recycling paper regularly.
5. Turn off the computer when the period of inactivity is more.
6. Light emitting diodes should be used instead of regular monitors.
7. Video game manufacturers can offer their games online for download, leading to reduction in e-waste.
8. Data Centers can potentially improve their energy and space efficiency through techniques such as storage consolidation and virtualization.
9. Speed Step technology can also be put to practice to automatically manage the power consumption of a computer.
10. Not used screen saver. Instead switched off the computer.

### **Companies using Green Computing Technology**

1. Dell is a good example of a company with a green image known for its free worldwide product recycling program.
2. VIA C7-M and VIA C7 processors that have a maximum power consumption of 20 W at 2.0GHZ and an average power consumption of 1W. These processors work on the concept of Quiet Computing.
3. Intel the world's largest semiconductor maker uses virtualization software that helps to reducing power consumption.

4. Self-styled ultra-efficient evaporative cooling technology Google Inc. has been able to reduce its energy consumption to 50% of that of the industry average.
5. Microsoft allows a computer's BIOS to control power management function in a computer.
6. A Blackle: Blackle is a search engine site powered by Google Search. So Blackle is a really good implementation of Green Computing. The principle behind Blackle is based on using different colors consumes different amounts of energy on computer monitors.

### Conclusion

Green Computing presents a responsible way to address the issue of global warming, carbon emission, climate change and protect our environment from the hazardous material. By adopting green computing practices, business leaders can contribute positively to environment while also reducing energy and paper costs.

### References

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