



IBM Venture Capital Group

Cleantech software and services

The Globalization of Cleantech: The Fifth Annual Globalization of services conference

Stanford University, December 8, 2009

Matt Denesuk
Partner, IBM Venture Capital Group
denesuk@us.ibm.com

Cleantech – huge, global opportunities, and shifting toward software & services

- **Large and growing VC interest & global investment over much of this decade.**
 - Driven by perceived secular commodity trends, and intensifying widespread environmental concerns.
- **Traditionally dominated by capital intensive, technology-risk plays, largely on the generation side (e.g., solar, wind, biofuels, storage/batteries)**
 - Against grain for most VCs, who generally seek capital efficiency and prefer market risk.
- **Growing recognition of potential in Energy / Resource Efficiency plays**
 - Efficiency seen as “perfect renewable energy source” (and starting to be classified as such for favorable grant/tax treatment).
 - Lots of room for growth – current efficiency levels very low; potential for sustained impact is staggering
- **Efficiency play more natural for VCs**
 - Often IT-based (VCs comfortable with IT)
 - Capital efficient
 - Mostly market risk (little technology risk)

Demand is global, but markets can be highly heterogeneous

- Policy, regulatory env.
- Local gov'ts / agencies as customer
- Corp. channel not yet clearly defined.

Our focus areas

Energy Efficient Technologies and Services

Green IT and Data Centers



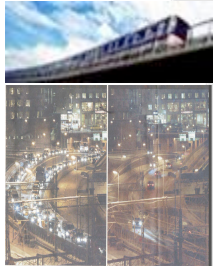
- IT and data center facilities energy efficiency
- Monitoring & verification of efficiency goals
- Energy Efficient, Virtualized, Dynamic IT/DC
- IBM and client case studies: 40% to 80% energy use reduction, up to 85% less floor space

Mobility Services



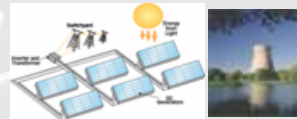
- Reduce traffic and pollution
- Retain and attract talent
- Cut facility costs/impact

Intelligent Transportation Systems



- Reduce traffic congestion
- Reduce CO₂ emissions
- Increase mass transit usage
- Improve environment
- Stockholm case study: Reduced traffic congestion 25%, Carbon emissions 15%

Intelligent Utility Networks / Smart Grid



- Reduce energy usage
- Improve grid management, reduce outages
- U.S. case study: 10% energy use reduction, up to 50% reduced load on electric grid

Sustainable Solutions & Services

- Strategy
- Corporate Social Responsibility
- Green Sigma TM
- Business Operations/Supply Chain - SNOW
- Smart Cities
- Smart Buildings
- Cap and Trade Systems



Advanced Water Management



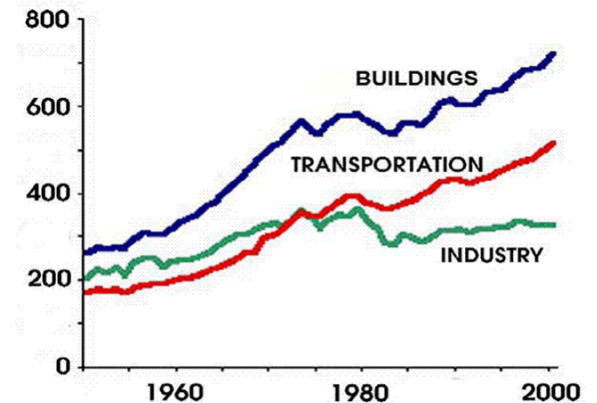
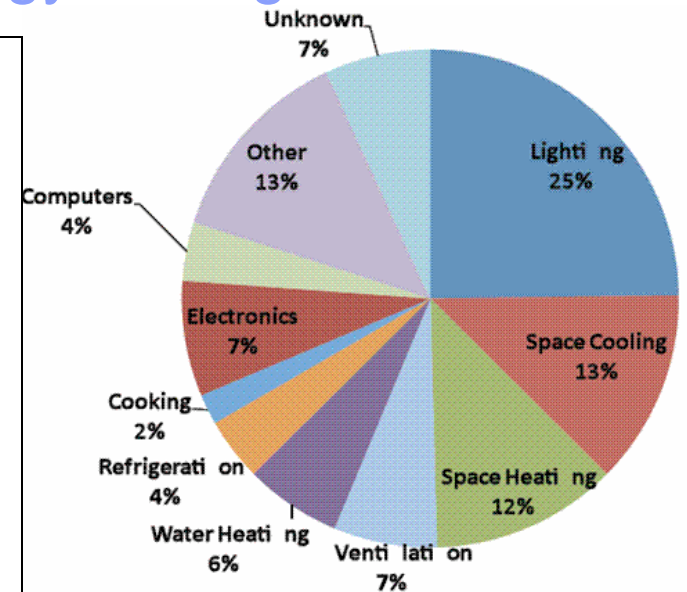
- Flood avoidance
- Reduce water usage
- IBM case study: 27% reduced water usage, with 30% increase in manufacturing output, saving \$M in energy and water cost

Alternative Energy Research

- Know-how in thin films, semiconductors, advanced photovoltaic materials, applying IT cooling technologies to concentrator photovoltaics; nanomembranes for desalination; etc.

Example high impact area: Building energy management

- **Non-industrial buildings account for about**
 - 40% of total energy consumption (& CO₂)
 - 72% of electricity consumption
 - 14% of potable water consumption
 - (Lots of) waste
- **Estimated savings possible through efficiency range from 30-80%**
 - 10-15% just from simple monitoring
 - Even lowest estimates translate to enormous impact potential
- **LEED standards shifting to operations & maintenance, performance-based.**
- **Intelligent building activity now just scratching surface (building penetration, extent of actual mgmnt)**
- **Accelerating investment interest**
 - Initially in low-end commercial and residential segments
 - Increasingly in larger commercial -- “MUSH,” Retail (QSR, BigBox), ...
 - Acquisitions by IT players (e.g., Cisco, SAP, et al.)



CO2 EMISSIONS by SECTOR
(Million Metric Tons of Carbon)

Example: Green Sigma™ Services

Leading companies are beginning to capture & report energy, water, waste and GHG emissions information

DISCOVER

What information, at what frequency, in whose hands to drive change?

MONITOR

What needs my attention today to meet my goals today?

IMPROVE

What investments will help us meet our long-term commitments?

- Aimed at reducing energy & water, waste generation and CO₂ emissions throughout a company's operations, resulting in:
 - Lower environmental impact, increased efficiency, reduced costs
- The key components are:

1

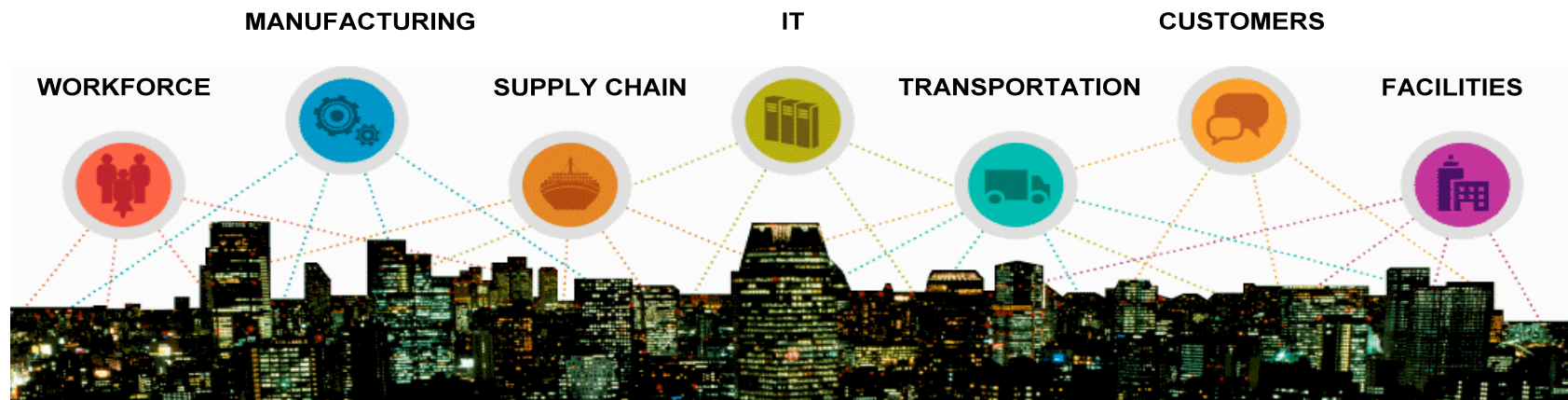
Metering and Monitoring

2

Management through the Green Sigma™ Dashboard

3

Applied Statistical Techniques



IBM's Unique Global Venturing Strategy

"Give" to "Get," forging solid and sustainable relationships

