Leveraging ENERGY STAR® Tools and Resources to Improve Energy Performance

September 27, 2007

Presentation Overview

- Why Energy Performance?
- Identify the Best Opportunities through **ENERGY STAR**
  - Commercial Partners
  - Assess Performance and Set Goals
  - Create and Implement an Action Plan
  - Evaluate progress
  - Recognize Achievements
- Success Stories

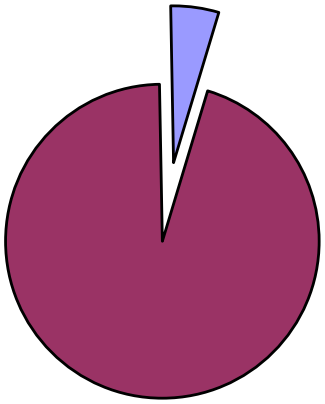
What is ENERGY STAR?

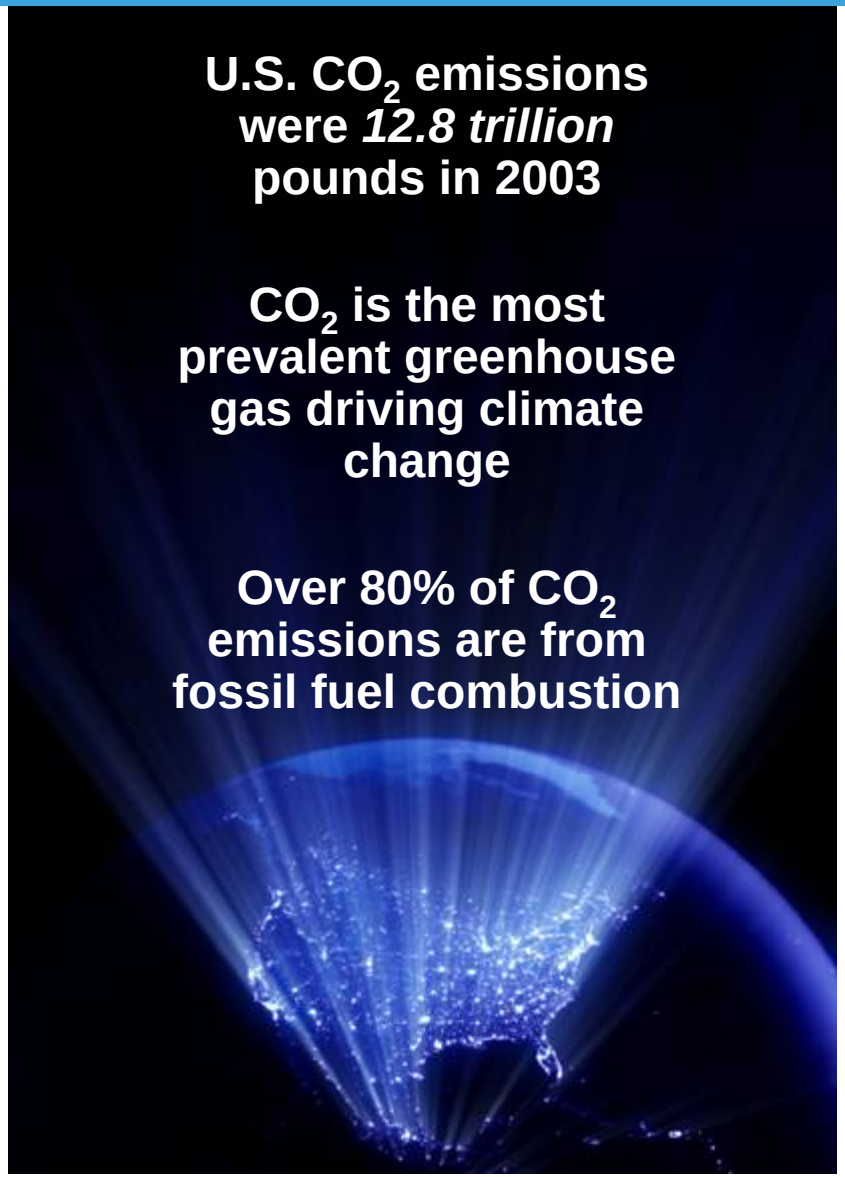
- Voluntary partnership between government, businesses and consumers
- Demonstrate environmental leadership through energy efficiency
- National symbol for superior energy performance

Why Energy Performance?

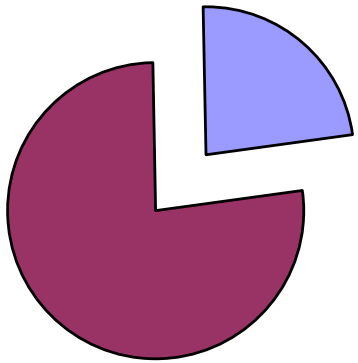
The Global Picture: US Energy Consumption

The US represents 5% of the world population…





…But emits 23% of the world's carbon dioxide (CO_2)



Commercial Building Footprint

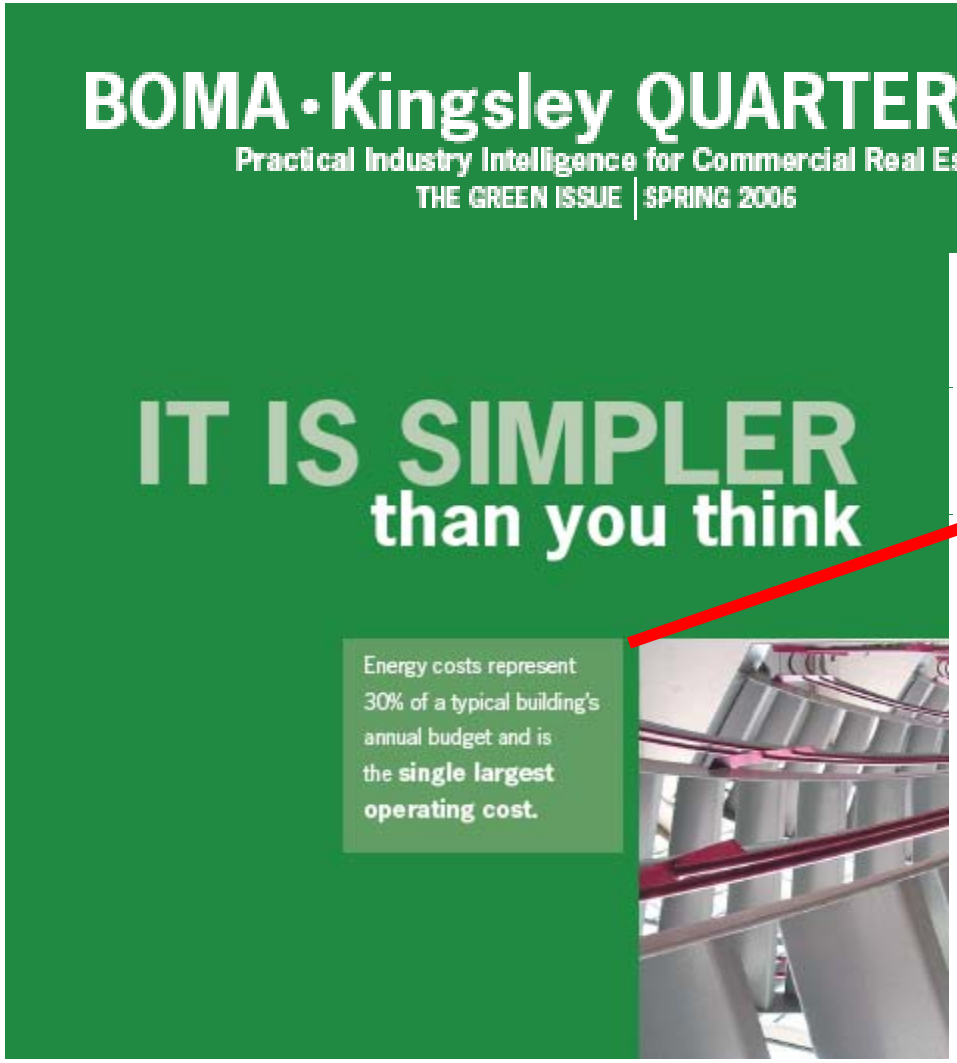
Commercial buildings account for 18% of the total U.S. energy consumption.

– Energy Information Administration

Energy Market Concerns

- Rising Electricity Prices
- Electricity Reliability Issues
- Rising Natural Gas Prices
- Natural Gas Reliability Issues
- Global Warming
- Environmental Stewardship
- Green Buildings

Green Starts with Energy



Energy costs represent 30% of a typical building's annual budget, and is the single largest operating cost.

Sector-Specific Value Messages

- **Office Buildings**: $2.50 to $3.75 in incremental asset value for $1 invested
- **Hospitals**: Each dollar saved in energy costs equivalent to generating new revenues of $20
- **Supermarkets**: 10% reduction in energy equivalent to increasing net profit margins by 15%
- **Hotels**: 10% reduction in energy costs equivalent to increasing Average Daily Rate by 2.6% and increasing Occupancy Rate by 4.3%

ENERGY STAR Impact

2006

- **Energy** - Savings equivalent to 5% of national electricity demand
- **Financial -** Saved $14 billion annually
- **Environment -** Reduced greenhouse gas emissions equivalent to 25 million cars




ENERGY STAR is broad-based

- More than **two billion** ENERGY STAR products have been purchased.

- More than 2,000 builders have constructed over **525,000** ENERGY STAR homes.

- EPA's Energy Performance Rating System has been used to evaluate more than 30,000 buildings. More than **3,200** buildings have earned the ENERGY STAR.

ENERGY STAR Commercial Partners
9,000

ENERGY STAR Partners Include:

- Building Owners
  Commercial and Corporate Real Estate, Retail, Hospitality, Healthcare, Government and Schools

- Service and Product Providers
  Businesses Providing Energy Efficiency Related Products or Services

- Utilities and Other Regional Energy Efficiency Program Sponsors

- Industry Associations

How to Become an ENERGY STAR Buildings Partner

- **Submit partnership letter**
- **Agree to:**
  - Measure, track, and benchmark your energy performance
  - Develop and implement a plan to improve your energy performance, adopting the ENERGY STAR strategy; and
  - Educate your staff and the public about your partnership and achievements with ENERGY STAR

www.energystar.gov/join

ENERGY STAR
Service and Product Provider Partner

- Architecture or A/E Firms
- Distributors
- Energy Consultants / Energy Management Services
- Energy Improvement Contractors
- Energy Service Companies (ESCOs)
- Engineering Firms
- Equipment Manufacturers
- Financial Services
- On-site Energy Production Services
- Unregulated Energy Retailers and Marketers

To join, www.energystar.gov/sppresources

Expert Help
Service and Product Provider Directory

ENERGY STAR has an online, searchable SPP Directory to help you find the products and services you need to achieve your goals.

With the help of an SPP, you can:

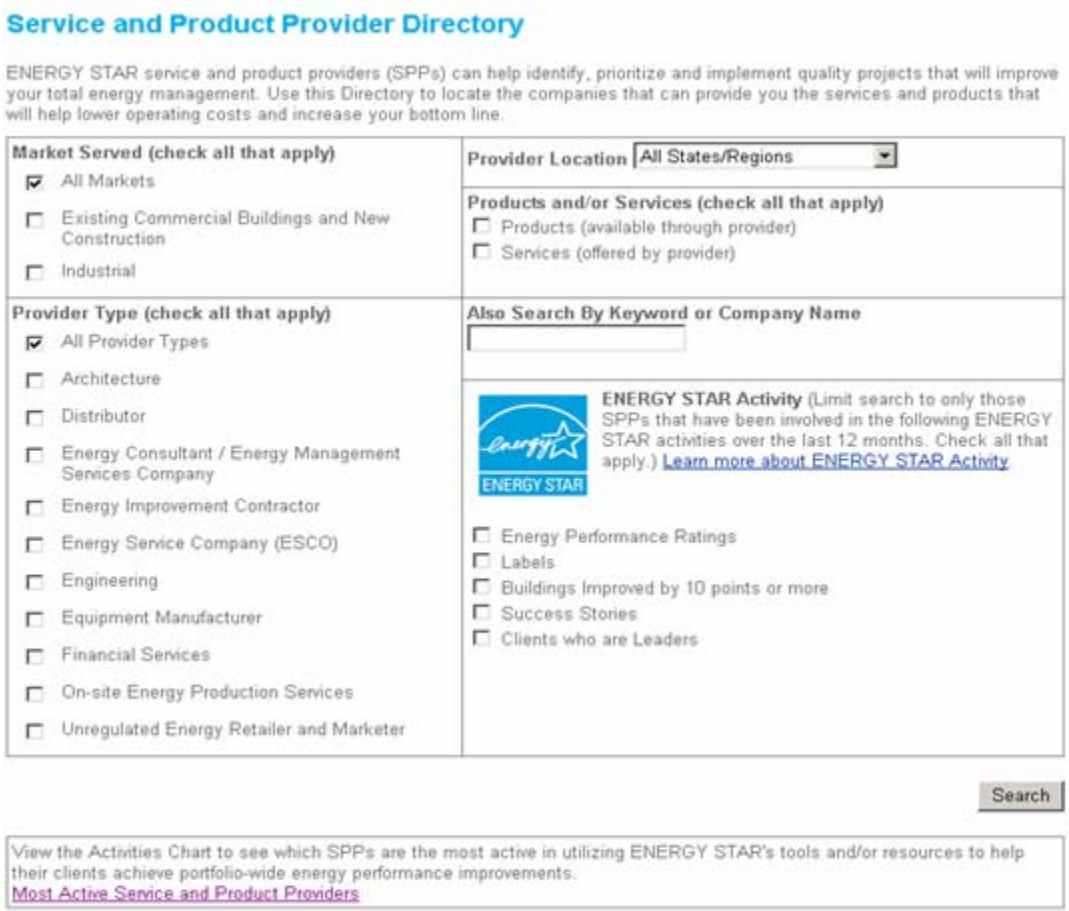
- Assess the energy performance of your portfolio
- Set energy performance goals
- Create and implement an action plan
- Evaluate progress
- Get recognition

www.energystar.gov/spp

Expert Help
Service and Product Provider Directory

Access to over 1,200 providers

find an SPP



Service and Product Provider Directory

ENERGY STAR service and product providers (SPPs) can help identify, prioritize and implement quality projects that will improve your total energy management. Use this Directory to locate the companies that can provide you the services and products that will help lower operating costs and increase your bottom line.

Market Served (check all that apply)
- [x] All Markets
- [ ] Existing Commercial Buildings and New Construction
- [ ] Industrial

Provider Location All States/Regions

Products and/or Services (check all that apply)
- [ ] Products (available through provider)
- [ ] Services (offered by provider)

Provider Type (check all that apply)
- [x] All Provider Types
- [ ] Architecture
- [ ] Distributor
- [ ] Energy Consultant / Energy Management Services Company
- [ ] Energy Improvement Contractor
- [ ] Energy Service Company (ESCO)
- [ ] Engineering
- [ ] Equipment Manufacturer
- [ ] Financial Services
- [ ] On-site Energy Production Services
- [ ] Unregulated Energy Retailer and Marketer

Also Search By Keyword or Company Name

ENERGY STAR Activity (Limit search to only those SPPs that have been involved in the following ENERGY STAR activities over the last 12 months. Check all that apply.) Learn more about ENERGY STAR Activity

- [ ] Energy Performance Ratings
- [ ] Labels
- [ ] Buildings Improved by 10 points or more
- [ ] Success Stories
- [ ] Clients who are Leaders

Search

View the Activities Chart to see which SPPs are the most active in utilizing ENERGY STAR's tools and/or resources to help their clients achieve portfolio-wide energy performance improvements.
Most Active Service and Product Providers

Search by:

- Market Sector
- Type of SPP
- Products &/or Services
- Location
- ENERGY STAR Activity

You can also search by keyword or company name.

www.energystar.gov/spp

Expert Help
SPP Most Active List

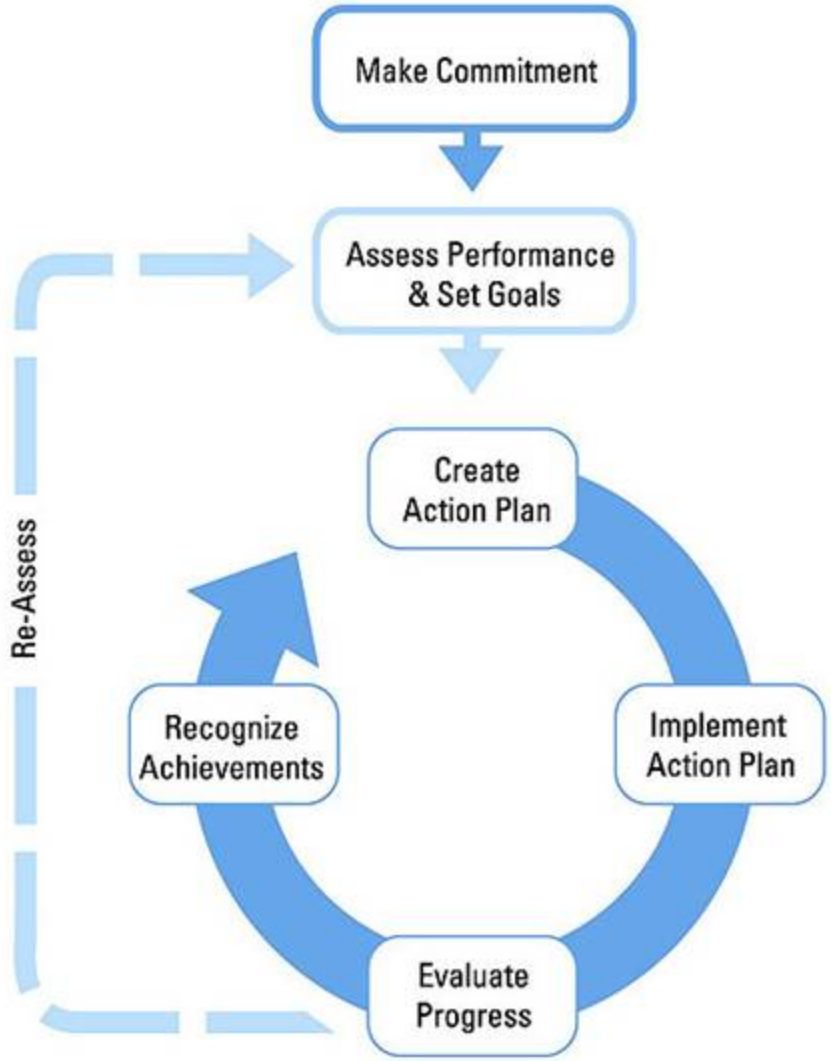
Most Active Service & Product Providers

Service and Product Providers continue to promote ENERGY STAR and deliver superior energy performance by helping building owners and managers make informed energy decisions for their facilities. These providers have been engaged in several ENERGY STAR activities within the past 12 months that can help identify opportunities to improve energy, financial and environmental performance. See who is doing the most for their clients through ENERGY STAR.

Company Name (*Indicates ENERGY STAR Partner of the Year Award Winner)	Company Type	Energy Performance Ratings	Labels	Client Buildings with at Least a 10-point Energy Performance Improvement	Success Stories	Number of Clients who are Leaders
ABM Engineering Services	Engineering, Third Party Property Manager	53	24			1
Ameresco	Energy Service Company (ESCO), Project Developer	16				
Atlantic Energy Services, Inc.	Energy Management Services Company/Consultant	18				

Use the “SPP Most Active” List to see which companies are doing the most for their clients through ENERGY STAR.

ENERGY STAR Guidelines for Energy Management



Based on the successful practices of ENERGY STAR Partners, EPA has identified the key components for a successful energy management program.

EPA Tools Support the Energy Management Process

1. Identify qualified prospects

ENERGY STAR Partnership

2. Identify qualified projects

Energy Performance Rating Tools

3.Communicate Financial Value

Financial Tools

4. Implement quality projects and evaluate

Technical Resources

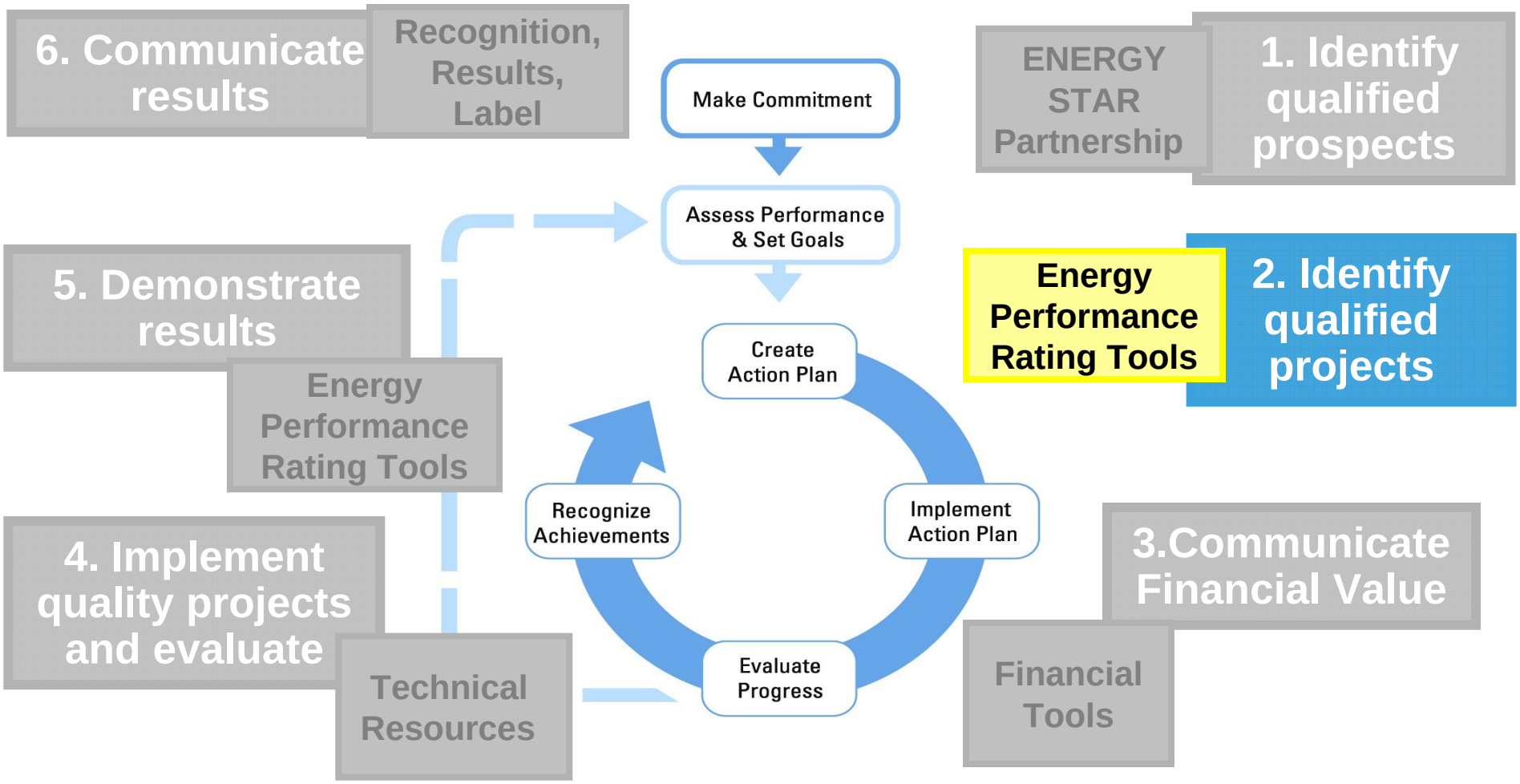
5. Demonstrate results

Energy Performance Rating Tools

6. Communicate results

Recognition, Results, Label

Energy Performance Rating System

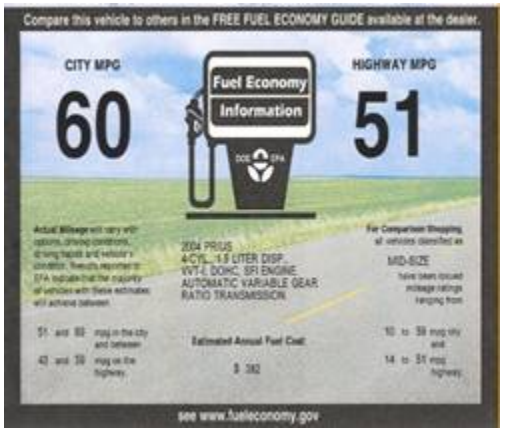


Energy Performance Rating System

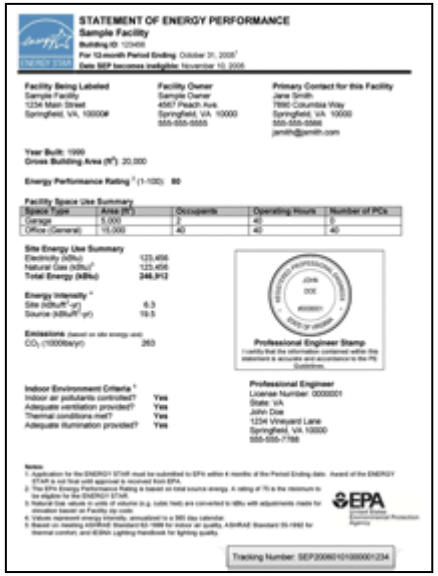
Is 10 MPG high or low for an automobile?

Fuel Efficiency

MPG



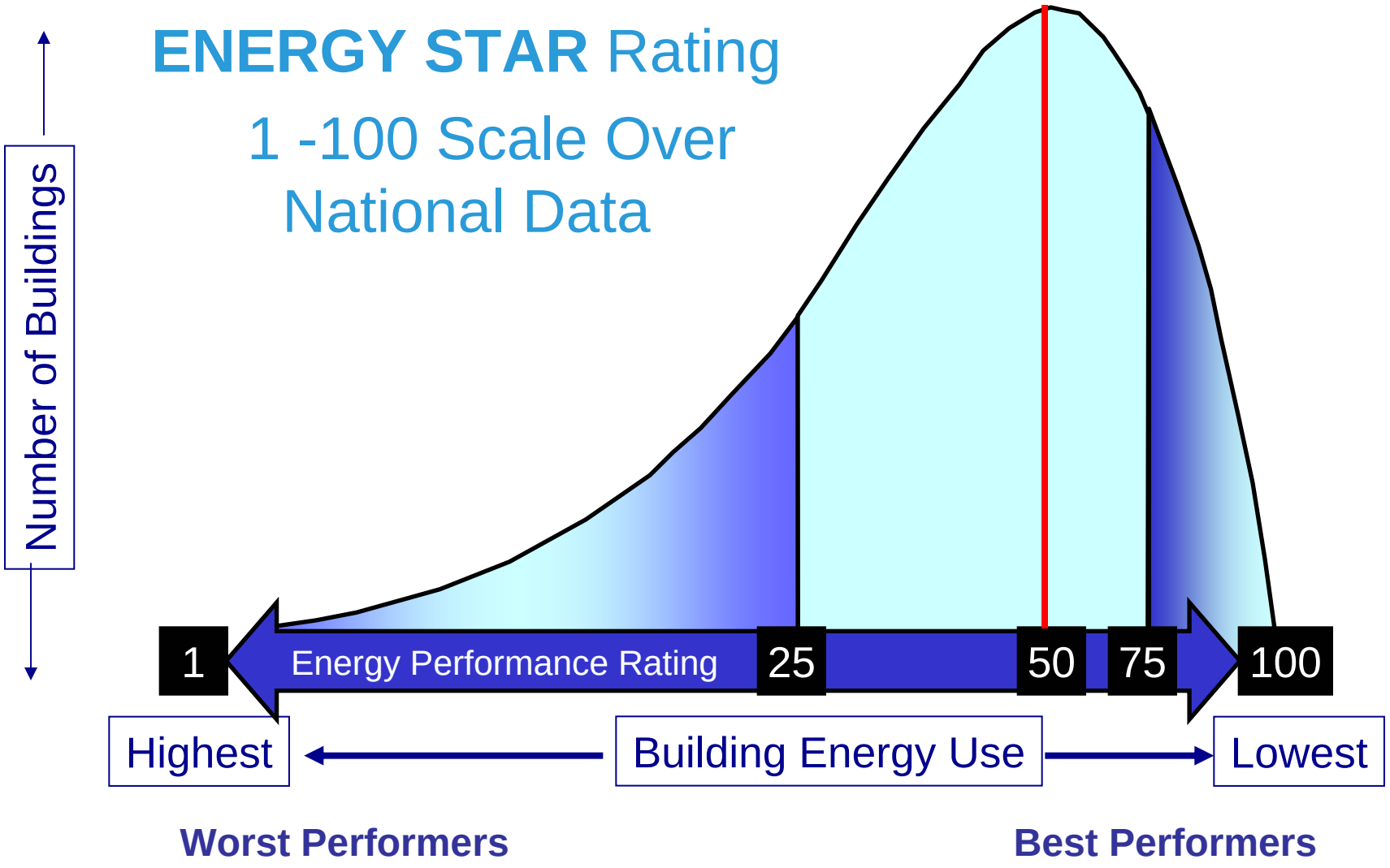
Is 80 kBtu/SF/YR high or low for a building?



Energy Efficiency

1 - 100

Huge Variation in Energy Performance



Eligible Space Types

Supermarkets

Offices

general, courthouse,
bank branch, financial center

K-12 Schools

Hospitals

Medical Offices

Hotels

Residence Halls / Dormitories

Warehouses

Basic Data Requirements

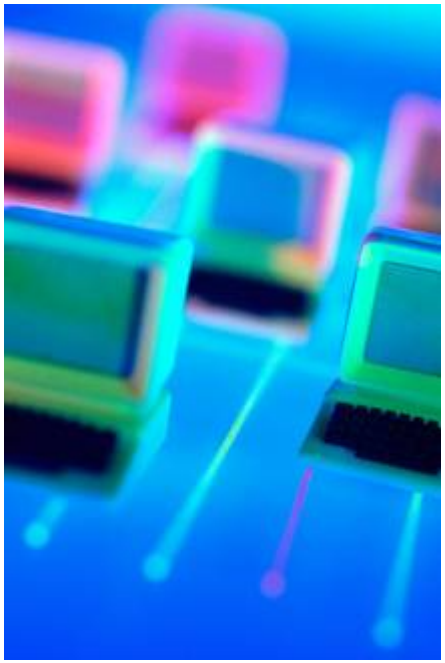
- **Location (Zip code)**
- **Gross floor area**
- **Twelve months of energy usage**
- **Weekly operating hours**
- **Number of occupants**
- **Number of personal computers**

** Data requirements may vary based on the building type*

Use the Rating to…

- Establish Portfolio Baseline
- Identify Opportunities for Improvement
- Set/Check Performance Goals Over Time
- Prioritize Investment Opportunities
- Document Results
- Receive Recognition

How to Access the Rating



- Single Building Manual Entry
  - Enter building and energy consumption information into Portfolio Manager.
- Excel Data Upload
  - Upload building data in Portfolio Manager using an Excel template.
- Automated Benchmarking Services
  - Use an ENERGY STAR Service and Product Provider to have the rating automatically integrated into your energy information and bill handling system for all buildings.

Automated Benchmarking Hosts

These companies have delivered thousands of automated ratings for customers

advantage IQ

SMR
SAVE MORE RESOURCES INC.
Redefining Utility Management

Cadence
Gain Control Of Multiple Site Expenses

Energard® Technologies

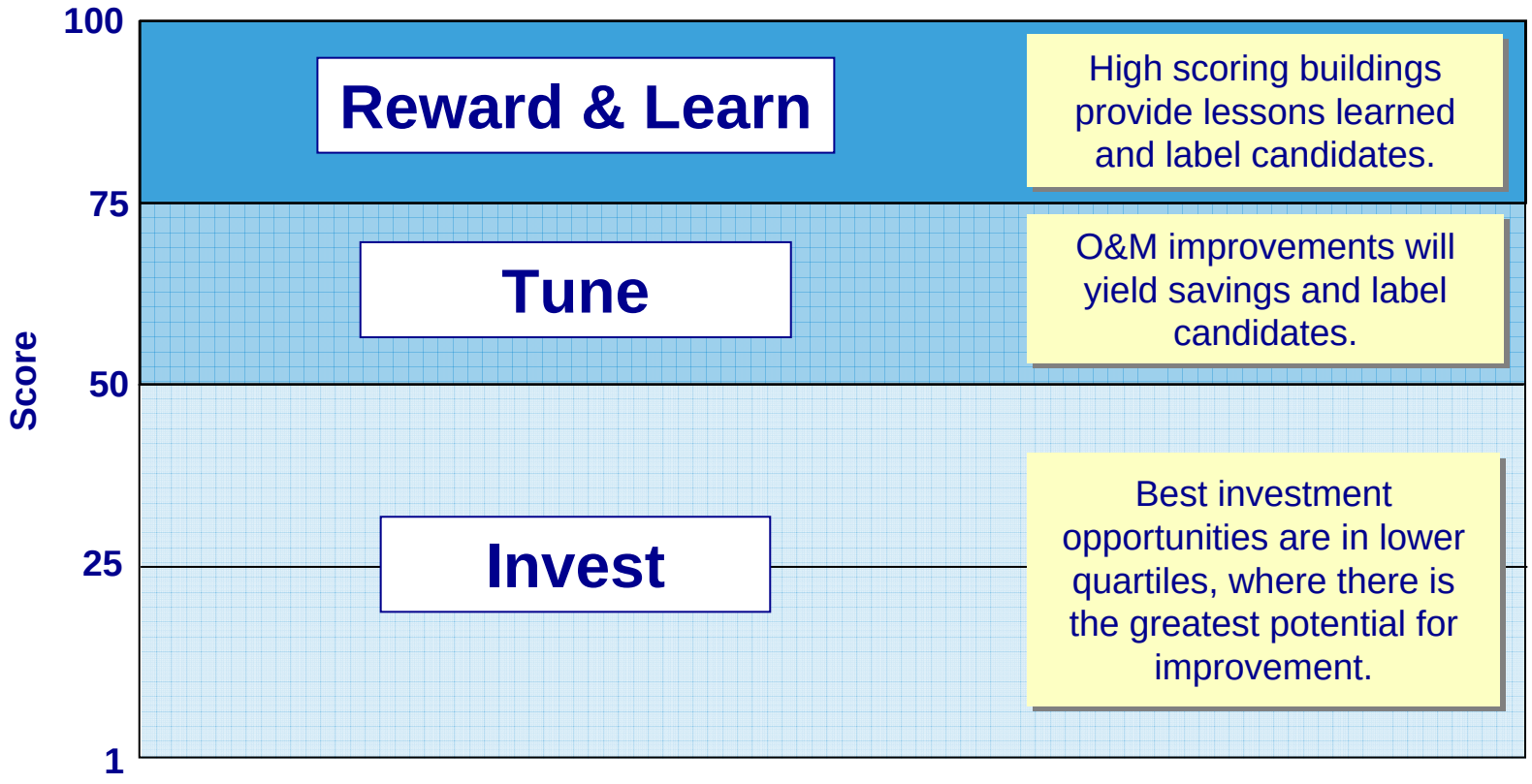
JOHNSON CONTROLS

eNERGY Solve

utilityaccounts.com

ei3

Identify and Establish Priorities Across Portfolios



Market Indicators

- Over 32,000 buildings have received a rating in Portfolio Manager
  - 17% of the market
  - Over 5 billion square feet
- Over 3,400 labeled buildings
  - 8% of the market
  - Over 600 million square feet
- CoStar adds the ENERGY STAR rating for eligible properties in its database

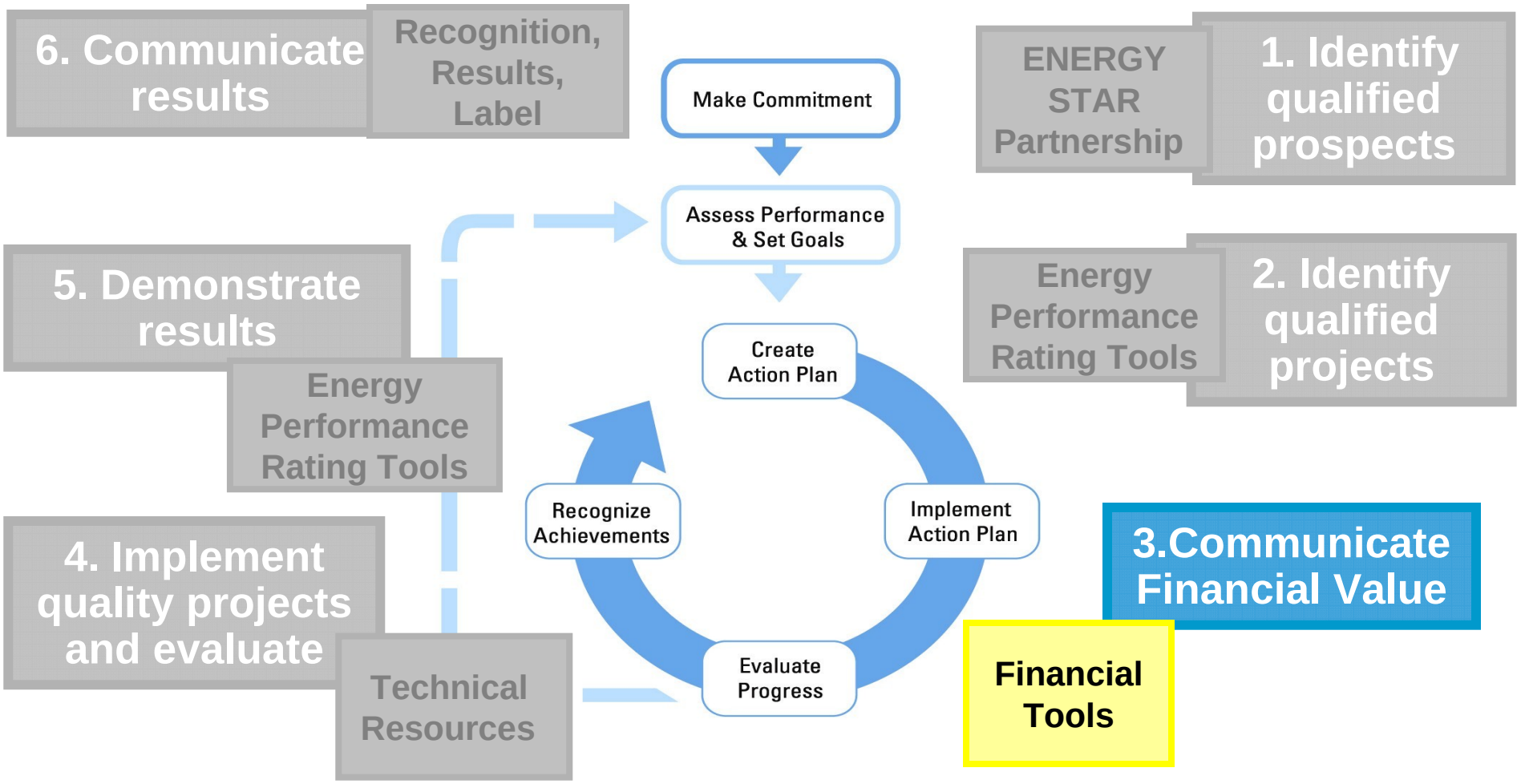
Green and Energy Goals

LEED-EB and EPA Energy Performance Rating

EPA Rating	LEED-EB Points	EPA Rating	LEED-EB Points
63	1	83	6
67	2	87	7
71	3	91	8
75	4	95	9
79	5	99	10

Prerequisite: ENERGY STAR Rating For LEED Certification – 67

Understanding Financial Value

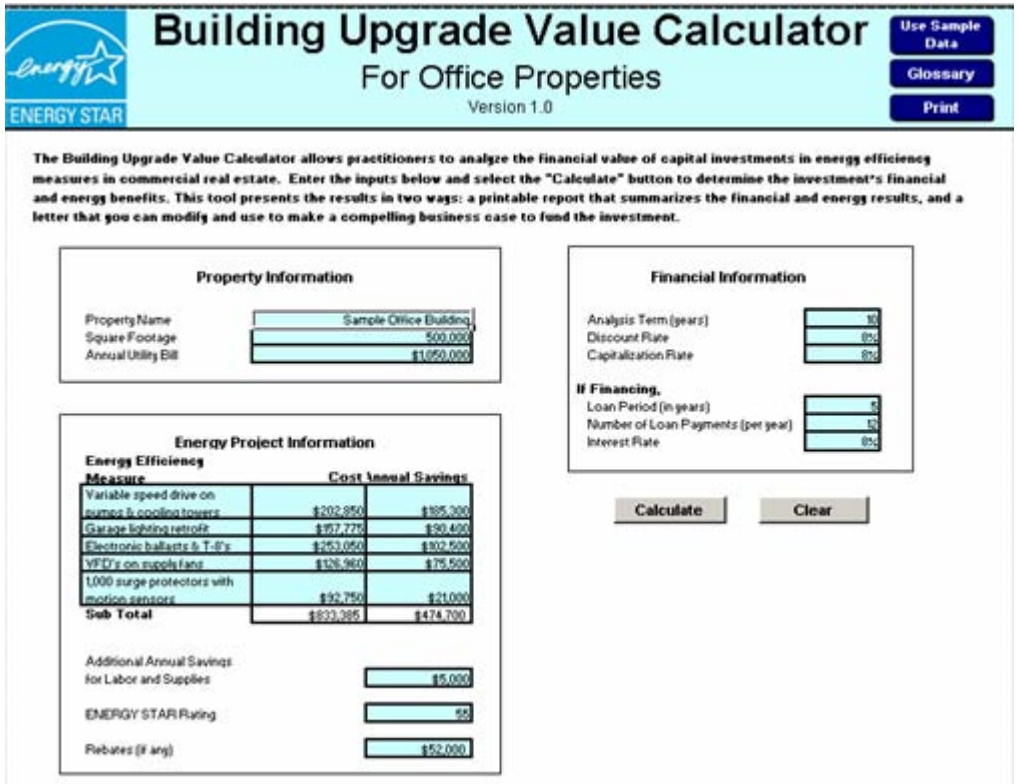


Understanding Financial Value

- Building Upgrade Value Calculator
- Financial Value Calculator
- Cash Flow Opportunity Calculator
- Sector-specific Value Messages

Building Upgrade Value Calculator For Commercial Real Estate Properties

- Financial Impact of Proposed Investments, Including *Increased Asset Value*
- Impact of Proposed Changes on Rating
- Generates a Letter Highlighting Financial Value for Capital Investment Proposal



Building Upgrade Value Calculator

For Office Properties

Version 1.0

Use Sample Data | Glossary | Print

The Building Upgrade Value Calculator allows practitioners to analyze the financial value of capital investments in energy efficiency measures in commercial real estate. Enter the inputs below and select the "Calculate" button to determine the investment's financial and energy benefits. This tool presents the results in two ways: a printable report that summarizes the financial and energy results, and a letter that you can modify and use to make a compelling business case to fund the investment.

Property Information

Property Name	Sample Office Building
Square Footage	500,000
Annual Utility Bill	$1,050,000

Financial Information

Analysis Term (years)	10
Discount Rate	8%
Capitalization Rate	8%
If Financing,	
Loan Period (in years)	5
Number of Loan Payments (per year)	12
Interest Rate	8%

Energy Project Information

Energy Efficiency Measure	Cost	Annual Savings
Variable speed drive on pumps & cooling towers	$202,850	$185,300
Garage lighting retrofit	$157,775	$90,400
Electronic ballasts & T-8's	$253,050	$102,500
VFD's on supply fans	$326,960	$75,500
1,000 surge protectors with motion sensors	$92,750	$21,000
Sub Total	$833,385	$474,700

Additional Annual Savings for Labor and Supplies	$5,000
ENERGY STAR Rating	95
Rebates (if any)	$52,000

Calculate | Clear

Building Upgrade Value Calculator's Simple Approach

Inputs

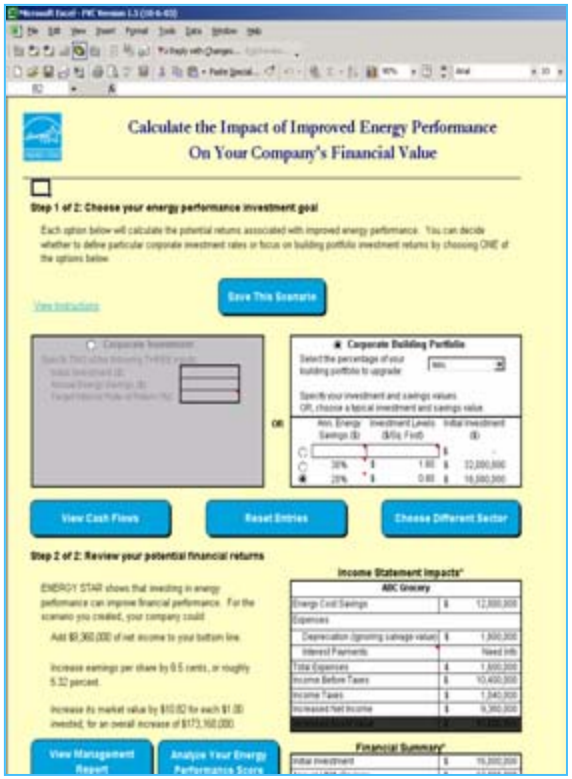
- ✓ **Annual Energy Cost**
- ✓ **Total Building SF**
- ✓ **List of Planned Efficiency Improvements**
- ✓ **Cost of improvements**
- ✓ **Projected Savings from Improvements**
- ✓ **Any Additional Savings**
- ✓ **Current ENERGY STAR Rating**
- ✓ **Applicable rebates**

Output

- ✓ **Impact on Asset Value**
- ✓ **Reduction in Operating Expense**
- ✓ **Estimated Energy Savings**
- ✓ **Payback Period**
- ✓ **Return on Investment (ROI)**
- ✓ **Net Present Value (NPV)**
- ✓ **Internal Rate of Return (IRR)**

Financial Value Calculator

- Quantifies Increased Earnings Resulting from Improved Energy Efficiency
- Easy to Use Spreadsheet
- Useful for Specific Projects or Impact of Energy Management Across Portfolio



Financial Value Calculator's Simple Approach

Inputs

- ✓ Annual Energy Cost
- ✓ Total Portfolio SF
- ✓ Initial Investment
- ✓ Annual Energy Savings

Optional Inputs:

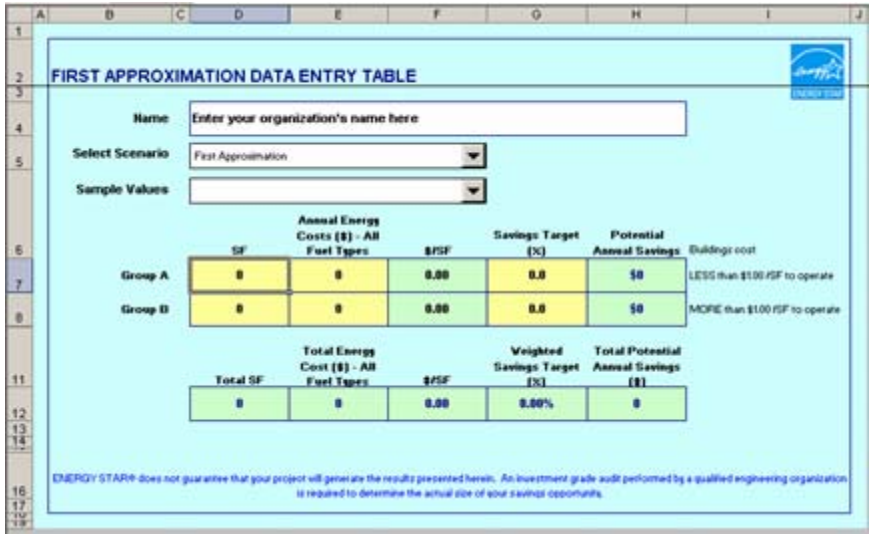
- ✓ P/E Ratio
- ✓ Earnings per Share
- ✓ Outstanding Common Shares

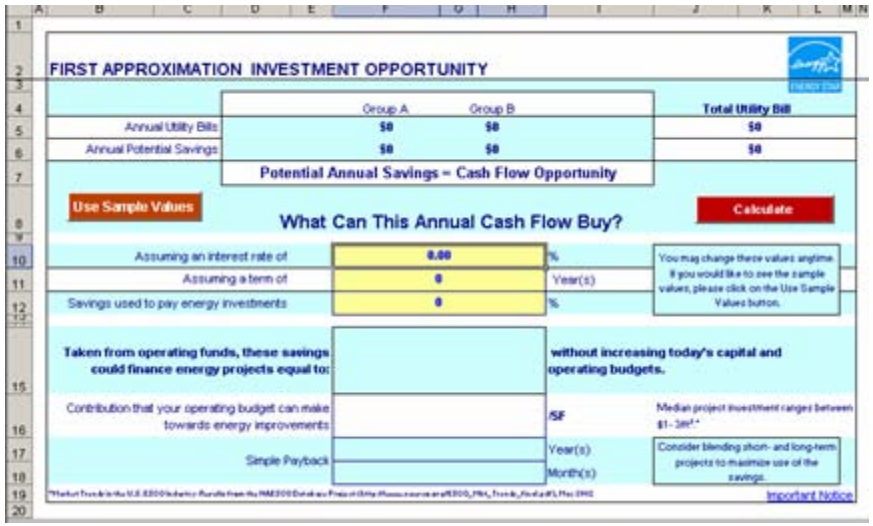
Output

- ✓ Net Present Value
- ✓ Internal Rate of Return
- ✓ Increased EPS
- ✓ Shareholder Value
- ✓ Payback Period

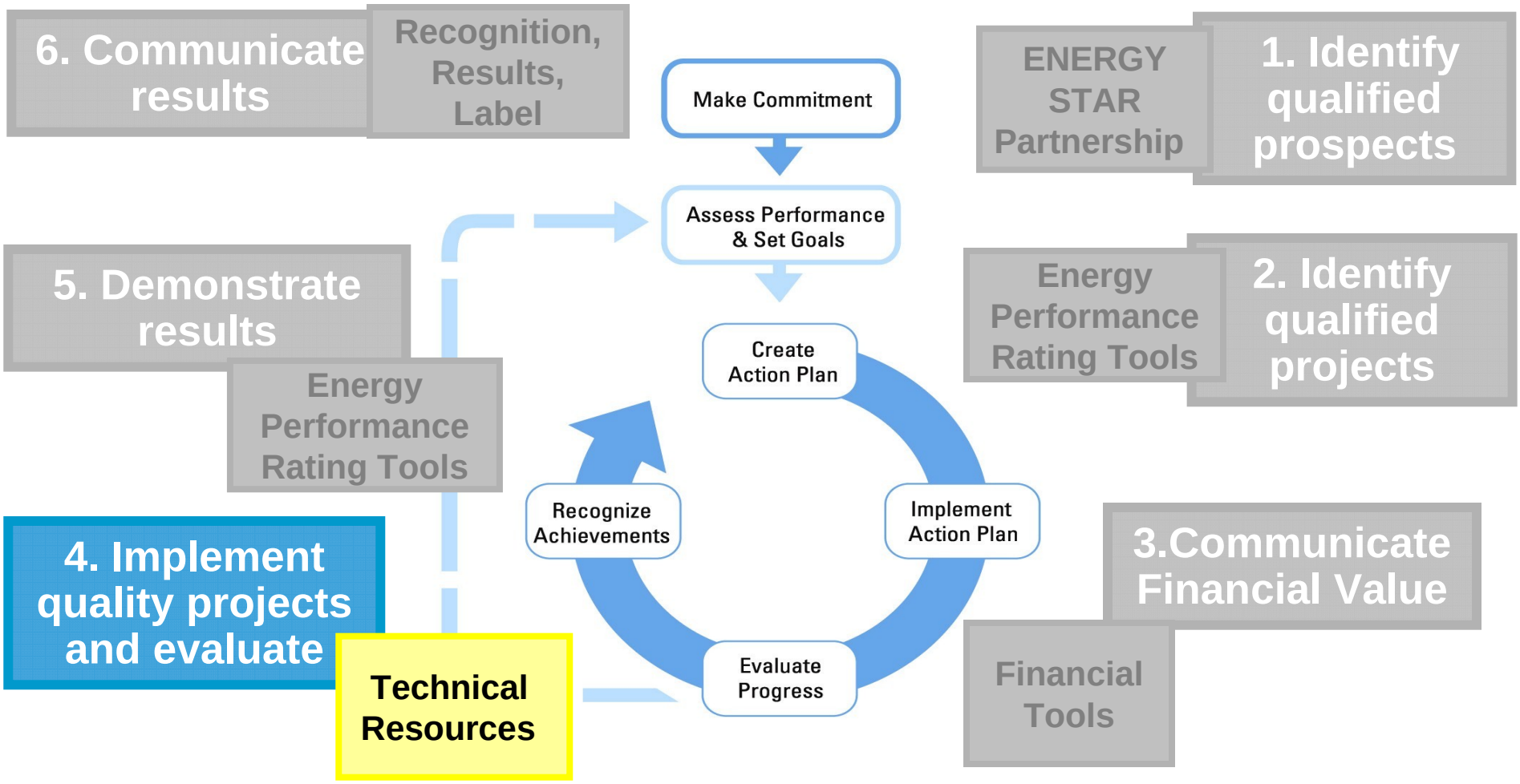
Cash Flow Opportunity Calculator

- Estimates how much new equipment or services can be purchased and financed by the anticipated savings cash flow
- Compares the costs/benefits of financing the project now vs. later





Create and Implement an Action Plan



Building Upgrade Manual

Third-Party Resource to Validate Your Customer Recommendations

- Existing Building Commissioning
- Lighting
- Supplementary Load Reduction
- Fan/Motor System Upgrades
- Heating/Cooling system upgrades

Technology Alone ≠ Superior Performance

Improper installation and poor maintenance of high technology items can result in poor performing buildings.

For example:

60% of building fan systems are oversized by an average 60%

(EPA fan study)

ENERGY STAR
Partner Experience

For the average building, partners find that performance improvements of 10% to 20% are achieved through revisions to management strategies, operations, or investments with rates of return of less than 18 months.

ENERGY STAR Recognition

Building Level Recognition

- **ENERGY STAR** Label for Existing Buildings
- "Designed To Earn the **ENERGY STAR**" New Building Design)

EPA Recognition
Organization Level

ENERGY STAR Challenge

An initiative launched by U.S. EPA for building owners across the country to improve the efficiency of their buildings by 10% or more

BOMA.org INTERNATIONAL

American Hotel & Lodging Association

ASHE

NAESCO

aee The Association of Energy Engineers Welcomes You...

EPA Recognition
Organization Level

The **ENERGY STAR Partner of the Year Award** can be achieved by organizations for outstanding contributions to reducing greenhouse gas emissions through energy efficiency

Partner of the Year Awards

ENERGY STAR Resources

- Free Training
- ENERGY STAR benchmarking tools
- Calculators
- Manuals
- Software
- Purchasing and Procurement Tools
- Monitor and computer power management
- Utility companies use ENERGY STAR in many energy efficiency incentive programs
- Recognition: ENERGY STAR label, Leaders, Partner of the Year, media, promotional materials

ENERGY STAR Online Trainings

ENERGY STAR offers free online training on the following topics to help organizations leverage ENERGY STAR and improve their energy performance

Introduction to ENERGY STAR

Creating Action Plans

Assessing Performance

Financing Strategies

No travel and no time out of the office

Success Stories

Food Lion and Advantage IQ

- **Client Goal:**
  - Track Energy Performance of 1200 Stores (42 million SF)
  - Identify savings from Lighting, Refrigeration, HVAC Upgrades
  - Identify/Prioritize Other Areas for Improvement

- **SPP Solution:**
  - Energy Tracking and Monitoring Software
  - Improved Consumption Tracking, Forecasting, Budgeting
  - Automated Benchmarking Through ENERGY STAR Energy Performance Rating System

- **Client Outcomes:**
  - $105 million saved
  - 1.5 billion lbs of CO_2 emissions avoided over 5 years
  - 400 ENERGY STAR Labels as of October 2005
  - ENERGY STAR Partner of the Year: 2002, 2003
  - ENERGY STAR Sustained Excellence award: 2004, 200

Gresham-Barlow School District and Save More Resources

- **Client Goal:** Improve Resource Conservation Practices

- **SPP Solution:**
  - Utility Management Software
  - Improved Consumption Tracking, Forecasting, & Budgeting
  - Automated Benchmarking Using ENERGY STAR Energy Performance Rating System
  - Identification of Other Areas for Improvement/investment

- **Client Outcomes:**
  - 46% Overall Energy Reduction
  - $4.2 Million in Cumulative Savings
  - ENERGY STAR Leader in 2005
  - Gresham-Barlow *and* SMR *Re*cognized as ENERGY STAR Partners of the Year in 2006

The Ritz-Carlton Boston and Servidyne

- **Client Goal:** Improve HVAC/Lighting System Energy Performance

- **SPP Solution:**
  - Energy Audit
  - Quantified Potential Savings from Retro-commissioning and Capital Projects
  - Tracked Energy Consumption to Verify Improvements and Identify New Areas For Attention
- **Client Outcomes:**
  - Saved $92,800 in One Year Through O&M Improvements With No Capital Expenditure

Arden Realty and *next>edge*

- **Client Goal:** Upgrade energy performance of building systems through major investment

- **SPP Solution:**
  - Chiller/Cooling Tower Replacement
  - Installation of VSDs
  - Lighting Upgrade (T-12 to T-8)
  - Energy Management System
  - Cogeneration Plant
  - Commissioning

- **Investment:**
  - $1.8 million, minus $750,000 Incentives

- **Client Outcomes:**
  - $310,000 Energy Savings Per Year
  - Reduced Electricity Costs from $2.47/SF to $1.63/SF
  - 3.7 Year Payback (27% ROI)

St. Michael's Hospital and Johnson Controls

- **Client Goals:**
  - Improve Environment of Care for Patients/Staff
  - Demonstrate Continuous Improvement

- **SPP Solution:**
  - Predictive/Proactive HVAC Maintenance
  - Facility Management and Control Systems Optimization
  - Energy Consumption Benchmarking

- **Client Outcomes:**
  - Projected savings > $1.1 million in Utility/Operational Costs
  - Improved system O&M Procedures = Better Environment for Patient Care
  - Better Prepared for Utility Deregulation

Saint Michael's Hospital
Ministry Health Care

Johnson Controls

For More Information Contact:

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- **ENERGY STAR Web site**
  - www.energystar.gov
- **ENERGY STAR Hotline**
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