

Sustainable Business Practices

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Introduction

- Corporations as profit seekers
- Why are they adopting sustainable energy practices?
- Do these help profitability?

Case Studies

The Google logo is displayed in its characteristic multi-colored font: blue 'G', red 'o', yellow 'o', blue 'g', green 'l', and red 'e'.The Google logo is displayed in its characteristic multi-colored font: blue 'G', red 'o', yellow 'o', blue 'g', green 'l', and red 'e'.

- View computing power differently
- Not about clock speed or memory
- It's about performance per **Watt**

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Google

- Moore’s Law → Computers get cheaper and faster
- Energy costs follow markets

■ Nominal
■ Real (December 2010 dollars)

May 1987 – December 2010 monthly average Brent spot prices
 Conversion to December 2010 dollars uses US CPI for All Urban Consumers (CPI-U)
 Sources: Energy Information Administration and Bureau of Labor Statistics

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Google

$$\frac{\text{Power}}{\text{Server cost}} = \frac{\text{Power}}{\text{Performance}} \times \frac{\text{Performance}}{\text{Server cost}}$$

“This equation explains why measuring power use, performance, and server costs in a consistent fashion is so important—it allows us to understand the underlying drivers of power per server cost in an unambiguous way. It also shows that whenever performance per server cost is increasing faster than performance per watt, power use per thousand dollars of server costs will increase.”

J.G. Koomey, et al. (2009, Aug. 17) *Assessing trends over time in performance, costs, and energy use for servers.*



So how is Google doing?

In their own words:

Google-designed data centers use about half the energy of a typical data center. As a result, the energy used per Google search is very small; to be precise, we currently use about 1kJ (0.0003 kWh) of energy to answer the average query. This translates into roughly .2g of CO₂ (for non-metric users, that's 0.007 ounces).

Google, "Efficient computing" *Google Data Centers* [online] available:
<http://www.google.com/corporate/datacenter/efficient-computing/index.html>



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"The main social responsibility for a company is to win."

- Jack Welch, former CEO of General Electric

- Advantages of Research and Development
- Public Relations
- Tax Advantages



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GE Research and Development



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GE Research and Development


- Energy Regulatory Future
- Incandescent Ban
- Large Patent Portfolio



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GE Public Relations

Television Commercials and Social Media:

- Facebook
- Flickr
- YouTube
- Twitter

Tax Advantages

The New York Times

G.E.'s Strategies Let It Avoid Taxes Altogether

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Conclusions

- Going green can be beneficial for a company's bottom line.
- Sustainable energy practices can save companies money, may provide a competitive advantage, make for good public relations, and have tax advantages.
- These are not solely for those who want to save the earth; these practices are for those who want to make money.