



INTERNATIONAL RESEARCH JOURNAL OF HUMANITIES AND INTERDISCIPLINARY STUDIES

(Peer-reviewed, Refereed, Indexed & Open Access Journal)

DOI : 03.2021-11278686

ISSN : 2582-8568

IMPACT FACTOR : 5.828 (SJIF 2022)

Green Computing: A Sustainable Use of Computing

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DOI No. **03.2021-11278686** DOI Link :: <https://doi-ds.org/doi/10.2022-44264229/IRJHISIC2203003>

Abstract:

Computers have become an important part of the modern generation. During COVID-19 millions of employees and students forced to stay home due to the work from home and online learning needs. As a result of this, sales of laptop and desktop computers exceeded 302 million, 13% increase during the pandemic. Though computers have served the purpose and proved to be integral part of individuals as well as organizations, they also have several negative impacts on the environment. People are generally concerned about the environmental issues like increasing water level, melting of glaciers, depleting of ozone layer and their devastating effects on climate and environment. For this contribution of human activities like exhausting natural resources, emitting greenhouse gases, cutting down forests, polluting land, water, and air is very significant. The usage of computers is also harmful to the environment from their manufacturing to usage and disposal. They consume lots of energy and emit carbon dioxide. Similarly improper disposal and recycling of computers can cause pollution. This is where Green computing becomes very essential. Green computing is an environment-friendly technique for computing. It involves using computers, computing devices, and IT resources with minimal power and appropriate disposal to protect our environment. It is an effort to reduce or limit the harmful impacts and implement eco-friendly usage of computers.

Keywords: Computers, resources, technique, pollution

Introduction to Green Computing:

Due to high energy consumption, computers and other electronic devices harm our environment and consequently cause climate change, air toxicity, acid rain, etc. Computers, their peripherals and networking devices produce carbon dioxide in large quantity. Similarly some parts of a computer are non-biodegradable and non-recyclable. Improper disposal of these devices can be very harmful to the environment as they have certain hazardous chemicals and materials like lead, cadmium, mercury, etc., in them.

The 2015 Paris Agreement aims to keep global warming by 2100 to below 2 °C, with 1.5°C as a target.

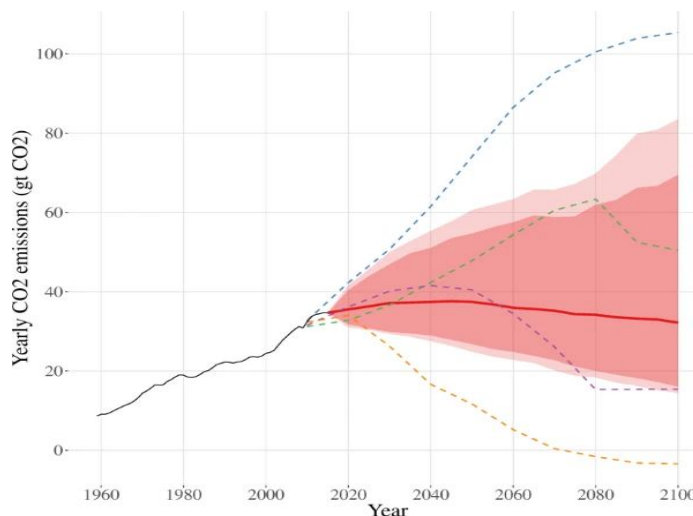


Fig. 1: Updated probabilistic forecast of CO₂ Emissions

But figure 1 which shows the forecast of increase in global mean temperature from 2015 to 2100 is indicating 34Giga tons global emission of CO₂ in 2100. Based on these current trends, the probability of keeping below 2°C of warming is only 5%. As Information Technology contributes 2% of global CO₂ emission, green computing is a best way to reduce these harmful impacts and encourage environment friendly computing practices.

Green computing is an approach towards eco-friendly and sustainable use of computers. It includes manufacturing, designing, disposing and using computers and other related resources effectively and efficiently with minimal impact on the environment. This sustainable approach not only helps in saving electricity but ensures computers generate less heat also. It helps to protect the environment from hazardous materials and their negative impacts on environment. It is an effective strategy to reduce the carbon footprints that information technology leaves. As green computing ensures lower energy consumption and lower heat generation, it reduces utilization of fossil fuel and emission of greenhouse gas as well. It also promotes the effective usage of natural resources and their preservation. Green computing encourages recycling and reusability of materials to minimize electronic waste and pollution. Furthermore, green computing has become very essential for everybody, from large data centers to handheld computers. It helps in developing a sustainable business process, spreading awareness and taking environmental initiatives to build a sustainable future.

Green Computing Practices:

The use of green computing is expected to get increased in both the IT and telecom industry as the IT based start-ups and organizations are growing rapidly. Green IT services come into the role

by using IT in an environmental friendly manner. Green computing is an initiative that everyone should practice immaterial of working in a company, owning a company or working solo.

Here are some of the tips to implement and promote green computing:

- Use products showing the Energy Star rating as they consume less power and are manufactured with green computing concepts.
- Turn off computers when not in use to save power.
- Use energy-efficient displays like OLEDs that consume low energy and improve battery life.
- Do not use screensavers as they consume power even though the system is idle.
- Reduce monitor brightness as high brightness needs more power.
- Use LED monitors instead of CRT monitors in order to save energy and reduce carbon emissions.
- Dispose e-waste safely as computing devices have hazardous materials that can pollute the environment..
- Use energy-efficient printers, recycled paper and remanufactured ink cartridges.
- Use emails for official communication rather than fax.
- Spread awareness on green computing within and outside your organization

Conclusion:

Global warming and climate change are some of the major concerns today. The level of pollution is rising across the land, water, and air. As usage of computers contributes significantly in this, green computing is an effective approach that can help to reduce environmental concerns. It can reduce the problems like greenhouse gas emissions, increasing amount of waste, burning of fossil fuels etc. This is why companies and individuals should follow the green computing practices to reduce power consumption as much as possible and to implement eco-friendly methods to run their operations. Hence, everybody should remember the three R's of Green Computing i.e. Reduce, Reuse, and Recycle and be a part of this initiative of Green Computing and motivate others to do the same to build a sustainable future together. Though green computing seems to provide a breakthrough to environmental issues, there are problems that can be faced while implementing it. The initial cost for implementing green computing is very high and less information is available on green computing. This creates a great level of difficulties in understanding the concept of green computing for the end-users, professionals, and companies. But by educating them about the dangers of current usage of computers can increase awareness and make them adapt to eco-friendly ways of green computing.

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