Finance and Property Value Implications of Green

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Institute for Market Transformation (IMT)

and

cool capitalchallenge

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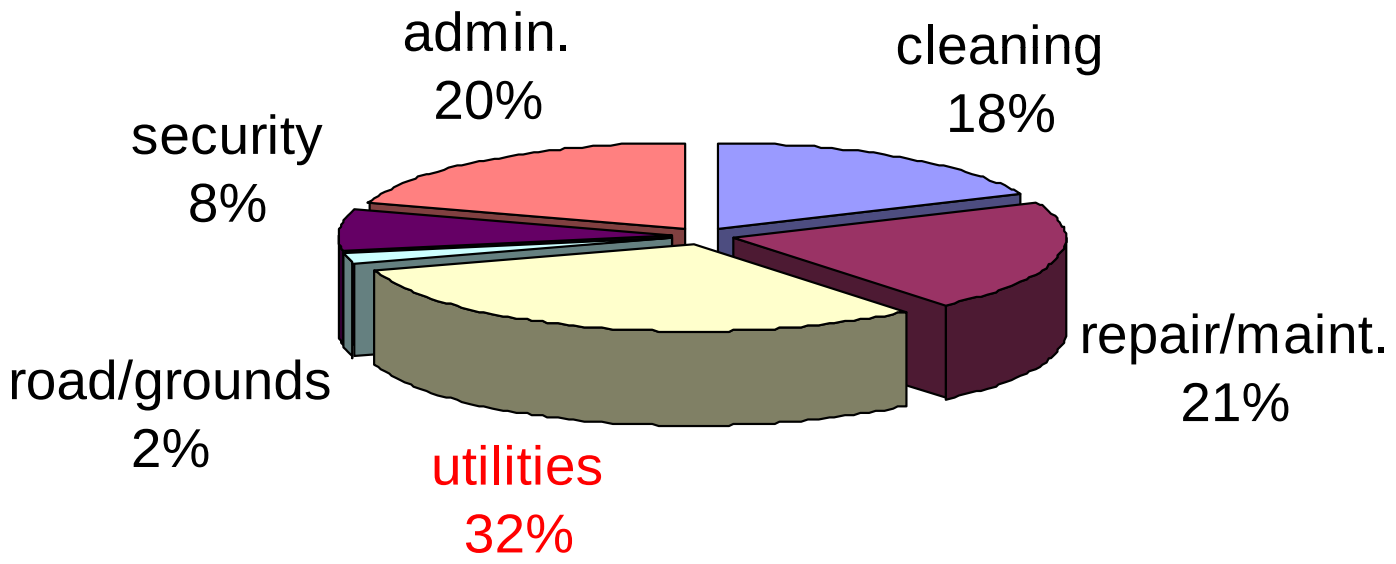
Overview

- Background – Energy and the bottom line
- Cool Capital Challenge
- DC Green Building Act and green building codes
- DC Energy Bill

Energy is the largest cost for DC Office Buildings

Average Shares of Total Operating Cost, Downtown Washington Office Building



Source: 2005 BOMA Experience Exchange Report

Energy costs

- are the single biggest operating cost
- vary dramatically among similar buildings
  - Efficient --> low costs
  - Inefficient --> high costs
- significantly impact NOI and property value

Even in existing buildings, typical ROIs from efficiency are anything but typical

On average each $1 invested in energy performance retrofits increases asset value by $2 to $3

(Assumes a 10% cap rate)

Source: ENERGY STAR research

ENERGY STAR and LEED Buildings Command Premium Prices

"…LEED buildings command rent premiums of $11.33 per square foot over non-LEED peers and have a 4.1% higher occupancy…"

"…Rental rates in ENERGY STAR buildings represent a $2.40 per SF premium…and have a 3.6 % higher occupancy…"

"…ENERGY STAR buildings are selling for an average of $61 per SF more than their peers…"

"…LEED buildings command a remarkable $171 per SF [premium]..."

Source: CoStar press release, March 2008

Owners Can Profit from Efficiency Even With Triple-Net Leases

- Triple net and modified gross leases make it more complicated for owners to realize NOI and property value increases from efficiency investments
- Smart tenants focus on total occupancy cost, not just rent
- Tenants often willing to use their energy cost savings to finance efficiency
  - Especially if approach is tailored to tenant
  - Cool Capital Challenge can help
  - “Tenant Cost Recovery” lease terms can help

WASTE MANAGEMENT 7%

TRANSPORTATION 18%

BUILDINGS 75%

DC Greenhouse Gas Emissions

Source: DC GHG Inventory

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- The Cool Capital Challenge is a partnership of businesses, agencies, non-profit organizations, congregations and individuals that is dedicated to taking action now against climate change.
- The initial goal is to reduce the carbon-dioxide emissions in the Washington D.C. metro area by one billion pounds – the equivalent of taking 80,000 cars off the road!
- Cool Capital has received pledges from businesses, organizations, individuals, congregations, schools and governments that exceed the one-billion-pound goal!

Some Cool Capital Partners

CASSIDY & PINKARD COLLIERS

Friends of the Earth

Akridge

WASHINGTON Parks & People

SB NOW
SUSTAINABLE BUSINESS NETWORK OF WASHINGTON
FOR PEOPLE, PLANET AND PROFIT

INSTITUTE FOR MARKET TRANSFORMATION

THE UNITED STATES CONFERENCE OF MAYORS

SIERRA CLUB
FOUNDED 1892

DC OFFICE OF PLANNING
Greater Washington

WABA

zipcar
wheels when you want them

LPC
LINCOLN PROPERTY COMPANY
Full-Service Commercial Real Estate Since 1965

DOWNTOWN DC
BUSINESS IMPROVEMENT DISTRICT

Interfaith Power & Light

Participating Local Governments

- Alexandria County
- District of Columbia
- Fairfax County
- Frederick County
- Greenbelt
- Loudoun County
- Montgomery County

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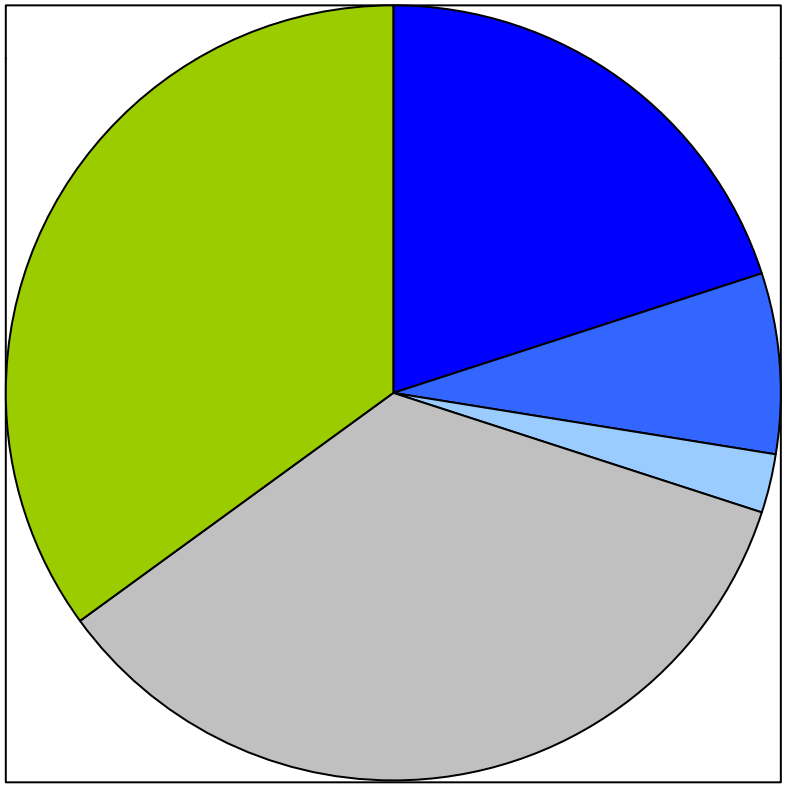
First-year Carbon Lowering Goals

Pounds of CO_2 emissions



- **Households - 200 million**
- **Carbon Busters - 75 million**
- **Community (non-household) - 25 million**
- **Businesses and Institutions - 350 million**
- **Agencies - 350 Million**

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http://www.coolcapitalchallenge.org/

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On our way to
1 Billion Pounds

CO_2

259,205,240

Pounds Pledged

$

$ 25,371,829

Annual Savings

Individuals

2,355,240

Institutions

Downtown DC BID	71,000,000
GWIPL	40,000,000
Sierra Club	40,000,000

Teams

Government Agencies

Metro (WMATA)	31,297
DC Office of Planning	28,435
United States House of Representatives	11,518
Foreign Agricultural Service,	9,624

Take on Global Warming, Pound by Pound

Take the Challenge

Institutional Challenge

What is the Challenge?

Cool Capital Challenge unites individuals, schools, congregations, businesses, governments and other institutions to take a billion-pound bite out of the Capital Region's carbon dioxide emissions by April 2008. Together we can meet the challenge of global warming.

Cool Capital Summer Kick-Off!

Help green the Josephine Butler Parks Center and take tons of carbon out of the air! See calendar for details.

Be Part of the Solution

You can take on climate change by making a few money-saving changes in your home, at work, or on the road. Your pledge makes a difference, so take the challenge . We're here to help.

Cool Capital Summer Kick Off!

Take the Challenge

Institutional Challenge

Tips For Cutting Your Carbon

Compare?

Step 1 Carbon Calculation | **Step 2 Carbon Reduction** | Step 3 Registration | Step 4 Print Results

Cut your carbon emissions. Clear form

Choose from the following suggested actions to reduce your global warming impact. By increasing your home's efficiency and being smart about your energy use, you can quickly cut your emissions by 25% and save hundreds, if not thousands, of dollars. A 40% reduction is within reach for many Americans. Go for it!

I will take the following actions to reduce my carbon emissions by April 2008:

Suggested Action	Pounds of CO2 you could avoid	Dollars Saved
Simple Actions		
☐ Change ____ incandescent light bulbs to compact fluorescent.	0 lbs/yr	$ 0 /yr
☐ I will put electronics (TV, Stereo, Computers) on a power strip and turn them off at the switch when they are not in use.	0 lbs/yr	$ 0 /yr
☐ I will turn off lights when I leave the room.	0 lbs/yr	$ 0 /yr
☐ I will unplug or dispose of a refrigerator or freezer that is not consistently used.	0 lbs/yr	$ 0 /yr
☐ I will increase my AC thermostat up ____ degrees for ____ months in the summer.	0 lbs/yr	$ 0 /yr
☐ I will set my heating thermostat down by ____ degrees in the winter.	0 lbs/yr	$ 0 /yr
☐ Add shade to ____ room AC units if they are in the sun.	0 lbs/yr	$ 0 /yr

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Direct action against the climate crisis

We Have the Power

Collectively, the people and businesses of the region **CAN** make a difference

Take the Challenge Today!

www.coolcapital.org

www.coolcapital.org/business

www.coolcapital.org/institutional_resources

DC's Green Building Act of 2006

- A consensus among businesses, developers, builders, officials, environmentalists
- Result: Unanimously approved by DC Council and Mayor in December, 2006
- LEED mandates phase in starting with public buildings (FY2008) and publicly-funded buildings (FY2009) through private buildings over 50,000 sf (2012) – new buildings only
- Expedited permitting for LEED buildings
- New public buildings to ENERGY STAR benchmark annually and disclose publicly

DC Greening Building Codes

- DC's Green Building Act requires the Mayor to "submit to the Council for approval construction code revisions that shall incorporate as many green building practices as practicable…"
- The DC Department of the Environment contracted with IMT to work with DC's Green Building Advisory Council to identify best practices from around US in green codes
- DC in the process of adopting the 2006 International Code Council (ICC) model codes with DC-specific greening amendments – Likely to be adopted in summer 2008 and become mandatory beginning summer 2009

Remove from the Codes Impediments to Green Building

- Top Priority: Remove impediments to Greening Building
- Proposal removes impediments to
  - waterless urinals
  - green piping
  - disconnecting downspouts to retain rainwater on site
- Some impediments are actually in zoning code – DC is separately seeking to green its zoning code
- Some impediments are the product of misinterpretation of building codes by builders, building officials and others. DC is addressing problem with education.

Raising the Bar: Mandating Greener Practices

Mandating greener practices in these key areas:

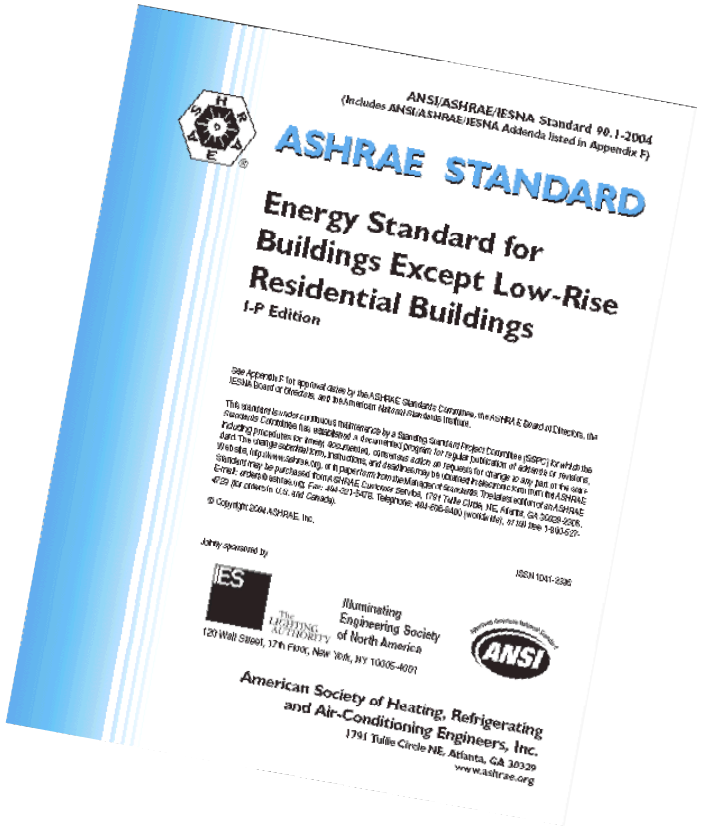
- Water efficiency (low-flow fixtures)
- Energy efficiency – 30% improvement
- Reducing heat island effect (requires flat roofs be white or green)
- Improve indoor air quality and reduce moisture (require ventilation fans in all kitchens and bathrooms to vent to outside)

Washington's Current Commercial Energy Code

International Energy Conservation Code (IECC 2000)

ASHRAE Standard 90.1

- ASHRAE is the American Society of Heating, Refrigeration and Air Conditioning Engineers



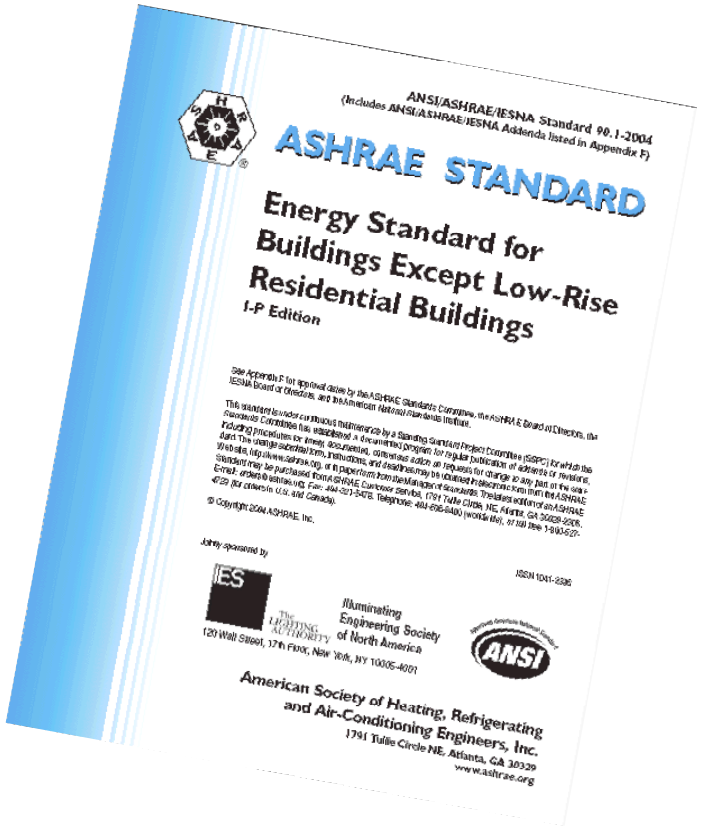
Washington's Proposed Commercial Energy Code

ASHRAE Standard 189.1's energy chapter

- Standard 189.1 is a proposed model code that provides standards for high-performance, green buildings
- Applies to all buildings except low-rise residential buildings

(same as Standard 90.1)

- Requires efficiency 30% greater than 90.1



Commercial Energy Efficiency

Mandatory Provisions

- Sub metering
- “Solar Ready” for on-site generation
- ENERGY STAR appliances and equipment

Energy Efficiency

Performance Option

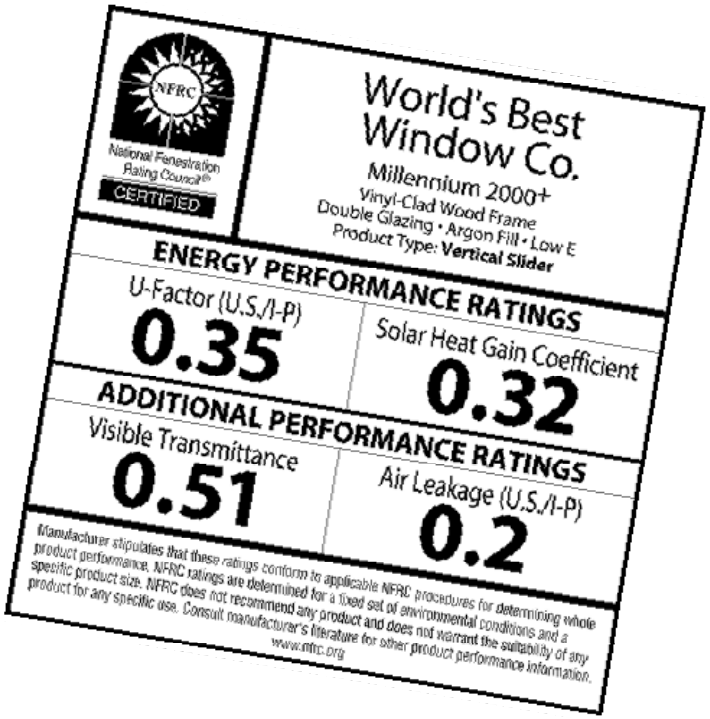
Two criteria:

- Annual energy cost:
  proposed <
  mandatory plus prescriptive
- Annual carbon dioxide equivalent (CO_2e):
  proposed < mandatory plus prescriptive

Energy Efficiency

<u>Prescriptive Option (Building Envelope)</u>
<u>CZ-4 Washington, Maryland, Virginia</u>

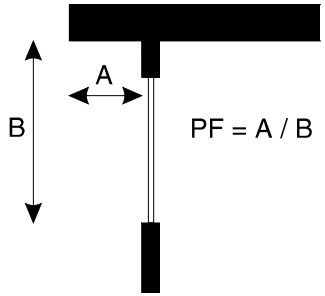
- **Roof insulation:** R-25 continuous,
  R-49 attic
- **Wall:** R-13 cavity + R-10 cont.
  R-11.4 mass wall
- **Fenestration assembly:**
  U-0.30 wood, vinyl,
  fiberglass frame
  U-0.40 curtainwall
  SHGC-0.35



Energy Efficiency

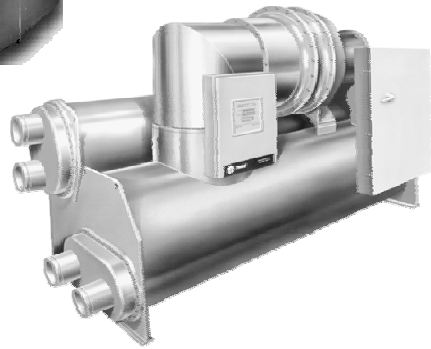
Prescriptive Option (Building Envelope)

- Overhang: PF > 0.5



- Orientation:
  solar gain through
  east/west < north/south
- Continuous air barrier

Energy Efficiency



Prescriptive Option (Mechanical)

- Higher equipment efficiencies (CEE Tier II)
- More pipe/duct insulation
- Fan power to be 10% less
- Unoccupied hotel/motel rooms to have auto-shutoff

Energy Efficiency

Prescriptive Option (Lighting)

- Interior lighting power to be 10% less
- Occupancy sensor controls
- Auto-controls for lighting in daylight zones

DC Energy Bill of 2008 (Pending)

- Lead Sponsor is Councilmember Mary Cheh
- Co-introduced by nine of 13 DC Council
- Restructures energy program delivery, including creating “Sustainable Energy Utility”
- ENERGY STAR benchmarking and public disclosure mandates for **existing non-residential buildings** phase in starting with public buildings, then private buildings over 200,000 sf (2010) and finally private buildings over 10,000 sf (2014)

Institute for Market Transformation

www.imt.org

Cool Capital Challenge

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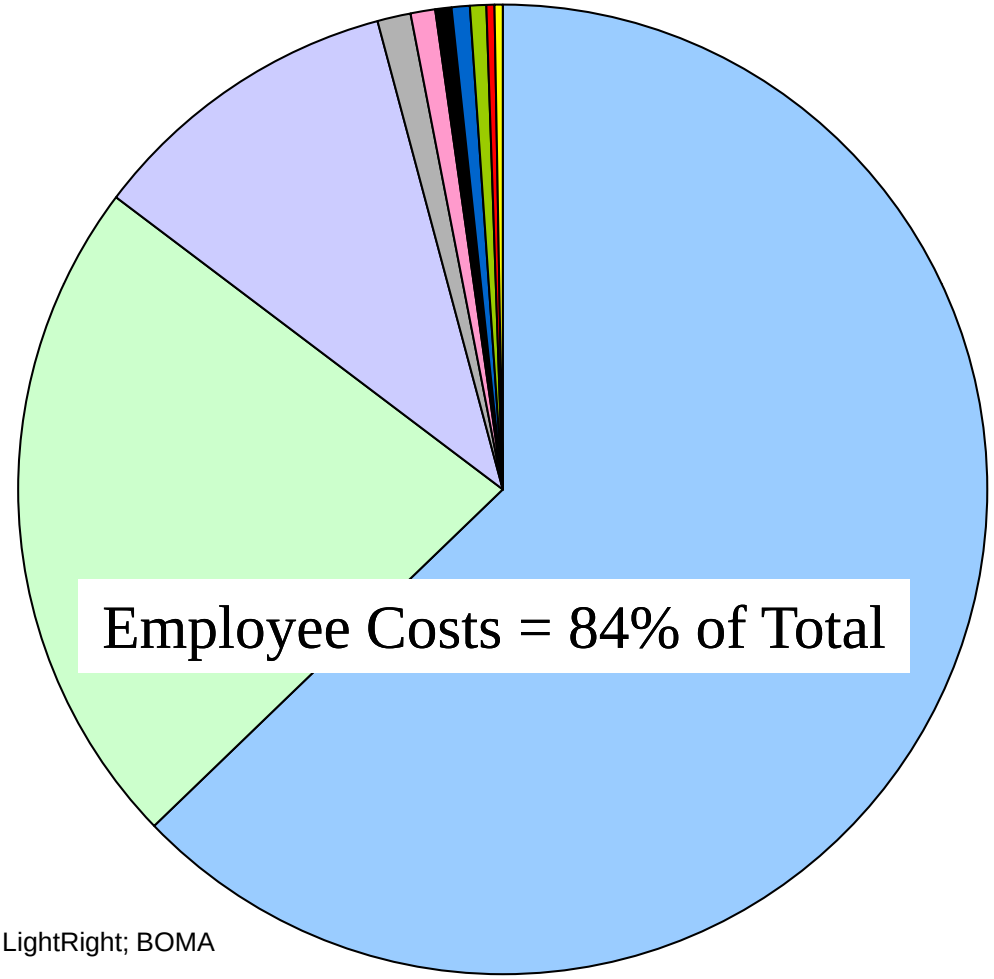
The Office Tenant's Perspective



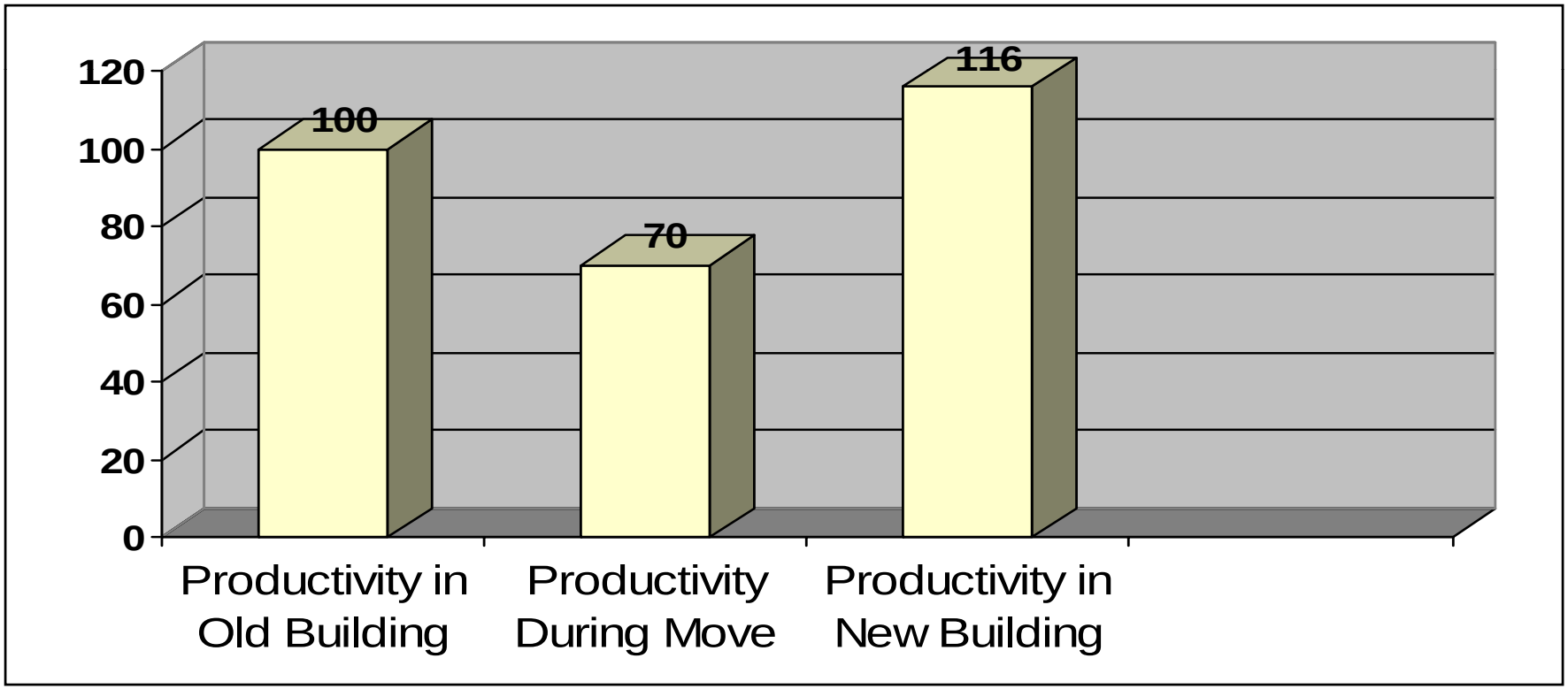
Tenant's costs

- Salaries
- Benefits
- Rent
- Utilities
- Electricity
- Cleaning
- Maintenance
- Planning
- Amenities
- Lighting

Source – LightRight; BOMA

West Bend Mutual Insurance Company

(West Bend, WI)



Report on Costs and Financial Benefits of Green Buildings

A report to California's Sustainable Building Task Force, a group of over 40 state agencies, with funding from seven agencies.

Drawing on cost data from 33 green building projects and benefits data from over 100 buildings nationwide. Developed in partnership with USGBC.

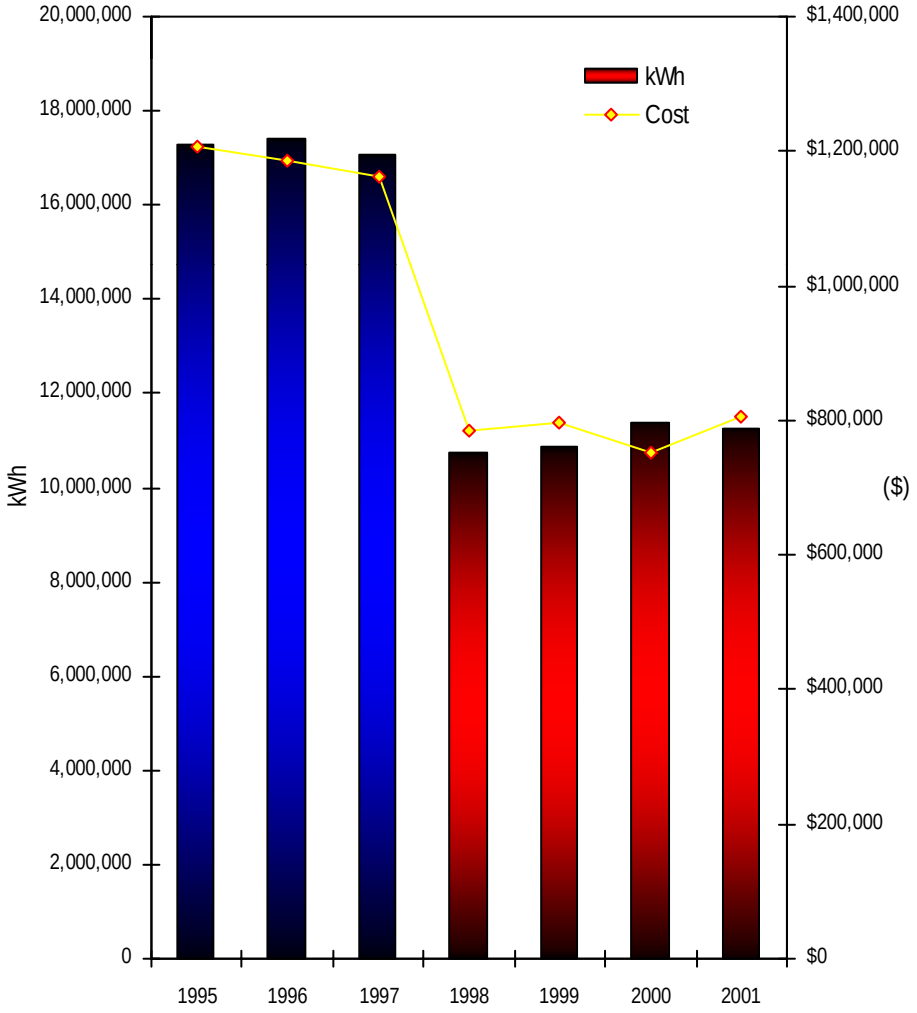
Principal Author: Greg Kats, Capital E

Financial Benefits of Green Buildings
Summary of Findings (per ft^2)

Category	20-year Net Present Value
Energy Savings	$5.80
Emissions Savings	$1.20
Water Savings	$0.50
Operations and Maintenance Savings	$8.50
Productivity and Health Value	$36.90 to $55.30
Subtotal	**$52.90 to $71.30**
Average Extra Cost of Building Green	(-3.00 to -$5.00)
Total 20-year Net Benefit	**$50 to $65**

Source: Capital E Analysis

Huge Savings Possible
Even Without Capital Improvements
Case Study: Class A Office Building
Downtown Chicago



- Under Previous Management (1995 – 1997) averaged 17,265,528 kWh at a cost of $1,184,843
- Under Hines (1998 – 2001) averaged 11,074,991 kWh at a cost of $785,255
- Average Annual Electrical Savings of $0.48 PSF, a 34% reduction

Investments in Energy Performance Retrofits Have High Returns*

Building 100,000 sf	Invest-ment/SF	Rate of Energy Savings	$ Savings/ SF/Yr	Increase to NOI	Asset Value Increase	Simple Payback
Janitorial Services	$0.01	5%	$0.14	$13,500	$135,000	Immed-iate
O&M	$0.05	9%	$0.20	$19,800	$198,000	4 months
Lighting	$1.04	16%	$0.36	$36,000	$360,000	3 years
HVAC	$1.21	9%	$0.21	$20,700	$207,000	6 years
All Measures	$2.31	39%	$0.90	$90,000	$900,000	2.5 years

Source: ENERGY STAR research

* Calculations based on national averages and $0.09 per kWh.

Energy Price Volatility Risk Case Study:

Telergy Building, Syracuse, NY

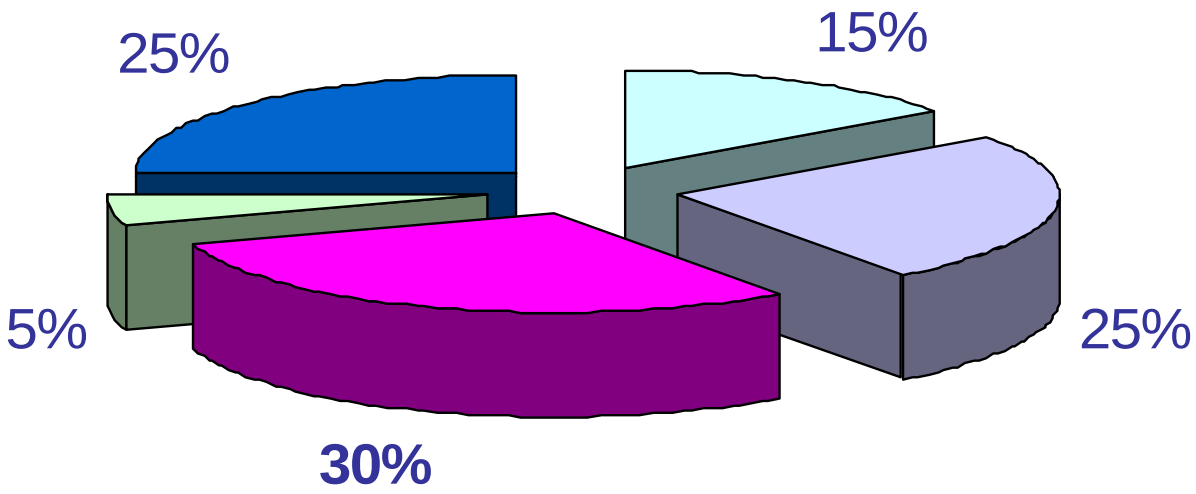
- Class A suburban office building
- 116,000 net rentable area
- 9.7-acre parcel with 430 parking spaces
- Built in 1981 and significantly expanded in 1999
- An energy hog in a depressed market

Full case study: www.imt.org/Papers/Telergy.pdf

Telergy Case: Lenders burned by inefficient buildings increasing attention to energy in underwriting

- Telergy defaulted on mortgage to HSBC in August 2001 and soon after filed for bankruptcy
- HSBC knew it would lose some principal, in part because building was a known energy hog
- HSBC commissioned appraisal
- Draft appraisal valued property at $4,300,000 based on historic utility bills of $4.46 psf
- HSBC-commissioned energy analysis revealed tenant-specific electric loads (telecom/data centers)
- Normalization of energy bills led to $1.2 million increase in appraised value to $5.5 million – a 28% increase. It reduced HSBC's haircut by ~$500,000.

Typical Energy Uses in DC Office Buildings



Source: Transwestern Commercial Services