

LCAT from LCA Analytics for Environmental Impact Assessment of Computers

Case Study: Environmental Impact of Notebook Hard Drives

LCAnalytics

The growing use of computers and electronics is a significant environmental concern. Manufacturers and consumers are increasingly conscious of their impact on the environment; however, no tool exists to accurately model the environmental impact of personal computers and components. LCA Analytics is a company that provides accurate and easy-to-use tools to fill this need.

LCAT

LCA Analytics tool, LCAT, provides:

- Accurate assessment of a computer's impact on global warming, human health, and nature.
- High precision estimates based on component-level analysis.
- Estimates based on more accurate assumptions than existing models, which only use industry-wide averages.

The development of LCAT was based on:

- Professional disassembly, material and process analysis of computers and components.
- Review of recent literature and documentation.
- Correlation of product manufacturer specifications with environmental impact.
- Industry-standard LCA software, including the Ecoinvent database.
- ISO 14000 series requirements

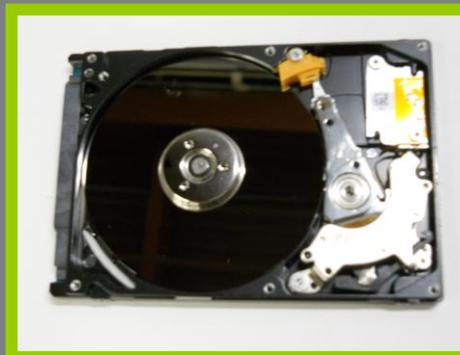


Team

The team at LCA Analytics consists of experts from academia and industry with a passion for the environment:

Shiva Nanda of Newport Computers, Professor Venky Venkatachalam of the University of New Hampshire, and Dr. Samudra Vijay of Sam Analytic Solutions, they are assisted by Michael Ernsting, majoring in environmental engineering at Tufts University and Christopher Schwab, majoring in business administration at the University of New Hampshire.

Case Study: Notebook Hard Drive



New Hard Drive Standards

Previous notebook hard drive life cycle studies are based on old technologies like IDE/ATA and capacities lower than 100 GB. LCAT not only considers these older specifications, but also analyzes the current industry standard SATA, and accounts for capacities up to two terabytes. LCAT also includes new technologies such as solid state drives.

Largest Contributor to the Total Carbon Footprint

Printed circuit boards in notebook hard drives account for 77% of the total carbon footprint of the hard drive. Other major contributors are electricity mix and the hard drive's main frame.

Region Specific Data

Hard drives are manufactured by several corporations, mostly in Asia. Accordingly, LCAT uses Asian electricity mix as well as transportation data for its analysis.

Estimating the Mass of Hard Drive Components

LCAT considers form factor and connection types to make accurate estimates of component mass.

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