UTILITY ENERGY FORUM

Post Montgomery Center

A Case Study

Jose Guevara, LEED AP

Property Manager

Cushman & Wakefield

BOMA EARTH Awards

Money Isn't All You're Saving

EARTH DAY

On April 22, 1970, 20 million people across America celebrated the first Earth Day. What started as a day of national environmental recognition has evolved into a worldwide campaign to protect our global environment. Everyday should be Earth Day in our lives.

The question we should ask is what is our industry doing… ??????


COMMERCIAL
GOING GREEN
Environmental efficiency is actually the hottest trend in
Special
Reprint
Edition
USA TODAY
As seen in
USA TODAY
Money
July 26, 2006
Building 'green' reaches a new level
REAL ESTATE FINANCE
Real Estate's Latest Movement
green
by
DESIGN
The Gre
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Adobe has turned its headquarter
and is saving millions of d
The New York Times
Editorial
FRIDAY, AUGUST 11, 2006
Build Green,
Make Green
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The Greening of America's Campus
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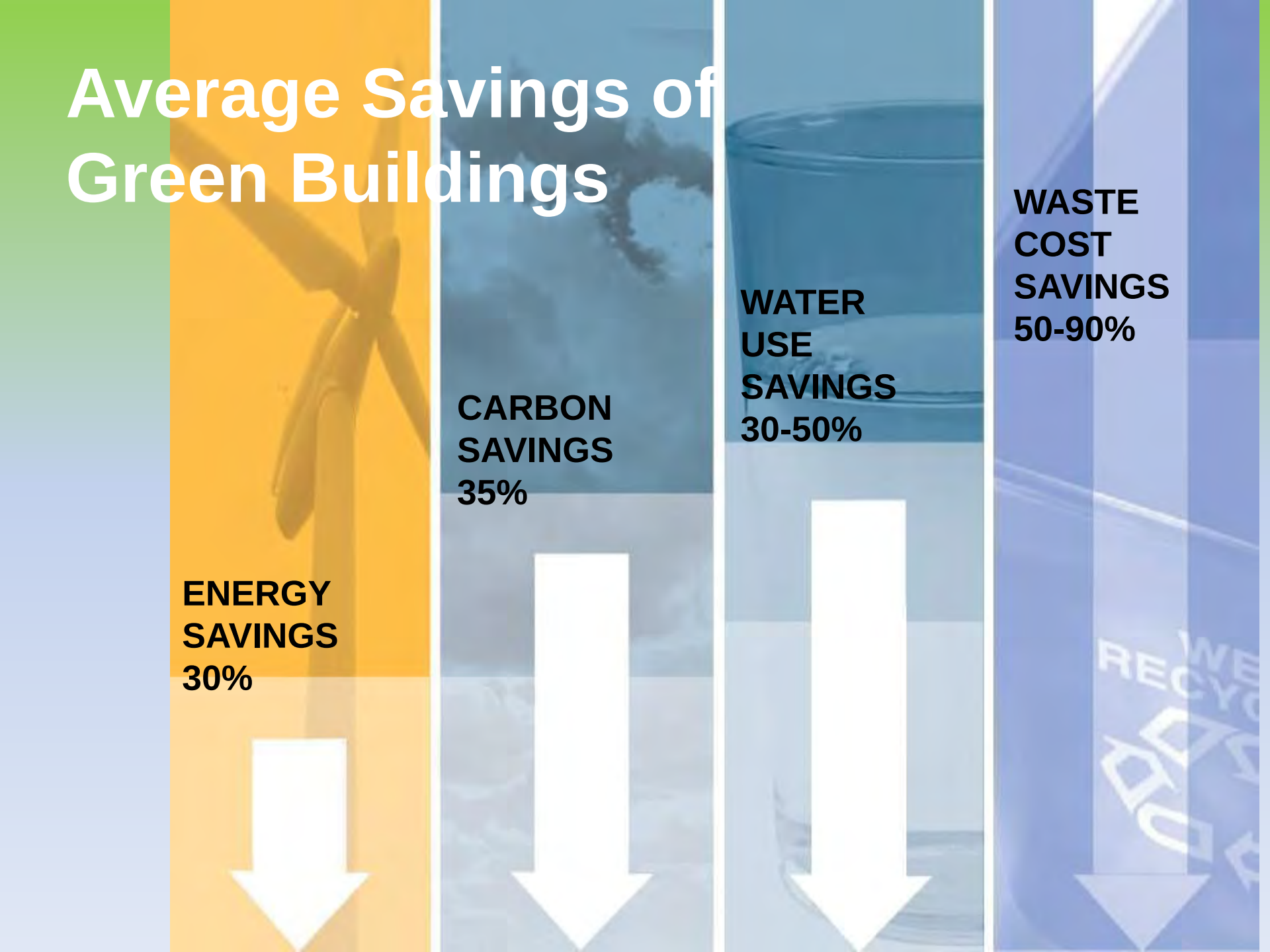
It's Easy Being Green
The Washington Post
REAL ESTATE

Average Savings of Green Buildings




TEAMWORK!
WORKING TOGETHER GETS THE GOODS!

You cannot do it alone !

Inform and motivate:

- ✓Asset Managers/Owners
- ✓Leaders at your firm
- ✓Operational Staff **(Engineers, Janitors, Security)**
- ✓Vendors / Contractors
- ✓Tenants/ Occupants
- ✓Brokers
- ✓Architect
- ✓Utility Partners

KNOW WHERE YOU STAND

(You can't manage the process if you don't monitor it !!)

- ✓PG&E Energy Audit
- ✓Water Department Audit
- ✓Waste Contractor Disposal Audit
- ✓Vendors / Contractors Audit
- ✓Energy Star Benchmarking

How to get there?

Where do we want to be?

Where are we now?

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OMB No. 2060-0347

STATEMENT OF ENERGY PERFORMANCE
Post Montgomery Center Tower

Building ID: 7657
For 12-month Period Ending: January 31, 2008[1]
Date SEP becomes ineligible: May 30, 2008

Date SEP Generated: March 07, 2008

Facility
Post Montgomery Center Tower
Suite 3220, One Montgomery St.
San Francisco CA 94104

Facility Owner
Cushman & Wakefield representing Post Montgomery Associates
One Montgomery Street, Suite 3220
San Francisco CA 94104
(415) 393 1540

Primary Contact for this Facility
Marty Gianni
One Montgomery
Suite 3220
San Francisco CA 94104
(415) 393 1500
mpgtheman@outdrs.net

Year Built: 1982
Gross Building Area (ft²): 811,733

Energy Performance Rating[2] (1-100) 95

Facility Space Use Summary

Space Type	Area(ft²)	Occupants	Operating hours/week	Number of PCs
Computer Data Center	26,884	N/A	168	N/A
Office	784,849	2,300	89	2,755
Parking	60,750	N/A	N/A	N/A

Site Energy Use Summary

Electricity (kBtu)	39,357,068
Natural Gas (kBtu)[3]	0
Total Energy (kBtu)	**39,357,068**

Energy Intensity[4]

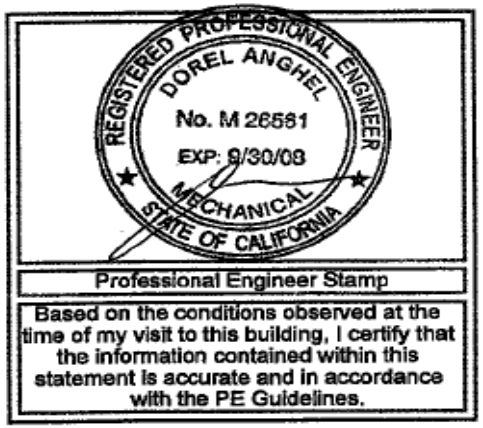
Site (kBtu/ft²/yr)	49
Source (kBtu/ft²/yr)	163

Emissions (based on site energy use)

CO_2 (tons/yr)	5,212

National Average Comparison

National Average Source EUI	349
National Average Site EUI	105
% Difference from Average	53% Below Average
Building Type	Office



Professional Engineer Stamp

Based on the conditions observed at the time of my visit to this building, I certify that the information contained within this statement is accurate and in accordance with the PE Guidelines.

Professional Engineer

ENERGY STAR BENCHMARK REGULATIONS (California)

- AB 1103 was passed in 2007

- Requires non-residential building owners for buildings larger than 50,000 sf to disclose their Energy Star rating to a buyer, lessee, or lender.

ENERGY STAR BENCHMARK REGULATIONS (San Francisco)

- Existing Commercial Building's Energy Performance Ordinance became effective March 20, 2011

- Requires non-residential building owners for buildings larger than 10,000 sf to perform an energy audit. Over 50,000 sf by January 2012 and over 10,000 sf by January 2013. Then every five years thereafter.

AB758 – Would require energy audits on a Statewide basis.

EARTH Awards

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- Energy Star benchmarked since 2001
- BOMA's Commercial Recycler of the Year (2002 – 2006) – CORY Award
- BOMA/EPA Earth Award in 2007, 2008, 2009, 2010 & 2011
- LEED Certified Gold in 2009
- BOMA 360 Certified in 2010

U.S. GREEN BUILDING COUNCIL MEMBER

energy Money Isn't All You're Saving

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SAVE SOME GREEN BY "GOING GREEN"

Money Isn't All You're Saving

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Program Cycle

- Implementation of a Waste Diversion Program
- Implementation of a Green Cleaning Program
- Implementation of a Sustainable Purchasing Program
- Implementation of an Energy Efficiency Program
- Implementation of a Water Conservation Program

NOTE: These are all “synergistic relationships”

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Intent of Program

- Reduce energy and water consumption
- Increase Waste Diversion
- Improve indoor air quality
- Benefit health of occupants
- Improve property cleanliness
- Reduce building's detrimental environmental impact

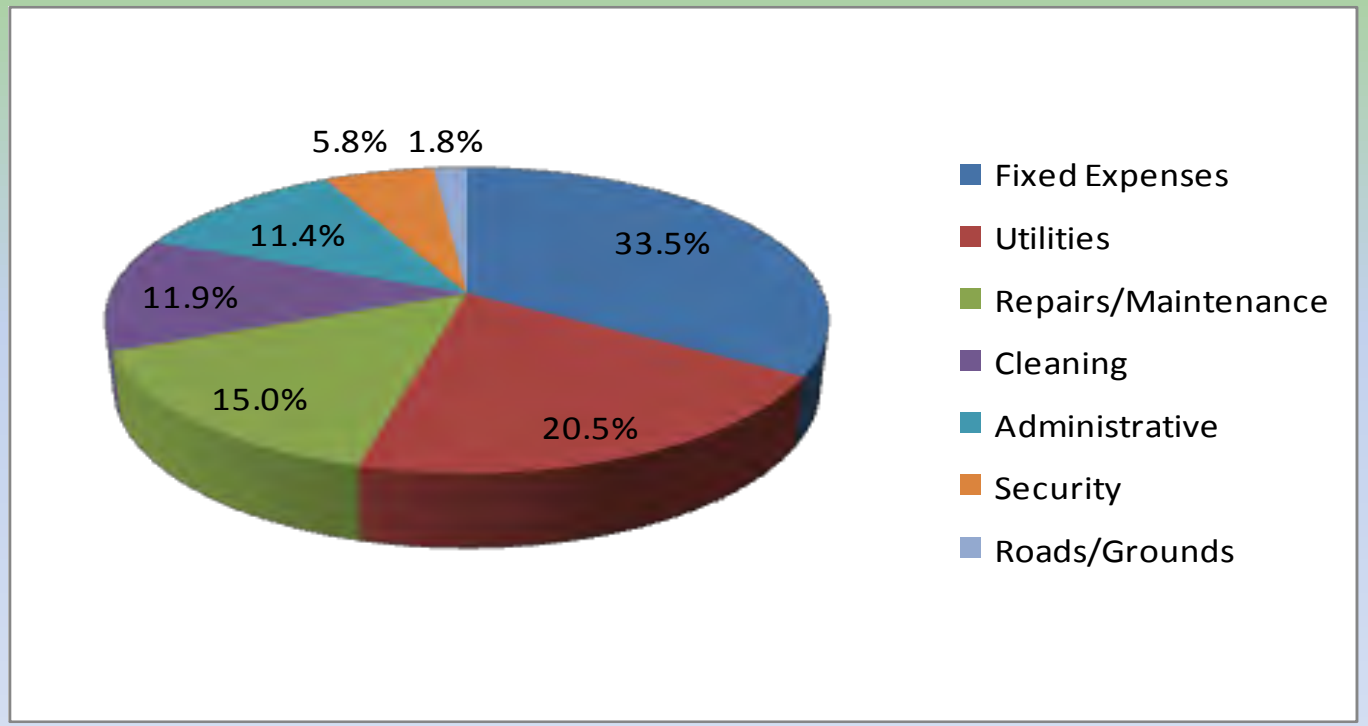
NOTE: These are all "synergistic relationships"

Mini Case Study: Post Montgomery Center

Year Implemented	Initial Monthly Waste Cost	Investment	Initial Diversion Rate	Increased Diversion Rate	Reduced Monthly Waste Cost	Payback	Annual Savings
2008 Compactor	$14,500	$35,000	36%	78%	$10,000	7.8 months	$54,000
2010 Sorter	$10,000	$4,600/mo	78%	89%	$5,000	1 month	$4,800

NOTE: Does NOT include $10,000 DOE incentive or GG 50% rebate.

Why is Energy So Important?



PG&E estimates 40% of load and 45% of greenhouse gases in SF come from commercial customers.

Data based on 2008 BOMA EER

Senate Bill (SB) 695

- Allows for the deregulation of the energy market in California

- Became law on October 11, 2009

- First phase started in 2010

What is deregulation?

•Deregulation of the electricity industry divides the electricity business into three separate functions:

1. Generation - the production of electricity
2. Transmission/Distribution - the transportation from production to end user
3. Supply - the sale of the electricity

•Deregulation allows you to choose your electricity supplier.

•The local utility owns the infrastructure and would continue to deliver electricity

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Energy Efficiency Initiatives

- Implementation of a “Light Harvesting” System
- Installation of motion sensors and timers in bathrooms, emergency stairwells and garage.
- Replace common area lighting with LED’s
- Replace standard lighting with T8’s
- Installation of a “Cool Roof”
- Installation of VFD’s on fan and pump units
- Conducted Energy Audit & Retrocommissioning

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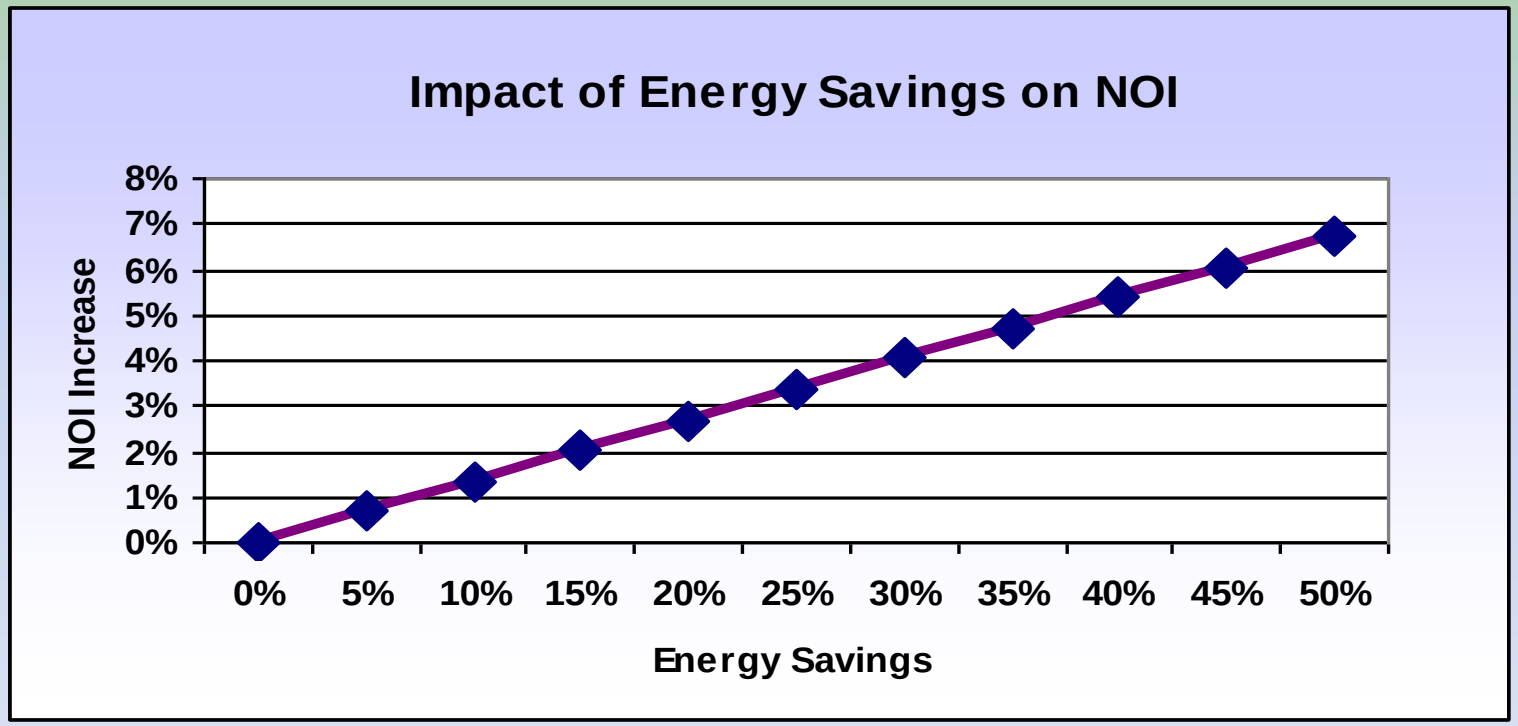
BUILDINGS DO NOT USE ENERGY
PEOPLE DO !

Reducing Energy Consumption Improves the Bottom Line



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"Going Green" - Expense or Investment?

- Rebates
- Financial support programs
- Reduction in energy cost
- Reduction in waste expense
- Recognition, awards & financial incentives
- Improved service/environment = $$$$$

RESOURCE CONSERVATION INVESTMENT RETURN ANALYSIS

Measure	Annual Electric Savings (kWh)	Annual Electric Saving ($)	Annual Gas Savings (therms)	Annual Gas Savings ($)	Annual Total Savings ($)	Implementation Cost	Incentive/Rebate	Payback with Incentive (years)	Net Cost
Program min OA damper position to be proportional to number of fans operating. Calibrate positioner.	$2,987	240	$3,167	$8,844	$9,084	$1,780	0.0	0.2	
Control lead domestic water pump with VFD. Adjust PRVs and sequence control of two pumps.	$61,287	$4,554	$0	$0	$4,554	$6,540	1,005.0	1.2	
Optimize staging and ramping of fan speeds and reset of temps	$8,939	$1,607	$0	$0	$1,607	$1,060	0.0	0.7	
Add motion detector control to 91 of 119 8' 2F32/T8 fixtures	$27,578	$2,064	$0	$0	$2,064	$14,210	637.0	6.6	
Disable bypass valve above min flow per chiller mfr recommendations	$58,934	$7,318	$0	$0	$7,318	$20,360	4,715.0	2.1	
Implement automatic reset based on zone demand and RA temps	$29,538	2,539	$6,865	$19,173	$27,713	$2,760	0.0	0.1	
Implement daylight sensor control	$3,353	$510	$0	$0	$510	$580	580.0	0.0	
Reset static pressure based on total air volume with branch pressure minimum	$41,274	$3,548	$0	$0	$3,548	$3,700	0.0	1.0	
Implement CHW supply temp reset based on demand; implement CW reset based on WB temp	$31,368	$14,479	$0	$0	$14,479	$1,170	0.0	0.1	
Control main garage fans S-19, S-20, E-22 & E-24 based on CO level at exhaust. Control with VFDs during current schedule of 6 AM to 7 PM	$79,893	$6,868	$0	$0	$6,868	$19,220	6,391.0	1.9	
Convert 18 of 31 to 3F32T8HO fluorescent high-bay and control with motion detectors	$25,836	$2,509	$0	$0	$2,509	$6,000	2,067.0	1.6	
Lock all main supply and return fans to max pitch and control with VFD	$7,903	$569	$0	$0	$1,120	$74,000	8,000.0	59.0	
Repair and/or optimize daylight dimming controls	$18,758	$2,277	$0	$0	$2,277	$3,570	1,283.0	1.0	
Retrocommissioning						$50,000	50,000.0		
	397,648	$49,082	10,032	$28,017	$83,651	$204,950	$74,678		$46,621

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- Retrocommissioning study costs paid (100%) by PG&E ($50,000)
- Identified $204,950 of upgrades
- Received incentives/rebates for $74,678
- Net Cost = $46,621
- Plus - reduced utility costs by $83,651 per year

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Water Use (Energy) Statistics

- Building water use is about 13.8% of all water use in the US - 70% goes for agriculture.
- In California, delivering water consumes about 10% of all generated electricity.
- It takes about 8 KWH to deliver 100 cubic feet of water from Nor Cal to homes in So Cal.
- Each 100 cubic feet of water delivered requires the addition of 5 pounds of carbon dioxide into the air.
- 100 cubic feet of water requires 8 KWH of electricity
- In other parts of the U.S. where groundwater or river water is pumped to homes, the cost to the environment will be about 1/4 that of the most expensive water in California.

Water Management

- Installed 0.5 GPM Flow Restrictors on all faucets and shower heads
- Installation of Hydro Powered Automatic Faucets
- Installation of One Pint Flush Urinals in restrooms
- Installation of Hydro Powered 0.5 Gallon Automatic Flushers
- Tenant Education/ Training & Communication

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WATER CONSERVATION ANALYSIS (Based on 76 restrooms and 38 lunchrooms)

Measure	Replaced Unit	Number of Fixtures	Daily Water Savings (gallons)	Annual Water Savings (gallons)	Annual Savings ($)
Install 0.5 gpm flow aerators or faucet replacement with 0.5 GPM flow units	1 gpm	266	399	104,139	2,083
Toilet / Flusher replacement with 1.28 gpf unit	3 gpf	209	1,141	297,838	5,957
Toilet / Flusher replacement with 1.6 gpf unit	3 gpf	19	80	20,828	417
Urinal/ Flusher replacement with 1 pint pf unit	2 gpf	80	300	78,300	1,566
				501,104	$10,022

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Environmental Impact Analysis

(100 cubic feet saves 5 lbs of CO2 & 8 KWH)

Annual Water Savings (gallons)	Annual Water Savings (cubic feet)	Electricity Savings (KWH)	Pounds of CO2 Not Generated
501,104	66,814	8,352	3,341
TOTAL SAVINGS		**8,352**	**3,341**

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NO CAPITAL INVESTMENT / EXPENSE !

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Return On Investment

- 38-story, class A, financial district office tower built in 1982 - 800,000 sf. Benchmarked in 2001 with a rating of 82.
- **10% average annual reduction in energy consumption.**
- Electricity – estimated savings over three years of **$425,000**
- ENERGY STAR rating of **94-95 in 2008, 2009 & 2010**

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Return On Investment

(Intangibles)

- Improved Employee Morale
- Employee Retention

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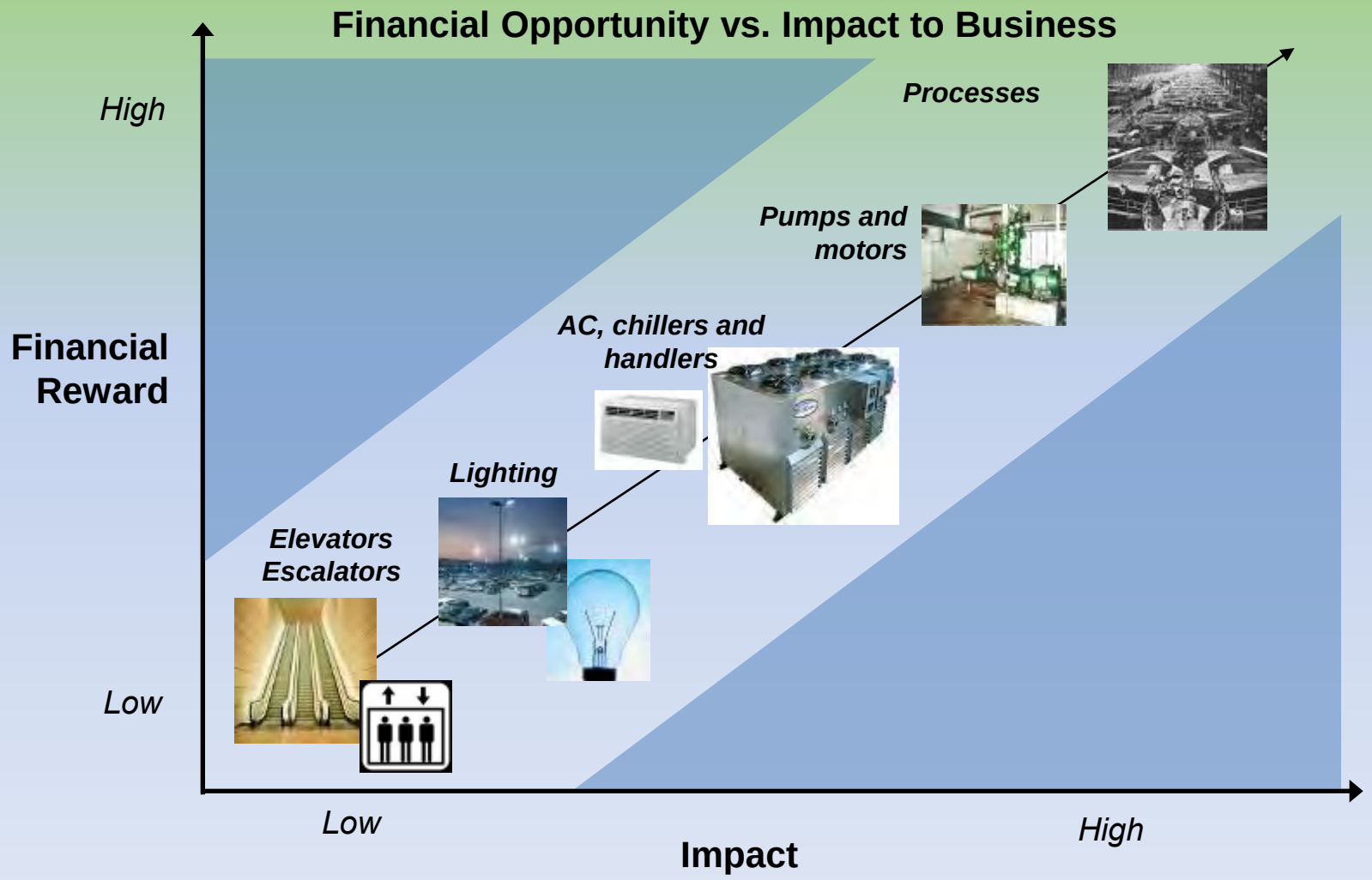
ARE WE DONE ?

Energy Audits assist in the development of strategies in a detailed plan.




Thank You !

Resources Available

- BEEP Web Portal: www.boma.org
- bomasf.org
- ENERGY STAR®: www.energystar.gov
- USGBC: www.usgbc.com
- Flexyourpower.org
- Energy.ca.gov
- pge.com
- epa.gov
- PG&E Training Center
- http://www.sfenergywatch.org/

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LIVE, BREATHE AND EAT HEALTHY

SOCIAL RESPONSIBILTY STARTS WITH EACH ONE OF US

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