

A  
**crisis**

is a terrible thing to waste

# Myth:

Going green is  
expensive

McKinsey&Company

THE CONFERENCE BOARD



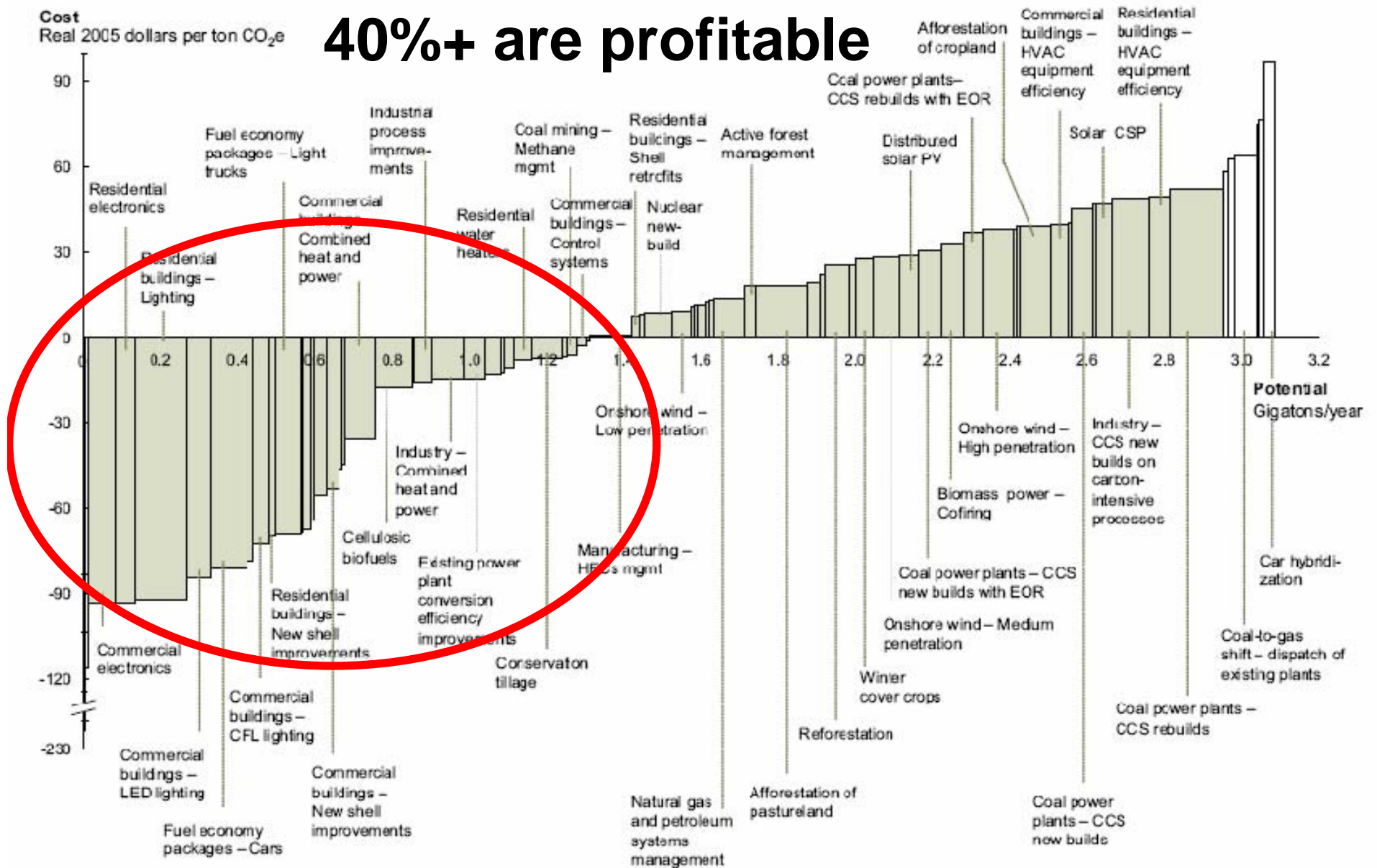
# Reducing U.S. Greenhouse Gas Emissions: *How Much at What Cost?*



U.S. Greenhouse Gas Abatement Mapping Initiative  
Executive Report  
December 2007

# Going Green Cuts Cost

# 40%+ are profitable



Source: McKinsey analysis



**40%+ of required  
CO<sub>2</sub> abatement  
can be achieved  
at a profit!**

**We need  
silver buckshot,  
not a silver bullet**

**We need  
open source  
management**



# STRATEGY FOR SUSTAINABILITY

A BUSINESS MANIFESTO **ADAM WERBACH**

HARVARD BUSINESS PRESS



# PSPs

**a powerful  
engagement tool**



**Savings:  
\$1 M/year**



The Case for Investing in Energy  
Productivity

February 2008

**\$170 B for 13 years to  
2020 IRR = 17%**

**Assumes \$50/bbl oil**

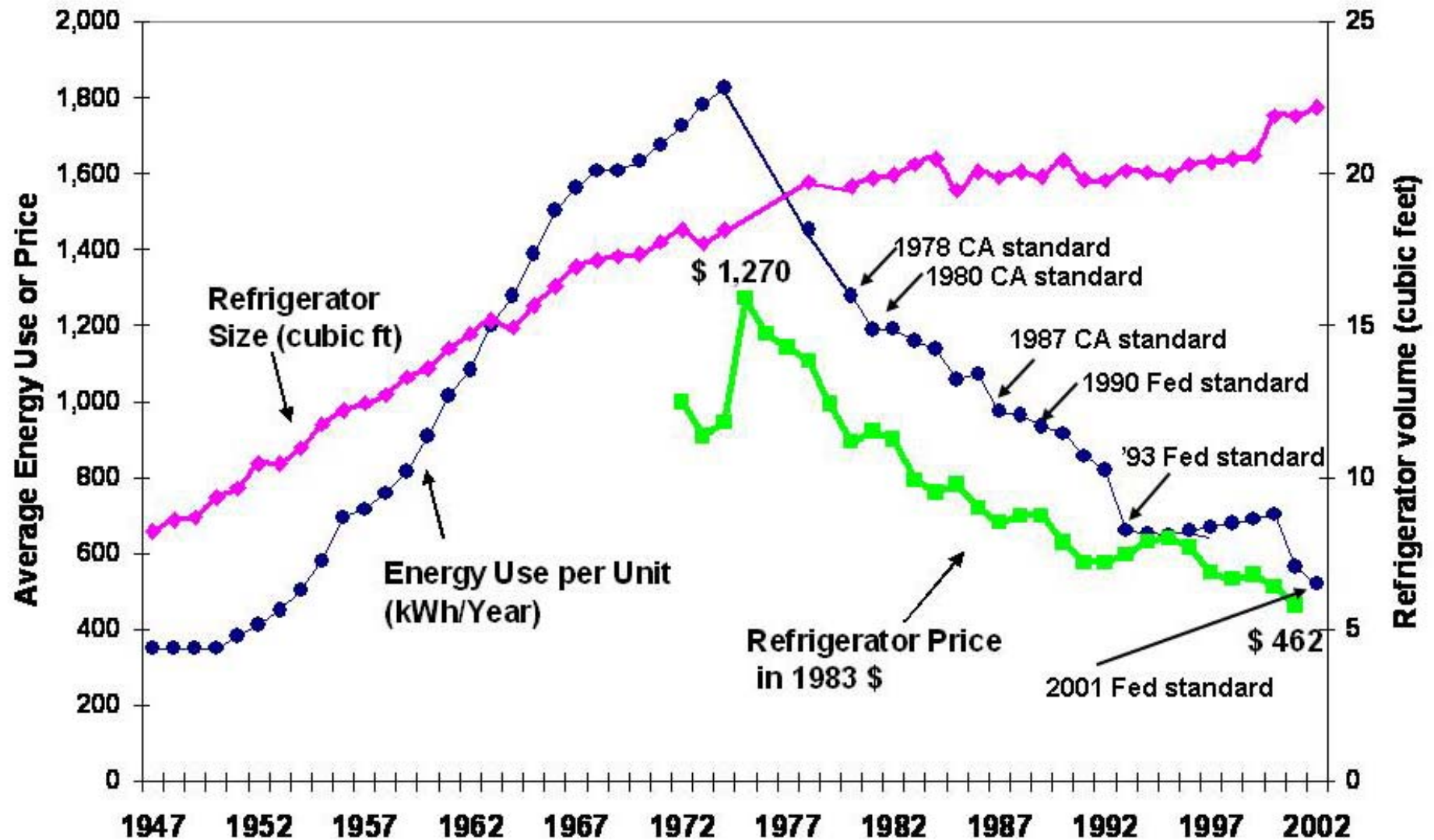
**30 year comparison:**

**IRR stocks = 10%**

**IRR real estate = 16%**

# Going Green cuts costs

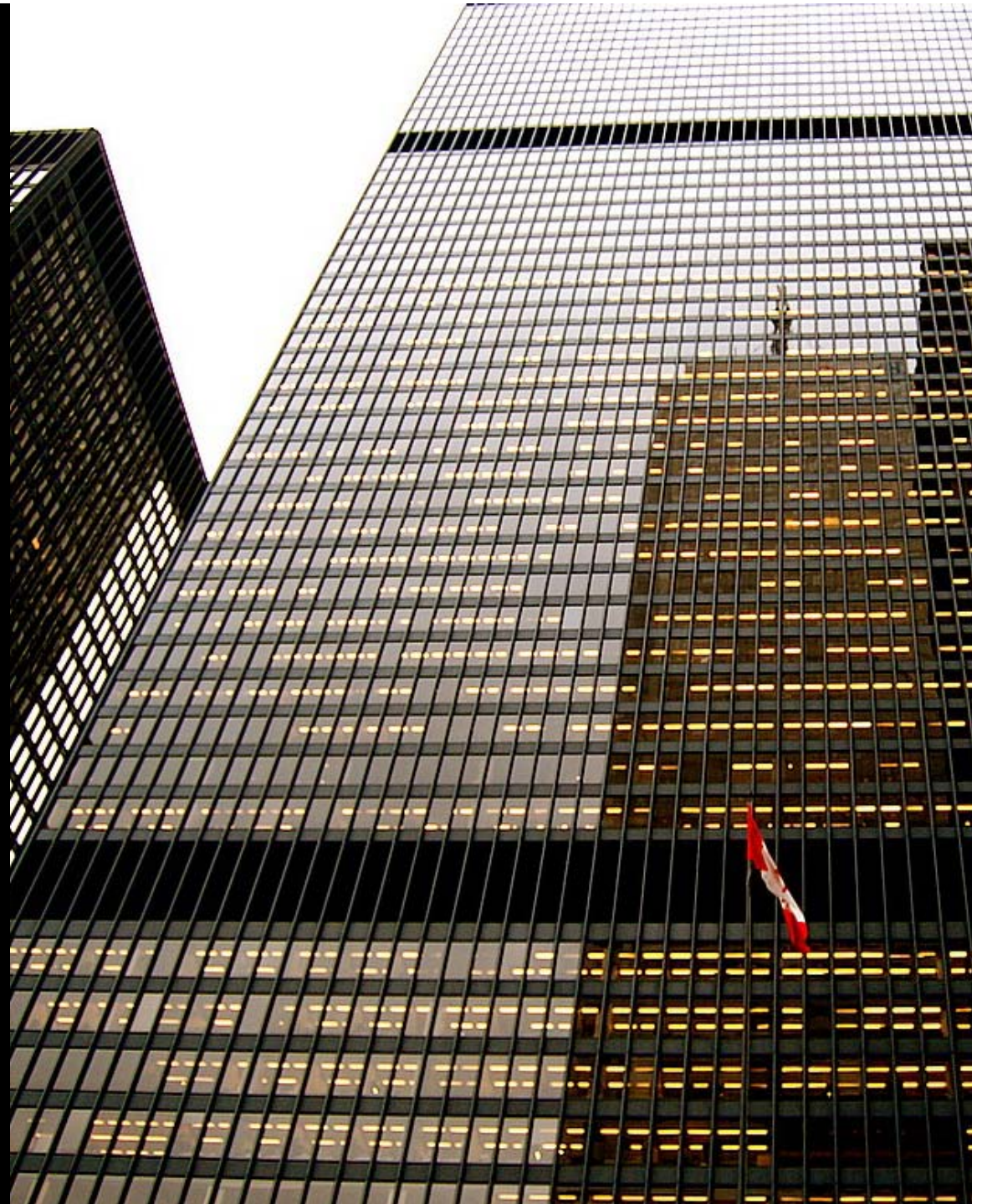
New US Refrigerator Use vs. Time & Retail Prices





# Myth:

**Buildings don't  
have a big  
environmental  
impact**



40% US energy consumption  
and GHG can be attributed to  
**operating buildings!**

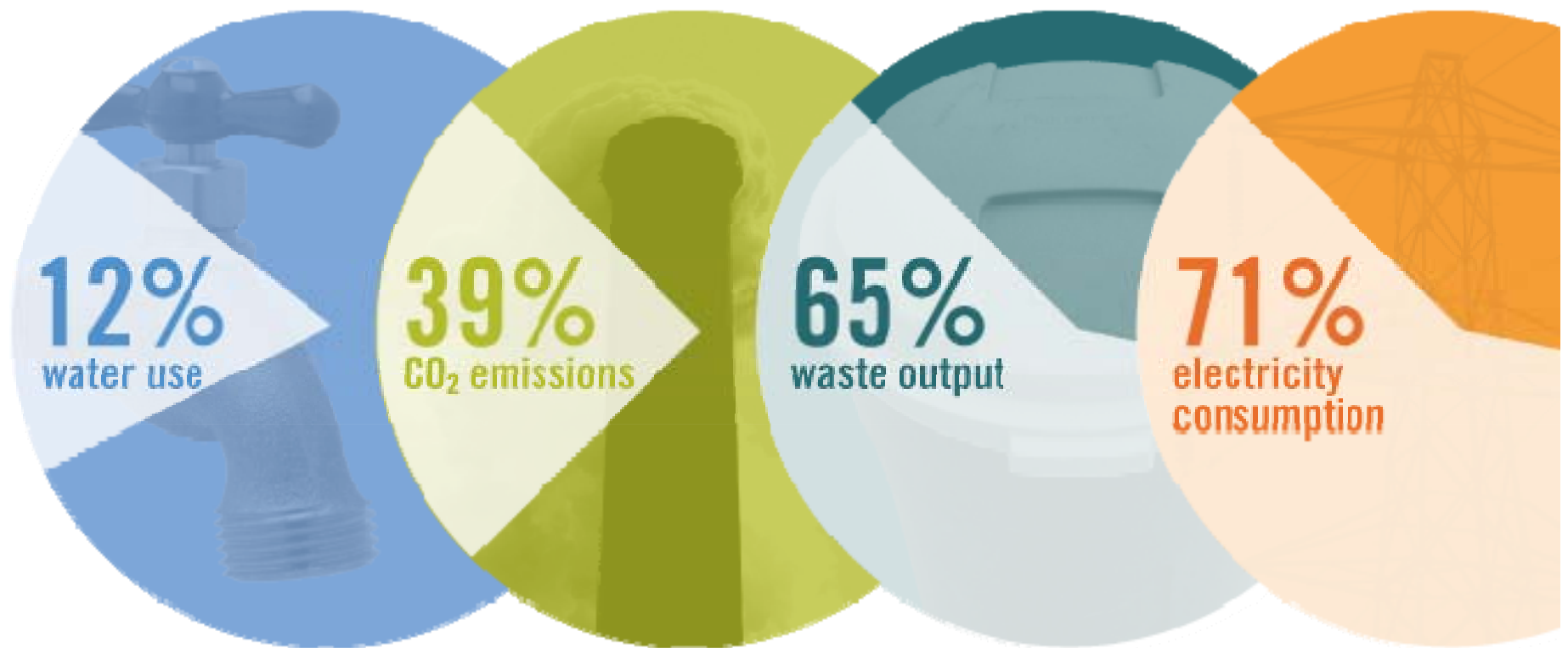
heat, light, cooling, hot water

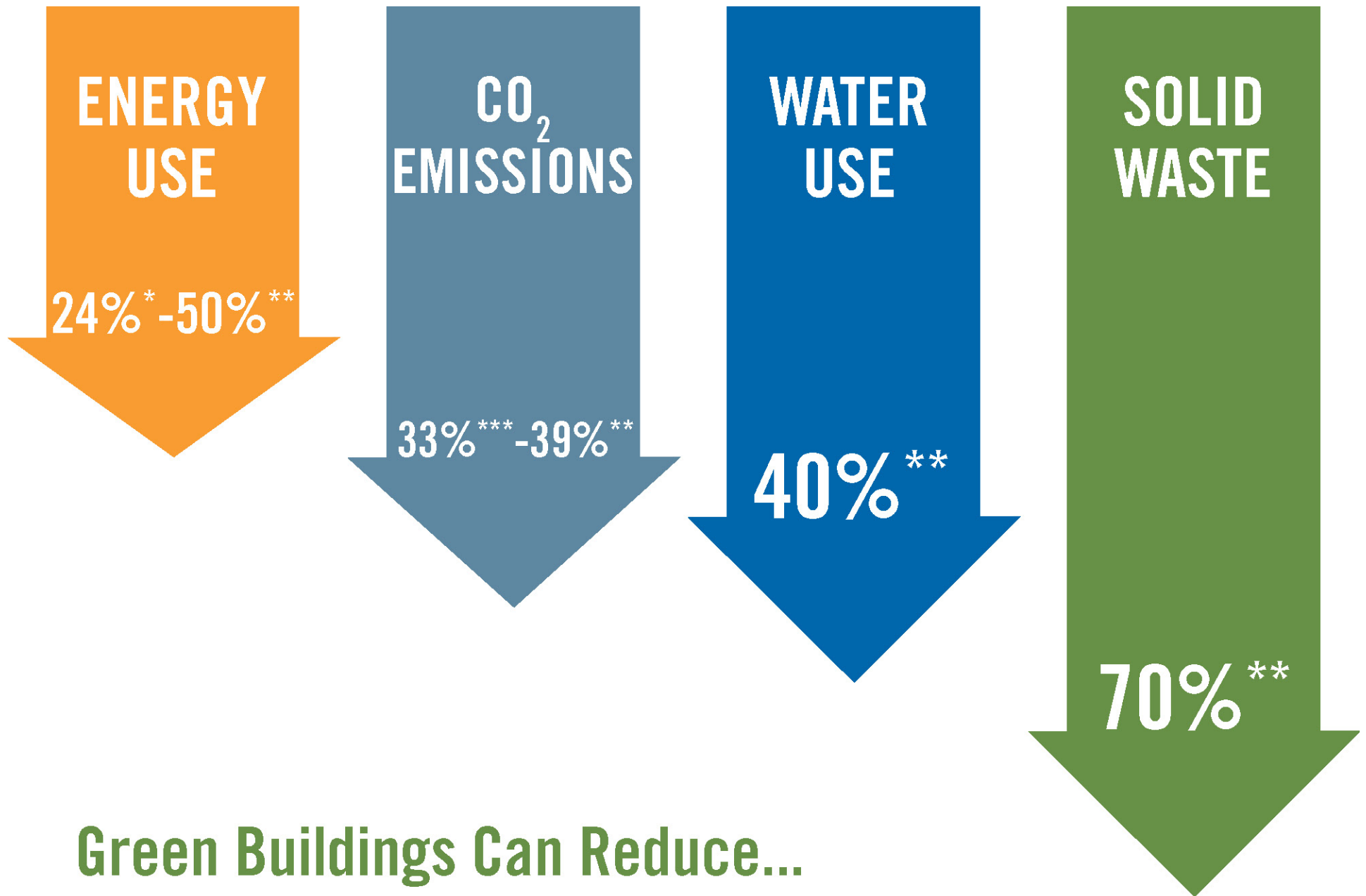
Another 8% to the materials used

SUV's = 3%

*Source: Architect Edward Mazria of Mazria, Riskin Odems + US Department of Energy (DOE)*

# North American Building Impact





## Green Buildings Can Reduce...

\* Turner, C. & Frankel, M. (2008). Energy performance of LEED for New Construction buildings: Final report.

\*\* Kats, G. (2003). The Costs and Financial Benefits of Green Building: A Report to California's Sustainable Building Task Force.

\*\*\* GSA Public Buildings Service (2008). Assessing green building performance: A post occupancy evaluation of 12 GSA buildings.

**\$50-\$70/SF** benefit of a  
green building over lifetime

**10X** return on construction  
cost premium over lifetime







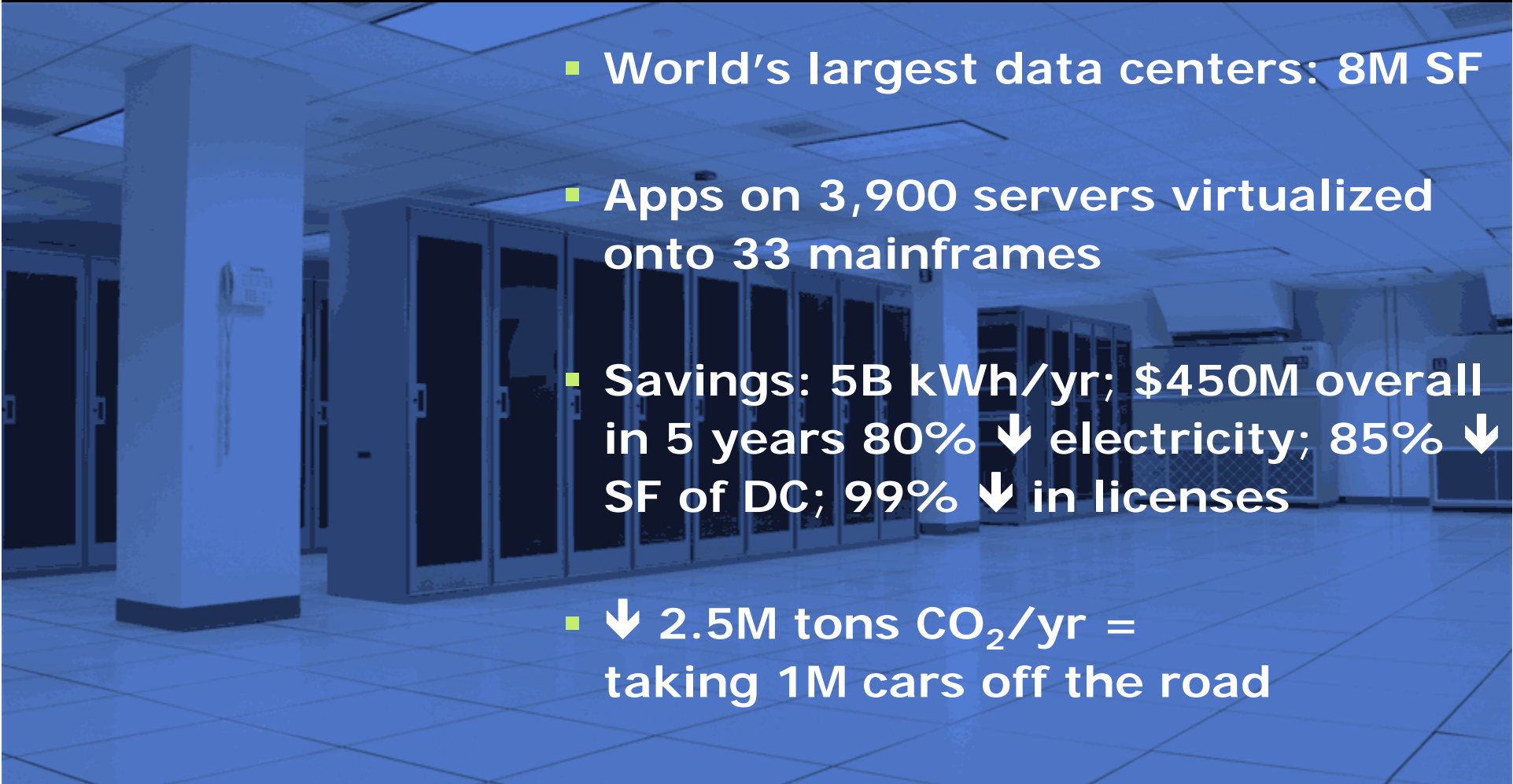






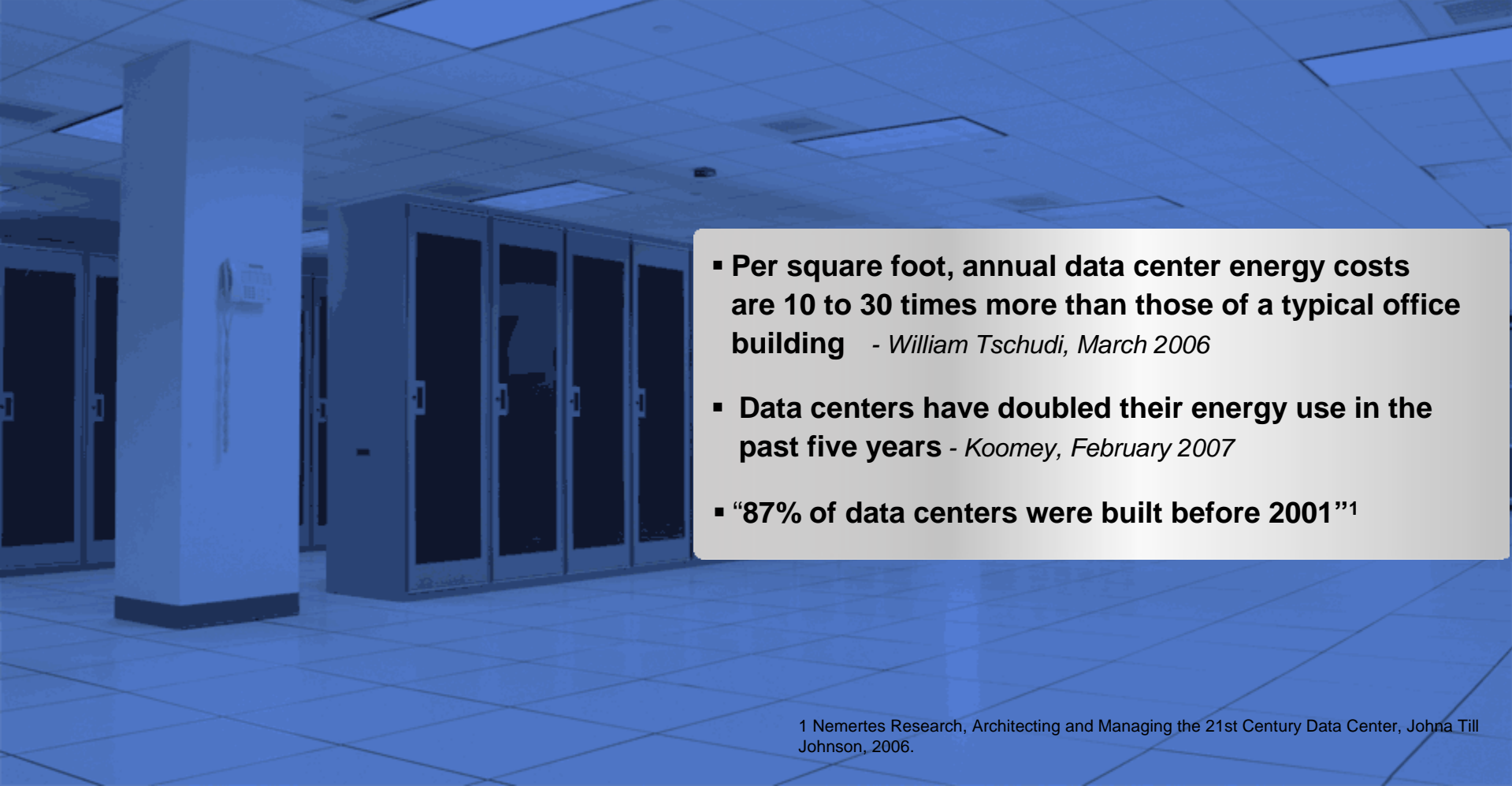
# “IBM will double compute capacity without increasing consumption”

Armonk, May 10, 2007

- 
- World's largest data centers: 8M SF
  - Apps on 3,900 servers virtualized onto 33 mainframes
  - Savings: 5B kWh/yr; \$450M overall in 5 years 80% ↓ electricity; 85% ↓ SF of DC; 99% ↓ in licenses
  - ↓ 2.5M tons CO<sub>2</sub>/yr = taking 1M cars off the road



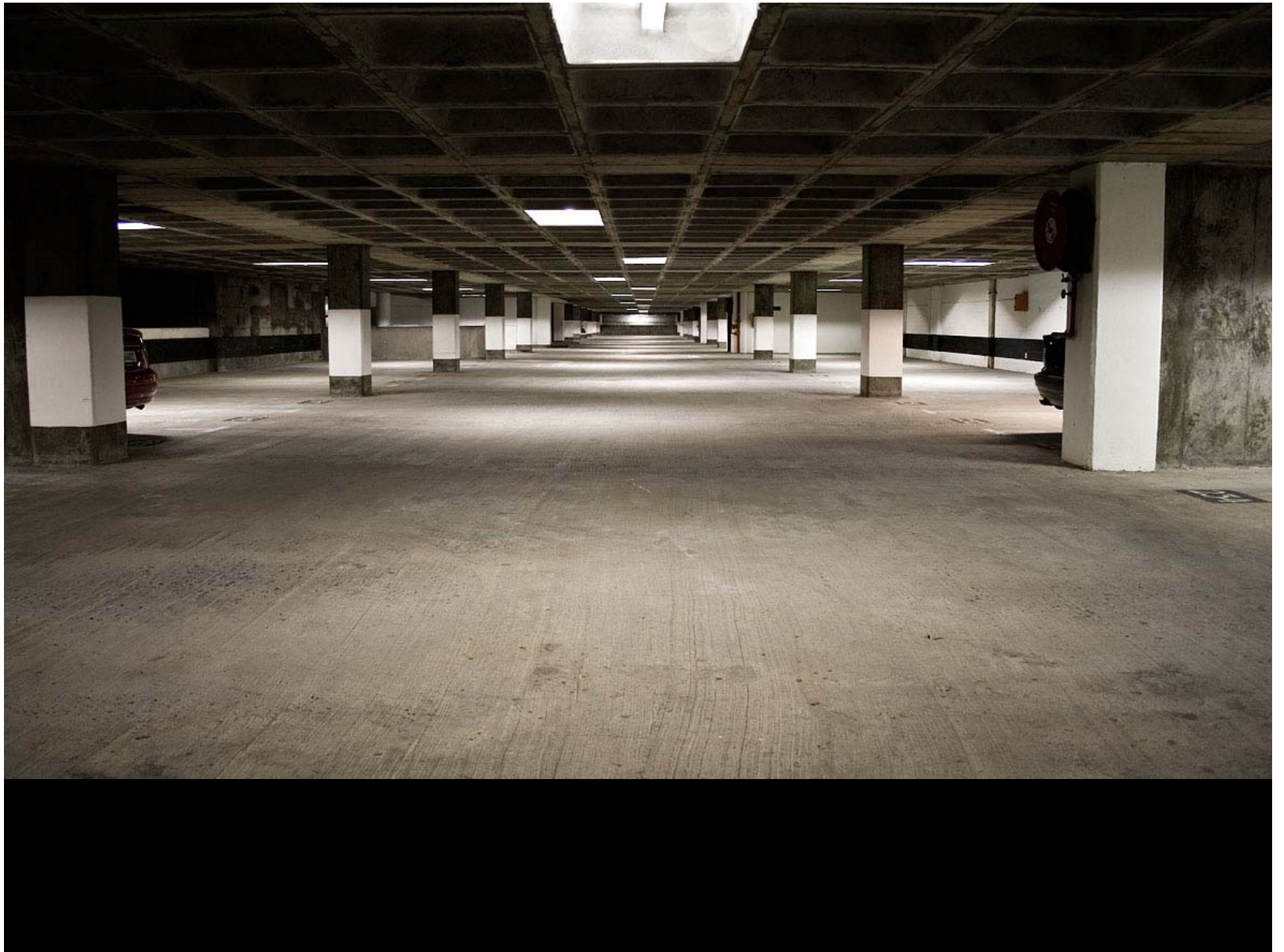
# Data centers are at a tipping point

- 
- **Per square foot, annual data center energy costs are 10 to 30 times more than those of a typical office building** - *William Tschudi, March 2006*
  - **Data centers have doubled their energy use in the past five years** - *Koomey, February 2007*
  - **“87% of data centers were built before 2001”<sup>1</sup>**

<sup>1</sup> Nemertes Research, *Architecting and Managing the 21st Century Data Center*, Johna Till Johnson, 2006.

A  
**crisis**

is a terrible thing to waste











# White Roof: 110°F vs 190°F (90°F day)







***Waterless urinals can save  
150,000 L/year per urinal!***

**Given we use 5B gal/day in  
NA for toilets alone: LHF**



# **Myth:**

**incremental  
improvement is all we  
can expect**



**75-90% reduction  
with proven,  
existing technology**

**66% inefficient: nuclear, coal & gas**



A black and white photograph of a nuclear power plant. Several large, hyperboloid cooling towers are visible, each emitting a thick plume of white steam. The steam rises from the towers and spreads across the upper half of the image, partially obscuring the sky. The foreground shows some low-lying vegetation and a body of water.

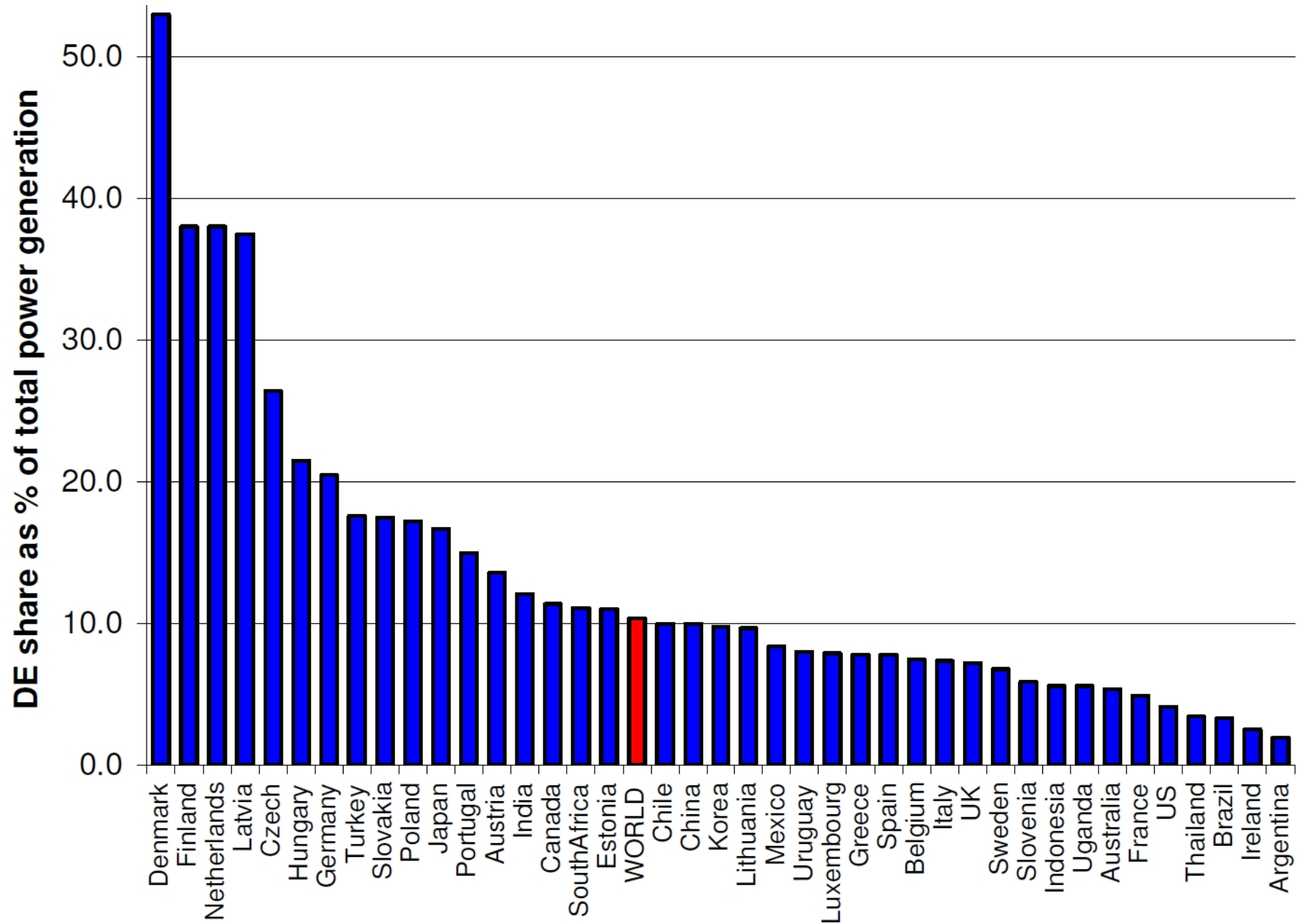
**$2/3$  of energy goes up the stack**



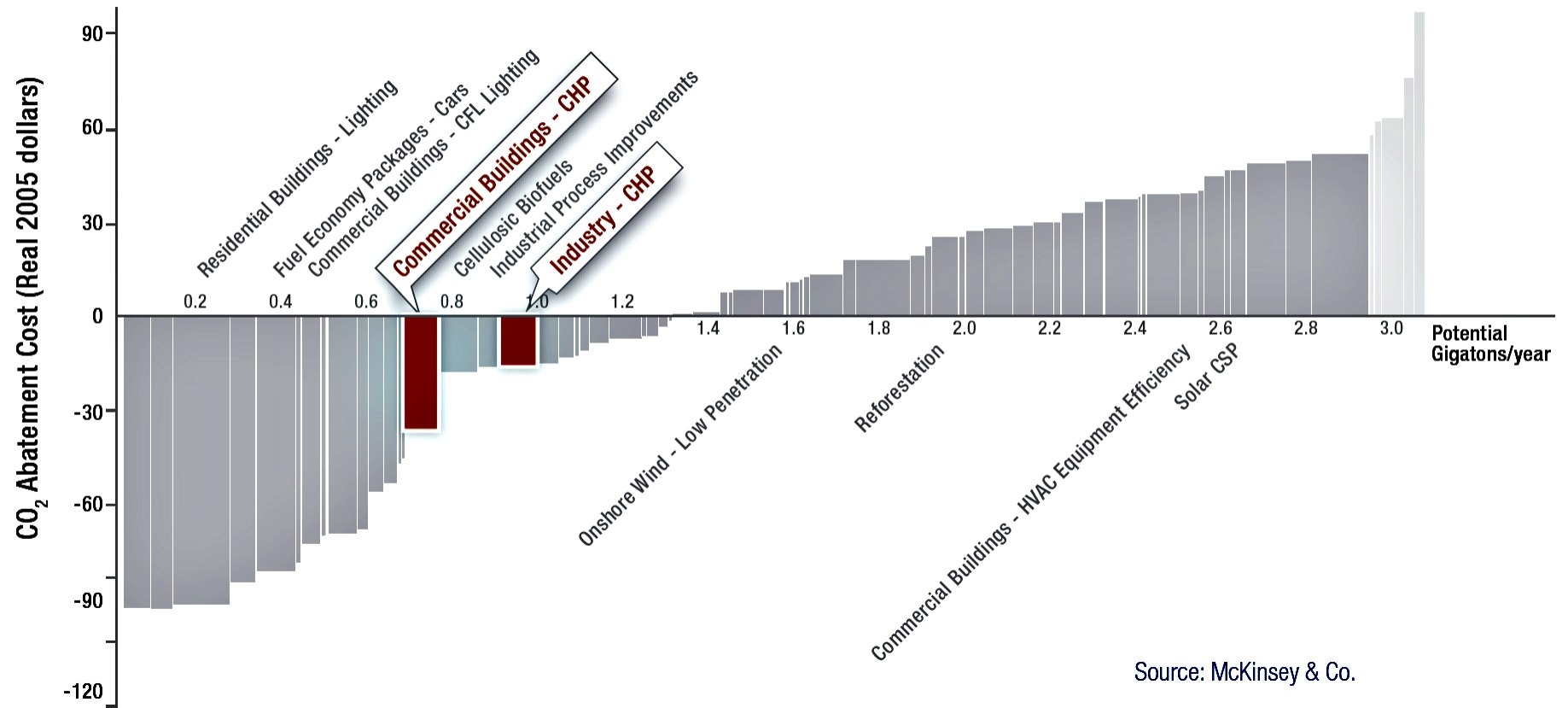
# Combined Heat & Power



# Decentralized Power as % Generation



## Cost of CO<sub>2</sub> Reduction Technologies



Source: McKinsey & Co.



The background of the slide is a close-up photograph of green leaves, likely from a plant like corn, showing their veins and texture. The lighting is dramatic, with some areas in deep shadow and others brightly lit, creating a vibrant green palette.

# Why go green?

---

1. Cut Costs
2. Grow Profits
3. Reduce Risk



# Cut Costs

---



**\$500M/year**

**4 yr paybacks**  
(assumes \$50bbl oil)

**3.3% net profits**

**= \$16.7B sales**





**\$200M fleet saving '09; 38% ↑**



T H E   D A R K   K N I G H T \_





**50% Load factor**

**4-8% Tires** (PSI & low resistance)

**4-10% Aerodynamics**

**10% hybrid chilling**

**8% APUs**

**Up to 86% reduction**

**1% = 245M g Diesel**

**9B gallons Diesel**

# **BTUs for 1 lb/1 mile**

<b>Air</b>	<b>31,000</b>
------------	---------------

<b>Truck</b>	<b>3,500</b>
--------------	--------------

<b>Rail</b>	<b>370</b>
-------------	------------

<b>Ocean</b>	<b>230</b>
--------------	------------



# **2025: Zero waste**

**Across US stores 57% diversion**

**One Canadian store has  
achieved 97.6% diversion**



**From waste stream → revenue stream**

**compressing plastic between cardboard**





# CONFESSIONS OF A RADICAL INDUSTRIALIST

PROFITS, PEOPLE, PURPOSE—DOING  
BUSINESS BY RESPECTING THE EARTH



RAY C. ANDERSON  
with ROBIN WHITE

**GHGs**                      ↓ 82%

**Fossil Fuel** ↓ 60%

**Waste**                      ↓ 66%

**Water**                      ↓ 60%

**While ↑ sales 66%; ↑ earnings 100%**

# CONFESSIONS OF A RADICAL INDUSTRIALIST

PROFITS, PEOPLE, PURPOSE—DOING  
BUSINESS BY RESPECTING THE EARTH



RAY C. ANDERSON  
with ROBIN WHITE

**\$405M** savings 14 years

**28%** cumulative operating profit



**2019: 25% market cap  
due to sustainability  
savings**

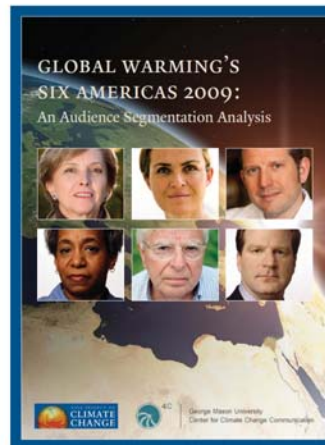
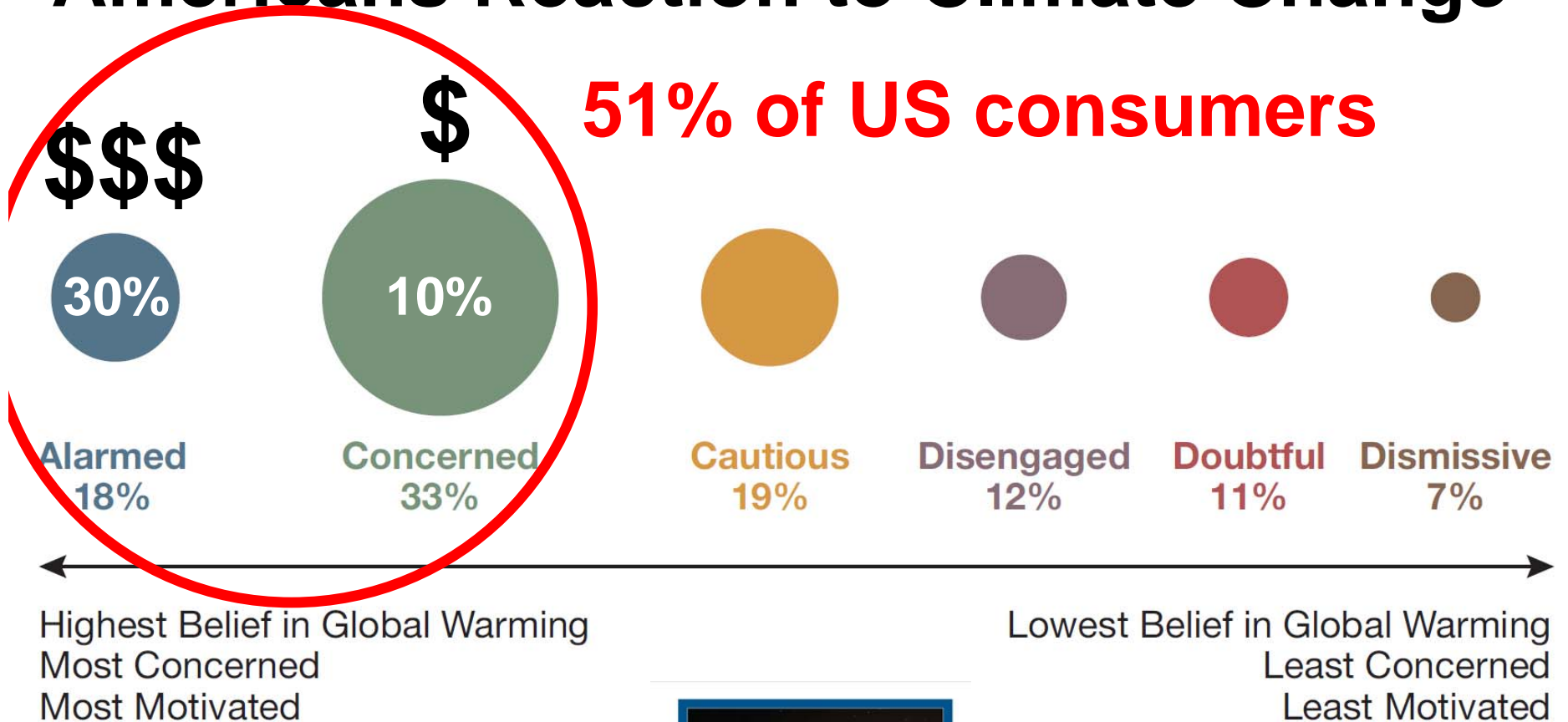
A close-up photograph of several green corn stalks, showing the texture of the leaves and the structure of the stalks. The lighting is dramatic, with some areas in deep shadow and others brightly lit, creating a sense of depth and growth. The text "Grow Profits" is overlaid in a large, white, sans-serif font, centered horizontally and slightly above the middle vertically. A thin horizontal line is positioned directly beneath the text.

# Grow Profits



# Americans Reaction to Climate Change

**51% of US consumers**



# Tipping Point: Consumers

**80%** Canadian consumers want to deal with a company that provides green products and services

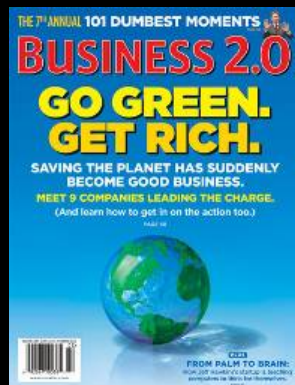
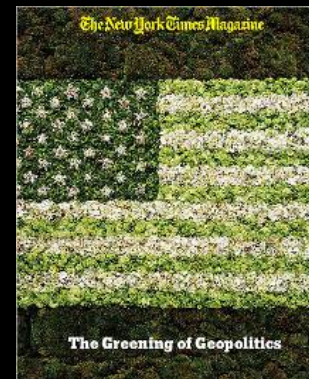
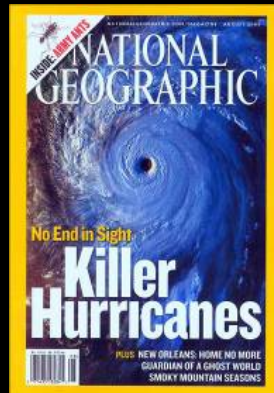
**41%** will switch brands because of it

**\$229B '06 \$420B '10; \$845B '15**

Source: The LOHAS Consumer Trends Database, the Natural Marketing Institute

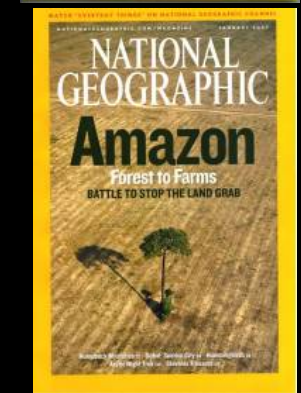
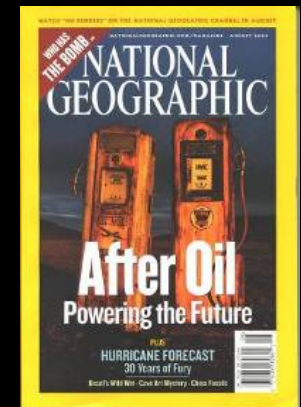
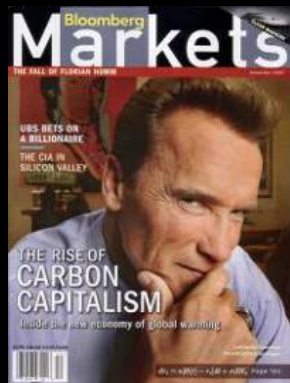
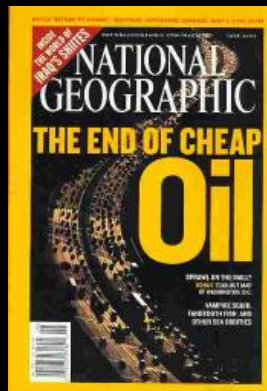
# Exploding Public Consciousness

**Katrina (\$125B: 1,833 dead)**  
**Weird weather**  
**↑ gas prices; IPCC.**





# Exploding Public Consciousness







***Promise***



***Peril***



# Perfect Storm





# Green agenda drivers



## Business Case





## Talks John Doerr sees salvation and profit in green

Filmed Mar 2007; Posted May 2007



***“Going green is the largest economic opportunity of the 21st century.”***

**John Doerr  
Venture Capitalist  
Kleiner Perkins**



# 1<sup>st</sup> Carbon Neutral Bank

**\$2T green energy  
financing market**

**Must walk the walk  
to capture market  
share**



Technical Adviser  
**sustainable finance**

A photograph of an offshore wind farm with numerous white turbines in a line across a blue sea under a clear sky. The text "Staying ahead of the curve" is overlaid in white.

**Staying ahead of the curve**

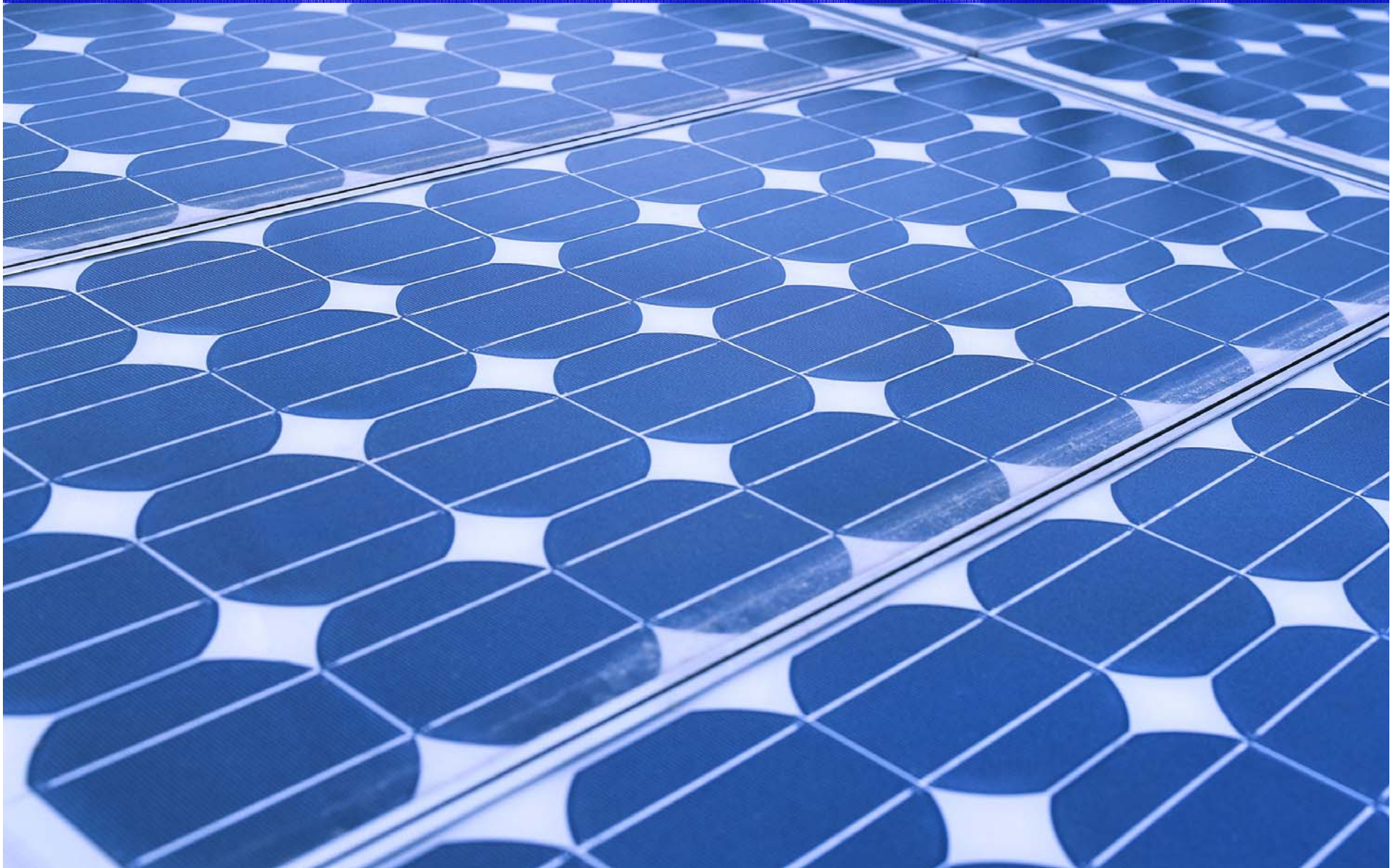


# Fastest growing power source





**40% CAGR for a decade**



## Carbon Market

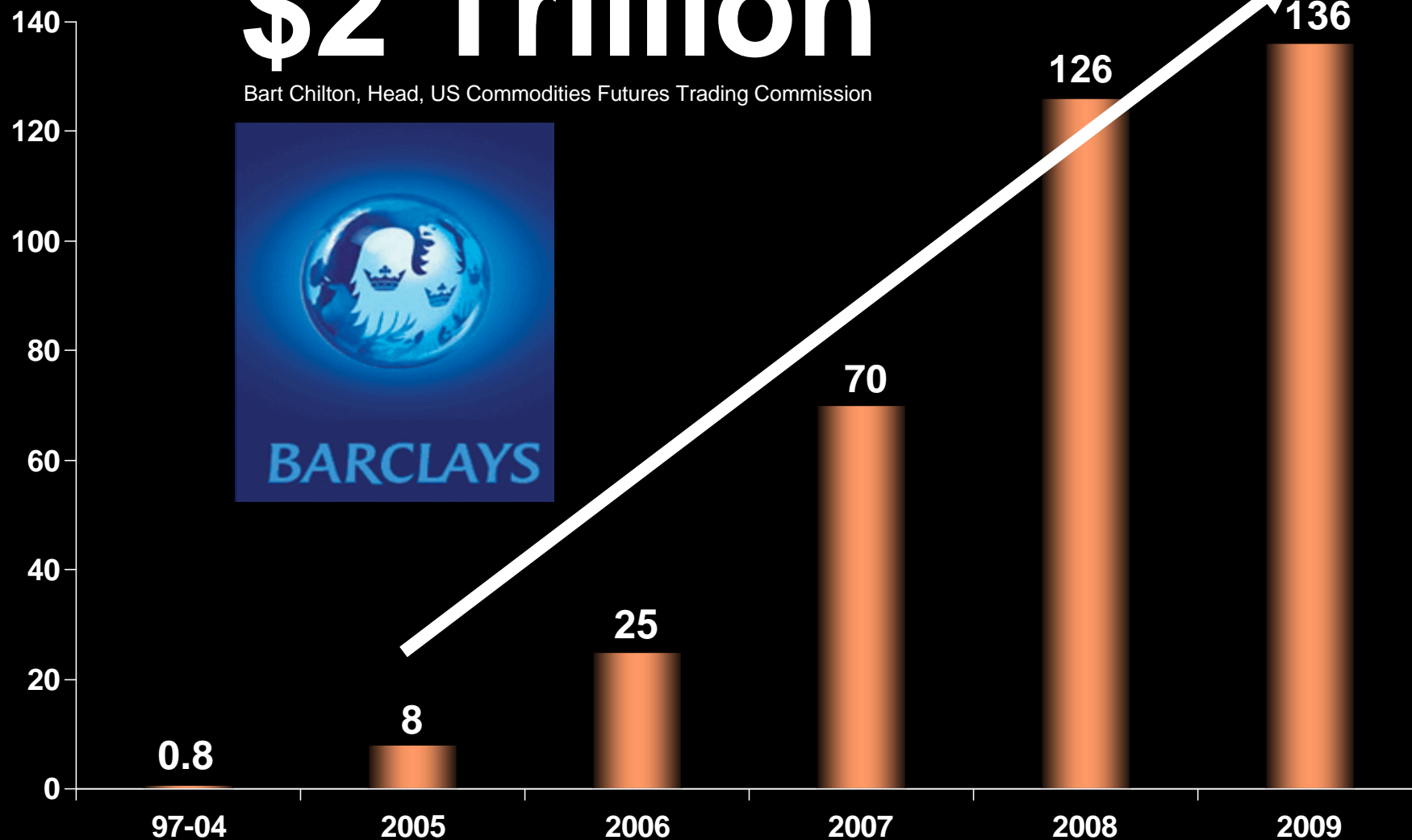
(US\$ in Billions)

# \$2 Trillion

Bart Chilton, Head, US Commodities Futures Trading Commission



76% CAGR



Sources: World Bank State and Trends of Carbon Market 2007 & International Emissions Trading Association



# 1 Commercial Real Estate Information Company

**LEED** (Leadership in Energy & Environmental Design)

**\$11.33 ↑ rent/sq ft**

**4.1% ↑ occupancy**

**\$171 ↑ value/sq ft**

**CoStar Group tracks 44 billion sq ft of space**





**\$405.6B revenue**

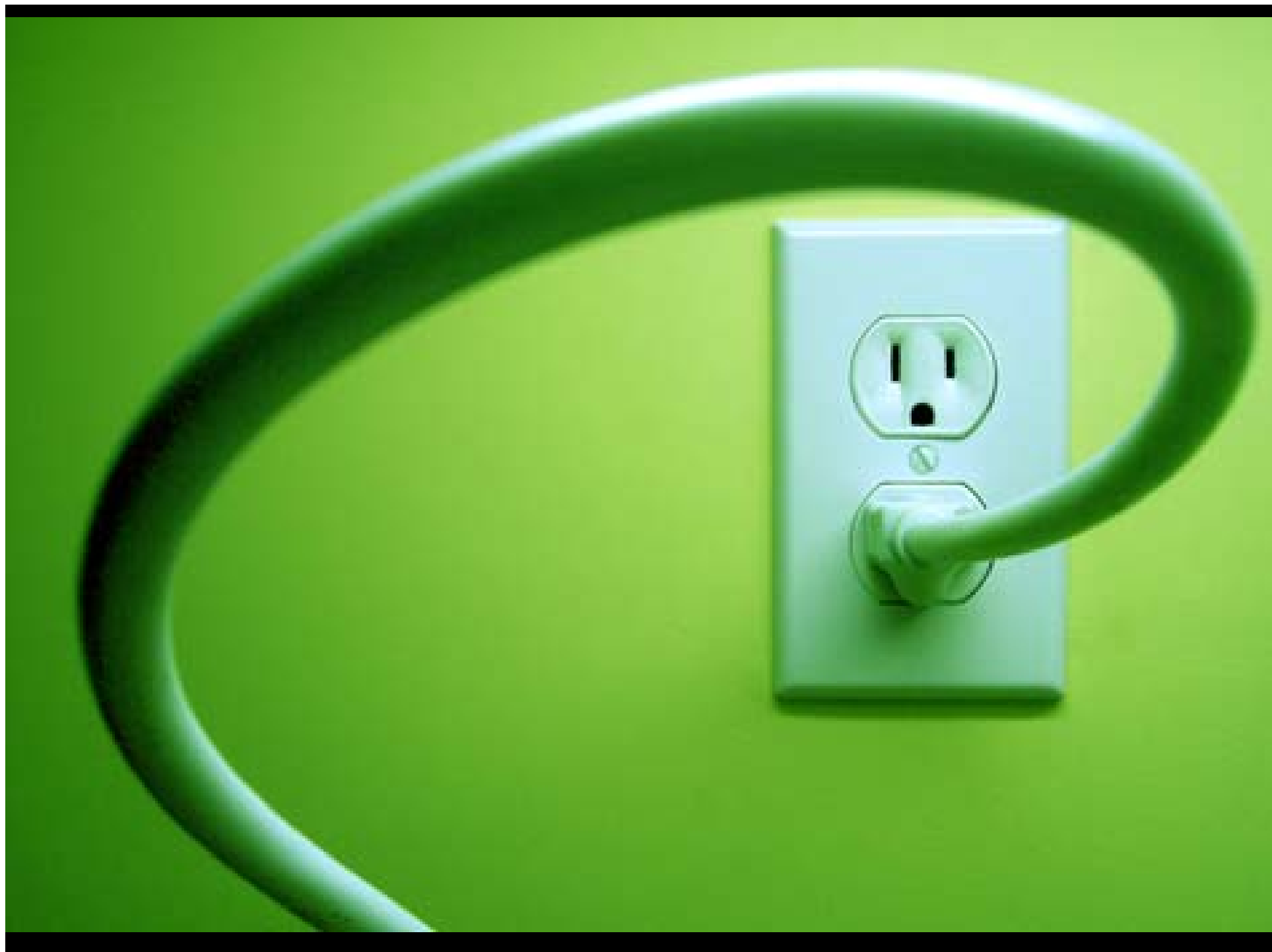
**\$13.4B net profit (3.30%)**

**P/E ratio = 15.1**

**Market cap = \$213 Billion**

**\$500M saving = +\$7.4B market cap**







# Reduce Risk

---



# Tipping Point: Employees

**92%** want to work for green co. (2007 MonsterTRAK)

MBAs sacrifice **\$13,700** /yr socially resp co.  
(’03 Stanford)

*Oil:*

**\$147**

*per barrel*

*Oil:*

**\$80+**

*per barrel?*





**\$225**

*per barrel in 2012*

**WHY YOUR  
WORLD  
IS ABOUT  
TO GET A  
WHOLE LOT**

SMALLER 

**JEFF RUBIN**

Thinking the  
*Unthinkable:*

\$350 bbl

WATCH "RETURN TO TITANIC," NATIONAL GEOGRAPHIC CHANNEL, JUNE 7, 9 P.M. ET/PT

NATIONALGEOGRAPHIC.COM/MAGAZINE

JUNE 2004

# NATIONAL GEOGRAPHIC

## THE END OF CHEAP Oil

The Shiites of Iraq 2  
Under Monterey Bay 36  
Cliff-Hanging Tombs 56  
Sprawl on the Mall? 60  
At Home With Flickers 72  
ZipUSA: Pawtucket, RI 110  
**BONUS** Tear-out Map of Washington, D.C.



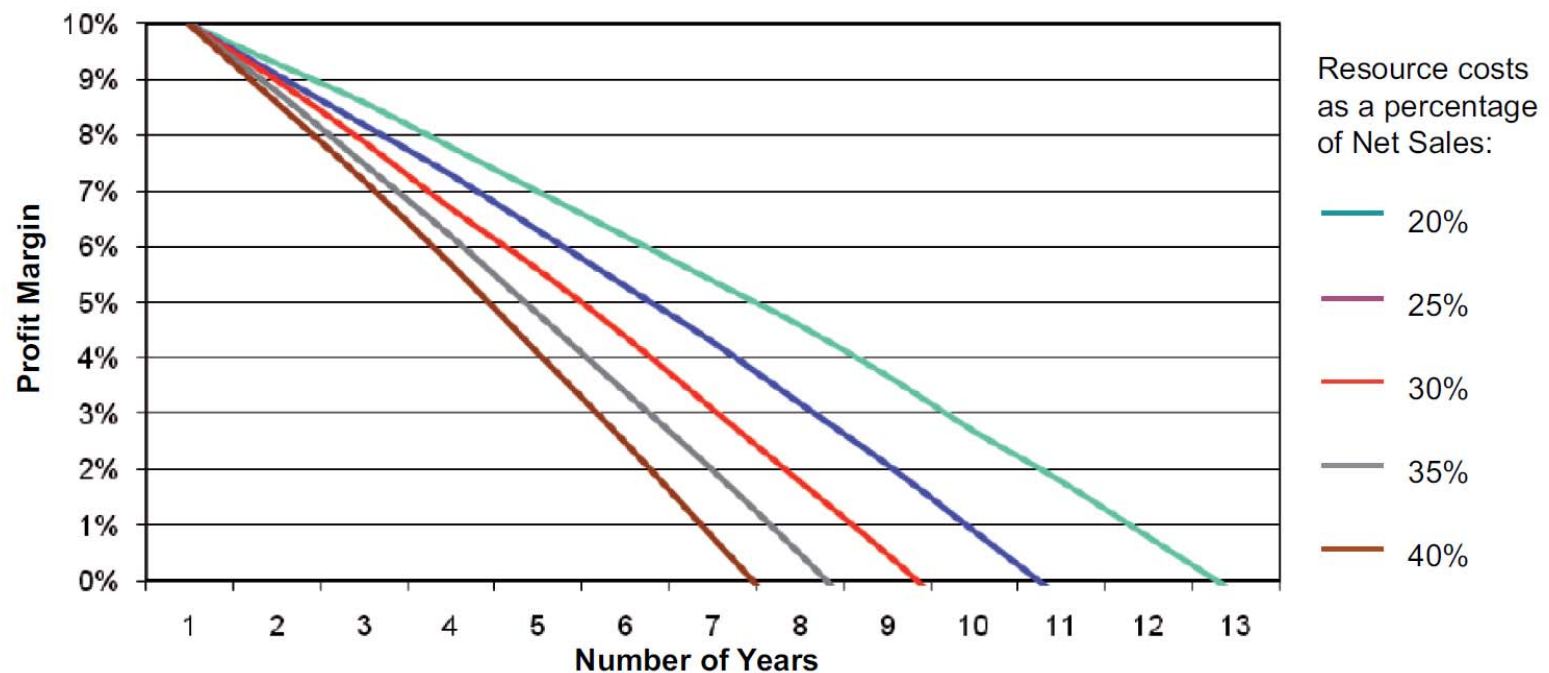
# The Business Case for Sustainability

## Executive Summary



COMMITTED TO  
IMPROVING THE STATE  
OF THE WORLD

Figure 5: Impact of 3.5% year over year resource price increase on profit margins

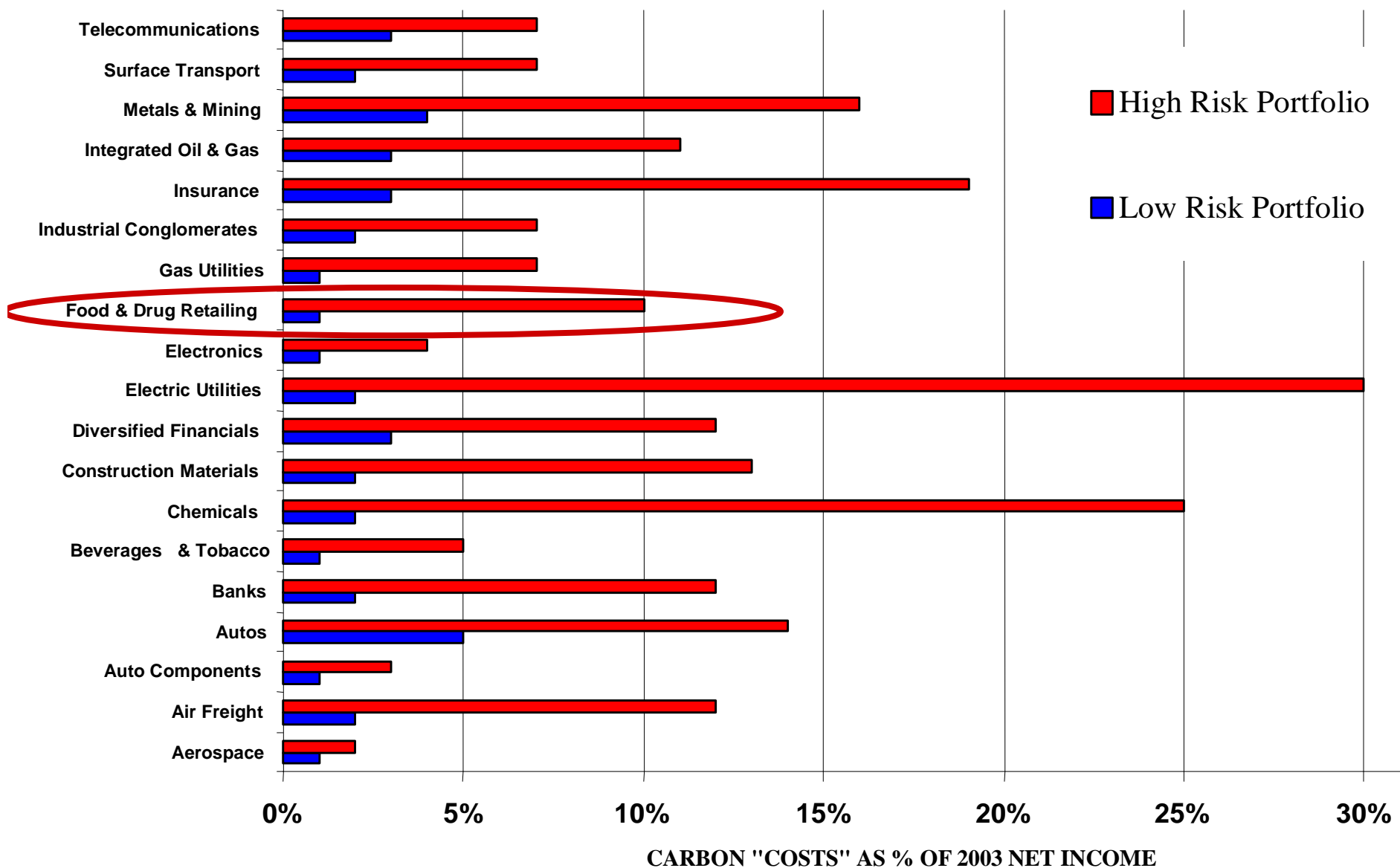


Source: Publicly available company data, Deloitte analysis

## SAMPLE "CARBON BETA" <sup>TM</sup> PORTFOLIO ANALYSIS

**Innovest**  
STRATEGIC VALUE ADVISORS

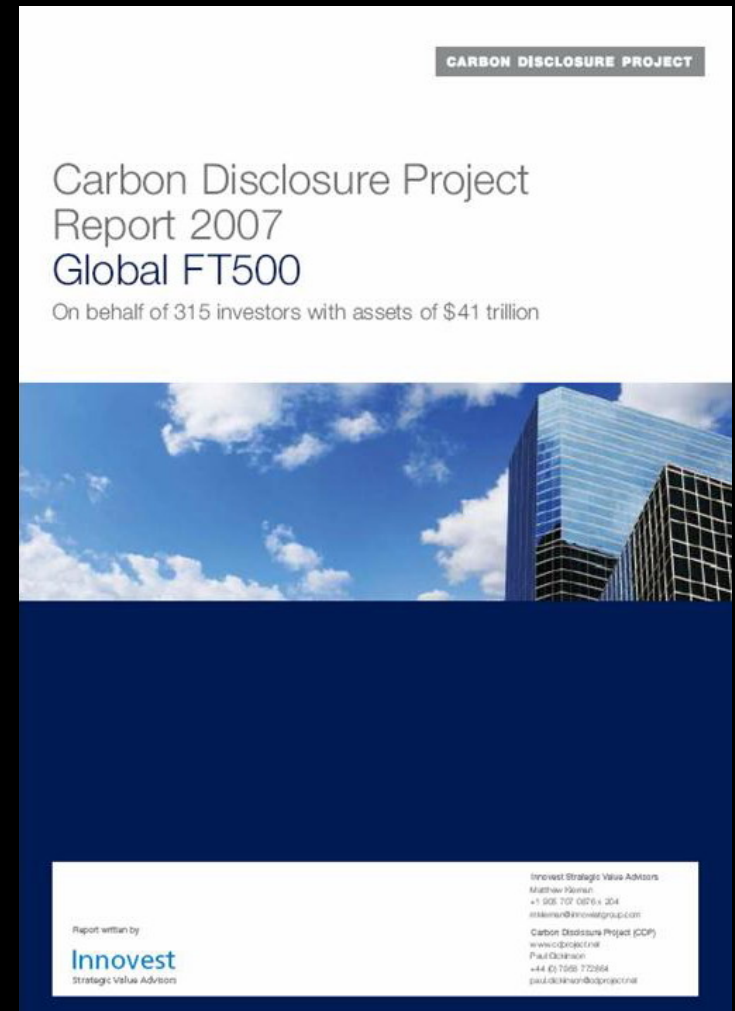
New York • Toronto • London • Paris • Sydney • San Francisco



# Carbon Disclosure Project

Institutional investors  
\$57 trillion assets

2,400 companies  
disclose GHG  
emissions





# **\$57 Trillion Question:**

**Is your organization  
prepared for consequences  
of climate change?**

**Are you reporting + reducing  
your carbon footprint?**

*Sources: Headline from CDP release*

*How to spot*

*the next breakthrough*

# *Blindsided*

*that will change*

*your business forever*

J I M H A R R I S

**Impact of  
not  
innovating**

**25 mpg**





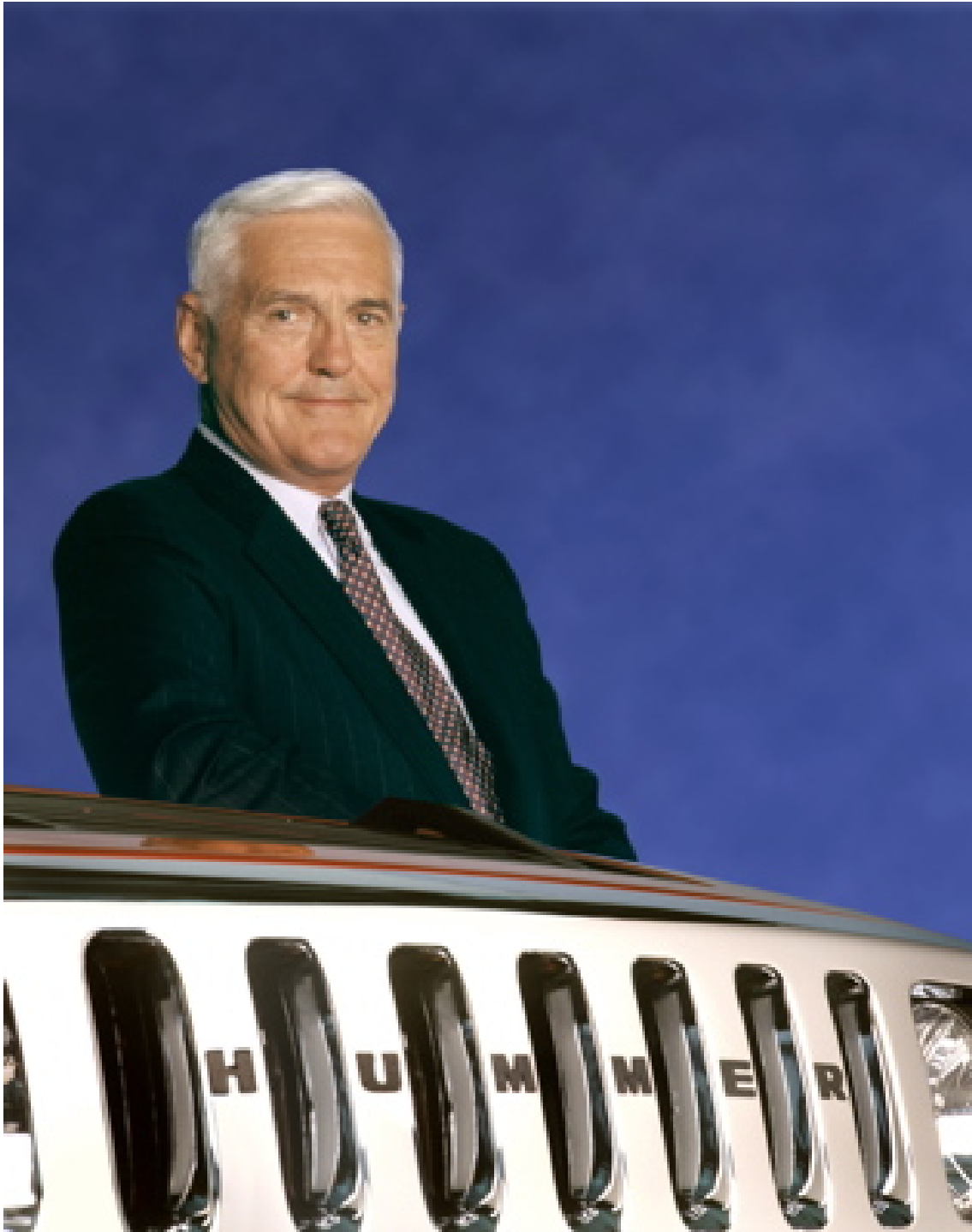
**17 mpg**











***“Climate change  
is a total crock  
of shit.”***

**Bob Lutz**

**Vice Chairman GM**

Responsible for GM's Green car strategy



**And GM got \$70B while laying off more than 200,000 workers from 04-14.**





+

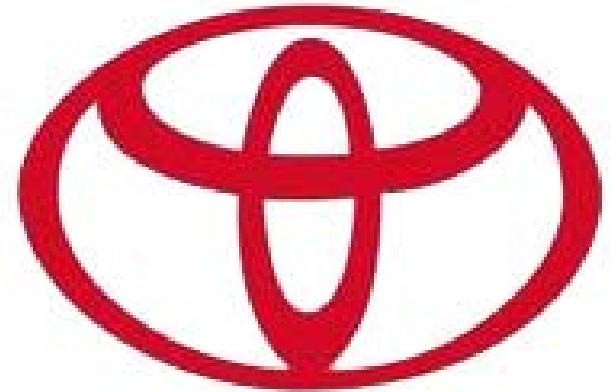


+



**CHRYSLER**

**x 3 =**



**TOYOTA**





**TRIDEL**  
BUILT FOR LIFE

## **TORONTO** Atmospheric Fund

**Tridel's goal: keep  
entry price competitive**

**\$000's of EE (energy  
efficiency) upgrades**

**TAF loan: transferred  
to condo corporations**

**EE savings = lease  
payments**





**All new  
Vancouver  
buildings  
must be**





## Going green pays dividends

Eco-spending can produce great investment return

Jim Harris, Power points, Financial Post

Published: Tuesday, June 23, 2009



Jim Harris

National Post

There's a widely held misconception that going green is expensive. This regular column will smash that myth to pieces.

McKinsey & Company's report, *The Case for Investing in Energy Efficiency*, shows that US\$170-billion can be invested in energy efficiency projects globally for 13 years with an average internal rate of return (IRR) of 17%, which will generate US\$900-billion of annual savings by 2020.

- Nationally syndicated
- Energy efficiency focus
- You can find me on:

Linked  <sup>TM</sup>

twitter

facebook<sup>®</sup>



***“Change is now a constant and the risk of being blindsided with disruptive forces is the ‘Russian Roulette’ of business. I recommend sharpening your radar against these risks!”***

**Jim Balsillie  
Co-CEO  
Research in Motion<sup>88</sup>**



***jimh@jimharris.com***

**?**

**S**