Cleantech software and services

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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
- 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

Green IT and Data Centers

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

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

Sustainable Solutions & Services
- Strategy
- Corporate Social Responsibility
- Green Sigma™
- 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.)
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

IBM
Credibility & visibility

Expertise
Infrastructure
GoTo Market activities
IP
LP Investment

VC Community

Revenue Growth

Expanded ecosystems
Strategic insights
Portfolio Gaps addressed
Acquisitions