



# Proposal for IT Energy Efficiency Programs

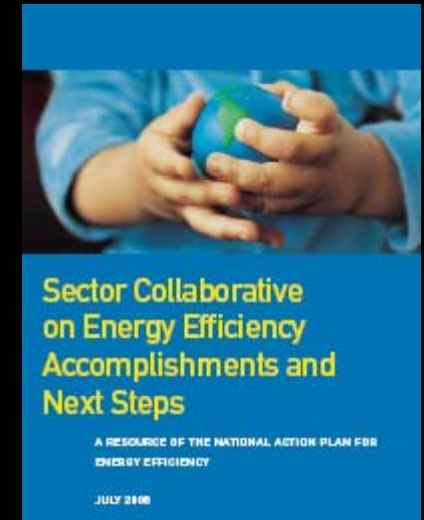
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# Why Technology Matters

- IT energy demand growing 12X overall demand
- Data centers in U.S. will consume 41 billion kWh in 2008, 236% increase since 2000
- U.S. EPA confirms 40% improvements in energy efficiency are routinely achievable
- Huge opportunity for improvement in data centers where, on average, only 3 out of 100 units are used for productive computing
- Hot spot locations in each region have reached their limits due to thermal and power issues that must be addressed
- Only 28% of IT Managers know the energy consumption of their data center



*"For a 250,000-square-foot office building, dollar savings from O&M measures alone can amount to well over \$100,000." EPA Report, July 2008*

Source: IBM Energy Efficiency Benchmark Tool and US EPA Report to Congress 2007

# Green IT vs. Other Abatement Options

What if all data centers WW were green?

20% efficiency improvement could save 36 billion kwh or 22m tons of CO<sub>2</sub>

...or you could remove 3,505,401 cars and light trucks from company fleets.

...or you could plant 502,440,757 tree seedlings and grow them for 10 years.

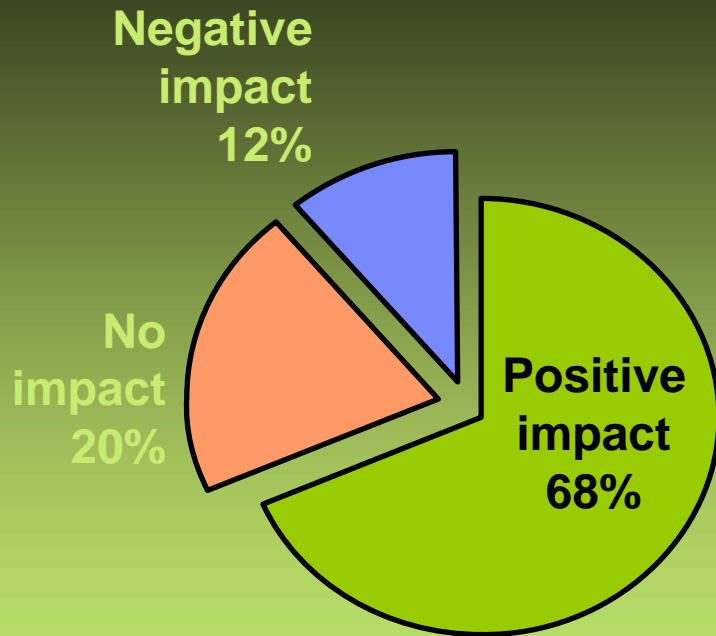
...or you could manage and preserve 16,329,325 acres of pine forest per year.

..or you could recycle 6,597,707 tons of company waste instead of sending to landfills.

Data source:  
<http://www.usctcgateway.net/tool/>

# Green is a New Business Imperative

## CEOs view increasing customer expectations



- 80% of CEOs view sustainability as impacting brand value - this is no longer just IT Mgr. issue

Source: IBM 2008 CEO Study

## Rise of Corporate Sustainable Programs in USA



196 companies joined program

Environmental rating for over 2000 public companies



Tracking 1200 companies for environmental performance

51% of Fortune 500 have Corp. Sustainability Reporting



# IT Energy Efficiency Programs Considerations

## ■ State Regulatory Needs

- MWH and MW reductions
- High degree of accuracy in M&V of reductions
- Real environmental and/or energy performance improvements
- Ease of application

## ■ Customer Needs

- Simplicity of the program
- Uniformity / Consistency (across geographic areas)
- Broad applicability to wide range of projects
- Alignment to Corporate Sustainability Programs

## ■ Utility Needs

- Permanent, verifiable energy and demand reductions
- Easy of implementation
- Minimize costs / maximize benefits

# Current Programs Vary

## ■ Prescriptive Programs

- Strict rebate based on approved list of equipment
- Estimate incentive based on projected lifetime reduction
- Payment on confirmation of installation
- Limited ongoing verification

## ■ Performance Programs

- Broader applicability to complex projects
- Incentives based on performance
- State and/or Utility program oversight
- On going 3<sup>rd</sup> party verification for life of project



# Proposed IT Energy Efficiency Program

## ■ Objective

- Provide NARUC members an easy to deploy efficiency model based on Energy Efficient Certificates (EECs)
- Improve return on investments for consumers who undertake energy efficiency IT projects
- Maintain high degree of accuracy in monitoring and verification of energy efficiency based on independent 3<sup>rd</sup> party certification

## ■ Proposal

- IBM would work with interested NARUC members to implement market based programs targeted to IT
- Neuwing Energy can provide NARUC members guidance based on expertise in this area
- Increase consumer awareness and generate demand for NARUC approved programs
- Modeled on program designed with Con Edison to be proposed for pilot in Con Ed service territory

# What are Energy Efficiency Certificates?

- Documents energy reduction is attained through three criteria
  1. Determine the initial energy draw from identified infrastructure using industry accepted profiles
  2. Review of energy draw after steps are taken to reduce energy consumption
  3. Periodic audits to confirm reductions still in effect
- Analogous to emissions trading, the tradability however is in overall energy savings
- Instrument issued by an authorized body (Neuwing) guaranteeing that a specified amount of energy savings has been achieved
- Each certificate is a unique and traceable commodity carrying a verified amount of megawatt hours saved
- Neuwing has chosen Bank of New York's certified registry to ensure each certificate is used only once for the purposes of compliance
- Certifies that each MWh is a real and permanent reduction
- Sell them in a mandated states, emerging voluntary markets, or retire against goals



# IT Energy Efficiency - Example

<b>Project Type</b>	5 Acre Solar Facility Cary, NC	Energy Efficiency Assessment IBM Data Center Southbury, CT
<b>Financials</b>	Unknown \$\$\$\$\$ capital expenditure	Funded from operational budget approx \$40k
<b>Regulatory Impact</b>	Utility requesting \$\$\$\$'s to pay for renewables, engineering and related paperwork to support projects like this	Prescriptive program by CT DPUC/EE Administrator that awards EEC on quarterly basis tracked through GIS
<b>Time to benefit</b>	Years	6 Months
<b>Benefit to Grid</b>	1800 MWh annual generation	1600 MWh annual savings

## ...more information or to get started

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