Greening Your Building

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Today's Agenda

- Welcome and housekeeping
- Energy use (Todd Rusk)
- Water use
- Transportation
- Purchasing
- Evaluation
How much energy does your building use?
Improving Energy Efficiency

Audit and implement, one-time projects

Energy management program, continuous process (plan, act, review, plan, act, review...)

Taking advantage of situations requiring significant repair or equipment replacement
Improving Energy Efficiency

Need...

- expertise, internal or external
- management support
- cooperation from facility personnel
- data
- funding
- patience

Need a plan → take advantage of opportune moments!
Overview

Energy basics
Electricity and natural gas bills
Facility energy use breakdown
Lighting
HVAC
Building envelope
Other opportunities
Incentives
Action Plan
Energy Basics
<table>
<thead>
<tr>
<th>Energy Basics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How do we use energy?</strong></td>
</tr>
<tr>
<td>Motion</td>
</tr>
<tr>
<td>Heating &amp; Cooling</td>
</tr>
<tr>
<td>Change of State</td>
</tr>
<tr>
<td>Energy Transformation</td>
</tr>
<tr>
<td>Chemical Reactions</td>
</tr>
</tbody>
</table>
Common Units of Energy

kWh (electricity)
Therm, dkt (natural gas)
Btu, MBtu, MMBtu
Energy Unit Conversions

1 kWh = 3412 Btu
10 therm = 1 dkt
1 therm = approx 100,000 Btu
1,000 Btu = 1 MBtu
1,000,000 Btu = 1 MMBtu
Typical Average Costs of Energy

Electricity
$0.08 - $0.12 per kWh  
($23.45 - $35.17 per MMBtu)

Natural Gas
$0.70 - $1.10 per therm  
($7.00 - $11.00 per MMBtu)
Understanding Electricity and Natural Gas Utility Bills
Understanding Electricity and Natural Gas Utility Bills

How much energy do I use?
How much does my energy use cost?
How much money do I save (lose) if I use less (more) energy?
How much energy do I use?
How much does my energy use cost?
How much money do I save (lose) if I use less (more) energy?

Good approximation:

Total electric charges    Total electric usage
$4,446.37    45,120 kWh = $0.098 per kWh

Total natural gas charges    Total natural gas usage
$84.34    51 therms = $1.65 per therm
### Natural Gas Service Billing Detail

<table>
<thead>
<tr>
<th>Service From</th>
<th>To</th>
<th>Description</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/02/2007</td>
<td>05/30/2007</td>
<td>Account Charge</td>
<td>$33.73</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/30/2007</td>
<td>Del Chg-Company Supplied Gas</td>
<td>$6.45</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/30/2007</td>
<td>Total Delivery Service Amount</td>
<td>$40.18</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/30/2007</td>
<td>Gas Charge</td>
<td>$41.84</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/30/2007</td>
<td>Total Supply Amount</td>
<td>$41.84</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/30/2007</td>
<td>Taxes</td>
<td>$2.32</td>
</tr>
</tbody>
</table>

Total Natural Gas Charges: $84.34

### Electric Service Billing Detail

<table>
<thead>
<tr>
<th>Service From</th>
<th>To</th>
<th>Description</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/02/2007</td>
<td>05/31/2007</td>
<td>Distribution Delivery Charge</td>
<td>$275.23</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/31/2007</td>
<td>Instrument Funding Credit</td>
<td>$947.97</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/31/2007</td>
<td>Total Delivery Service Amount</td>
<td>$947.97</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/31/2007</td>
<td>Non-Summer</td>
<td>$3,261.27</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/31/2007</td>
<td>Market Value Adj</td>
<td>$0.00</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/31/2007</td>
<td>Supply Cost Adj</td>
<td>$21.21</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/31/2007</td>
<td>Transmission Service Charge</td>
<td>$118.21</td>
</tr>
<tr>
<td>05/02/2007</td>
<td>05/31/2007</td>
<td>Total Supply Amount</td>
<td>$3,400.69</td>
</tr>
</tbody>
</table>

Taxes: $97.71
Describe Facility Energy Use

Specify total annual use and cost
Quantify specific energy uses and costs

Helpful for prioritizing
Sample Library:
Total Annual Energy Use and Cost

Annual Electricity Use: 800,000 kWh/yr
Annual Electricity Cost: $80,000 per yr
Average Electricity Rate: $0.10 per kWh
Annual Natural Gas Use: 33,500 therm/yr
Annual Natural Gas Cost: $33,500 per yr
Average Natural Gas Rate: $1.00 per therm
Sample Library: Category Specific Energy Use and Cost

- **Heating**: $20,000 (18%)
- **ChWS Pumps**: $1,000 (1%)
- **HWS Pumps**: $2,500 (2%)
- **Boiler Pumps**: $1,000 (1%)
- **HVAC Fans**: $22,500 (20%)
- **Reheat**: $12,000 (11%)
- **Cooling**: $11,000 (10%)
- **Hot Water**: $1,500 (1%)
- **Other Electric**: $12,000 (10%)
- **Lighting**: $30,000 (26%)
Estimating Heating Energy

Natural Gas Usage (therms)
Estimating Cooling Energy

Electricity Usage (kWh)

- July: 140,000
- August: 120,000
- September: 110,000
- October: 100,000
- November: 90,000
- December: 80,000
- January: 70,000
- February: 60,000
- March: 50,000
- April: 40,000
- May: 30,000
- June: 20,000

0, 20,000, 40,000, 60,000, 80,000, 100,000, 120,000, 140,000
## Estimating Lighting Energy

### Lighting Inventory

<table>
<thead>
<tr>
<th>Lamps Type</th>
<th>kW</th>
<th>kWh/yr</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INCANDESCENT LAMPS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-200 WATT</td>
<td>5</td>
<td>14,400</td>
<td>$1,407</td>
</tr>
<tr>
<td>41-100 WATT</td>
<td>4</td>
<td>12,300</td>
<td>$1,202</td>
</tr>
<tr>
<td>9-65 WATT INDOOR FLOOD</td>
<td>1</td>
<td>1,755</td>
<td>$171</td>
</tr>
<tr>
<td><strong>FLUORESCENT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-2 FT 2 BULBS PER UNIT</td>
<td>20</td>
<td>0.08</td>
<td>240</td>
</tr>
<tr>
<td>100-4 FT 2 BULBS PER UNIT</td>
<td>34</td>
<td>7</td>
<td>20,400</td>
</tr>
<tr>
<td>20-4 FT 3 BULBS PER UNIT</td>
<td>34</td>
<td>2</td>
<td>6,120</td>
</tr>
<tr>
<td>259-4 FT 4 BULBS PER UNIT</td>
<td>34</td>
<td>35</td>
<td>105,672</td>
</tr>
<tr>
<td>10-8 FT 2 BULBS PER UNIT</td>
<td>60</td>
<td>1</td>
<td>3,600</td>
</tr>
<tr>
<td><strong>MERCURY VAPOR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44 UNITS</td>
<td>175</td>
<td>8</td>
<td>23,100</td>
</tr>
</tbody>
</table>

Assume: 3000 op hours/yr

**Total**: $18,326
Lighting

Incandescent
Compact Fluorescent
T12 Fluorescent
T8 Fluorescent
Exit signs
Lighting Opportunities
First Priorities

Turn off lights when not in use
Replace incandescent lamps with compact fluorescents (CFL’s)
Eliminate “decorative only” lighting
Install LED exit signs
Determine energy use and cost of lighting
Lighting Opportunities
Next Priority

Address over-illumination

Multi-level switching

Occupancy sensor control

Convert from T12 to T8 fluorescent lighting

*Perhaps most economical when implemented with electrical repairs/upgrades or as equipment fails*

*Financial leverage – take advantage of incentives!*
## Energy Use and Cost

### Common incandescent and CFLs

<table>
<thead>
<tr>
<th>Type</th>
<th>Wattage</th>
<th>kWh/hr</th>
<th>cost/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>40</td>
<td>0.04</td>
<td>$0.004</td>
</tr>
<tr>
<td>CFL</td>
<td>10</td>
<td>0.01</td>
<td>$0.001</td>
</tr>
<tr>
<td>I</td>
<td>60</td>
<td>0.06</td>
<td>$0.006</td>
</tr>
<tr>
<td>CFL</td>
<td>13</td>
<td>0.013</td>
<td>$0.0013</td>
</tr>
<tr>
<td>I</td>
<td>75</td>
<td>0.075</td>
<td>$0.0075</td>
</tr>
<tr>
<td>CFL</td>
<td>20</td>
<td>0.02</td>
<td>$0.002</td>
</tr>
<tr>
<td>I</td>
<td>100</td>
<td>0.1</td>
<td>$0.01</td>
</tr>
<tr>
<td>CFL</td>
<td>26</td>
<td>0.026</td>
<td>$0.0026</td>
</tr>
<tr>
<td>I</td>
<td>150</td>
<td>0.15</td>
<td>$0.015</td>
</tr>
<tr>
<td>CFL</td>
<td>40</td>
<td>0.04</td>
<td>$0.004</td>
</tr>
</tbody>
</table>
# Energy Use and Cost

Common fluorescent lamp configurations

<table>
<thead>
<tr>
<th>Type</th>
<th>Fixture Wattage</th>
<th>kWh/hr</th>
<th>Cost/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>4ft T12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-lamp</td>
<td>34</td>
<td>0.034</td>
<td>$ 0.0034</td>
</tr>
<tr>
<td>2-lamp</td>
<td>68</td>
<td>0.068</td>
<td>$ 0.0068</td>
</tr>
<tr>
<td>3-lamp</td>
<td>102</td>
<td>0.102</td>
<td>$ 0.0102</td>
</tr>
<tr>
<td>4-lamp</td>
<td>136</td>
<td>0.136</td>
<td>$ 0.0136</td>
</tr>
<tr>
<td>4ft T8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-lamp</td>
<td>32</td>
<td>0.032</td>
<td>$ 0.0032</td>
</tr>
<tr>
<td>2-lamp</td>
<td>64</td>
<td>0.064</td>
<td>$ 0.0064</td>
</tr>
<tr>
<td>3-lamp</td>
<td>96</td>
<td>0.096</td>
<td>$ 0.0096</td>
</tr>
<tr>
<td>4-lamp</td>
<td>128</td>
<td>0.128</td>
<td>$ 0.0128</td>
</tr>
</tbody>
</table>
# IES Recommended Light Levels

<table>
<thead>
<tr>
<th>Area</th>
<th>Minimum</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Book Stacks</td>
<td>(next slide)</td>
<td>(next slide)</td>
</tr>
<tr>
<td>Inactive Book Stacks</td>
<td>5</td>
<td>7.5</td>
</tr>
<tr>
<td>Book Repair/Binding</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Cataloging</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Circulation/Reference Desk</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Computer Areas</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Audiovisual Areas</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Audio Listening Areas</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Reading (General)</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Reading (Detail, Fine Print)</td>
<td>50</td>
<td>75</td>
</tr>
</tbody>
</table>
IES Recommended Light Levels

... for active bookstacks

Maximum 36 FC, on the face of the book spine

At 12” above the floor, 6 FC minimum, on the face of the book spine
HVAC Systems
HVAC Systems

• **Heating**
  • Usually by warming the air

• **Ventilating**
  • Deliver conditioned air
  • Introduce fresh air
  • Eliminate a portion of recirculated air

• **Air Conditioning**
  • Cool the air
  • Dehumidify the air
HVAC Systems

HVAC System
$70,000
63%

- Reheat
  $12,000
  11%
- Hot Water
  $1,500
  1%
- Lighting
  $30,000
  26%
- Other Electric
  $12,000
  10%
- Cooling
  $11,000
  10%
- HVAC Fans
  $22,500
  20%
- HWS Pumps
  $2,500
  2%
- ChWS Pumps
  $1,000
  1%
- Heating
  $20,000
  18%
- Boiler Pumps
  $1,000
  1%
HVAC System Opportunities

First Priority

Temperature setback

Programmable thermostats

Occupied/unoccupied mode central control

Check temperature setpoints, reset if appropriate

(You’re not heating with an electric furnace, are you?)
HVAC System Opportunities
Next Priority

Recommission/retrocommission – *try to do this every 5 – 10 years, significant HVAC savings*

Upgrade to high efficiency equipment
  - Boiler, fan motors, furnace

  *Perhaps most economical when implemented with repairs or as equipment fails*

*Financial leverage – take advantage of incentives!*

Illinois Sustainable Technology Center
# Occupied mode/unoccupied mode settings

<table>
<thead>
<tr>
<th>Library Hours</th>
<th>Present “Occupied Mode”</th>
<th>Proposed “Occupied Mode”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>9 AM-9 PM</td>
<td>6 AM-10 PM</td>
</tr>
<tr>
<td>Tuesday</td>
<td>9 AM-9 PM</td>
<td>6 AM-10 PM</td>
</tr>
<tr>
<td>Wednesday</td>
<td>9 AM-9 PM</td>
<td>6 AM-10 PM</td>
</tr>
<tr>
<td>Thursday</td>
<td>9 AM-9 PM</td>
<td>6 AM-10 PM</td>
</tr>
<tr>
<td>Friday</td>
<td>9 AM-6 PM</td>
<td>6 AM-10 PM</td>
</tr>
<tr>
<td>Saturday</td>
<td>9 AM-6 PM</td>
<td>6 AM-10 PM</td>
</tr>
<tr>
<td>Sunday</td>
<td>1 PM-5 PM</td>
<td>6 AM-10 PM</td>
</tr>
</tbody>
</table>

- 10% Electricity savings
- 15% Natural gas savings
## Winter Temperature Setpoint

<table>
<thead>
<tr>
<th>Average setpoint (degrees F)</th>
<th>Relative Heating Energy Use/Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>110%</td>
</tr>
<tr>
<td>74</td>
<td>106%</td>
</tr>
<tr>
<td>73</td>
<td>103%</td>
</tr>
<tr>
<td>72</td>
<td>100%</td>
</tr>
<tr>
<td>71</td>
<td>97%</td>
</tr>
<tr>
<td>70</td>
<td>94%</td>
</tr>
<tr>
<td>69</td>
<td>91%</td>
</tr>
<tr>
<td>68</td>
<td>88%</td>
</tr>
</tbody>
</table>

*Assumes no thermostat setback*
Building Envelope
Building Envelope

Protects and buffers the indoor environment from the outdoor environment

Walls
Roof
Windows
Doors

Good building envelope $\rightarrow$ low heat loss, comfortable
## Building Envelope
### First Priority

Weather stripping, seal cracks!

<table>
<thead>
<tr>
<th>Energy Penalty per Foot of Crack Length</th>
<th>Crack size</th>
<th>1/16&quot;</th>
<th>1/8&quot;</th>
<th>1/4&quot;</th>
<th>1/2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual heating penalty (therms/ft)</td>
<td></td>
<td>4</td>
<td>8</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>Annual cooling penalty (kWh/ft)</td>
<td></td>
<td>5</td>
<td>11</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Annual energy cost penalty ($/ft)</td>
<td></td>
<td>$5</td>
<td>$9</td>
<td>$19</td>
<td>$37</td>
</tr>
</tbody>
</table>

| 8'x6' double door, 20 ft crack length  |            | $100  | $180 | $380 | $740 |
Building Envelope
Next Priority

Thermal window treatments where appropriate

Replace broken/malfunctioning windows/doors with high performance windows/doors

Roof replacement: improve insulation level, white roof

Creative solutions for uninsulated brick/block walls

Financial leverage – take advantage of incentives!
Insulation

- Single pane glass, R-1, $200
- Concrete block (bare), R-2, $100
- Double pane glass (insulated), R-2.5, $80
- Concrete block (insulated, finished), R-11, $18 therms
- 2x4 stud wall (insulated, finished), R-14, $14
- 2x6 stud wall (insulated, finished), R-22, $9
- R-40, $5

*Based on 5700 HDD; $1/therm; 70% heating efficiency
Other Opportunities

(You’re not using an electric water heater, are you?)

Install high-efficiency water heater

Check hot water temperature, reset if appropriate

For new construction, expansion, renovation, consult contractors/designers with energy efficiency expertise – insulate beyond code

Efficient catering equipment and turn off when not in use

Track energy use history
Track Energy Use History – Natural Gas

Natural Gas Use FY2007-08
Track Energy Use History – Natural Gas

Natural Gas Use FY2007-08

- Average Therms/Day vs Monthly Mean Temperature (°F)
- FY2008 represented by squares
- FY2007 represented by crosses
Track Energy Use History – Electricity

Electricity Use FY2007-08
Track Energy Use History – Electricity

Electricity Use FY2007-08

![Graph showing electricity use by average monthly temperature for FY2007 and FY2008.]
Incentives
DCEO Bureau of Energy and Recycling, Ameren Illinois and ComEd are offering a portfolio of electric efficiency programs to achieve targeted annual energy savings goals. For further information on the legislation, background and history, go to www.dceo.org and refer to the DCEO Electric Efficiency Portfolio Fact Sheet. Incentives are available to customers in Ameren Illinois and ComEd’s electric service areas.

- DCEO provides incentives for the Public Sector, Affordable House New Construction and Gut Rehab, as well as Training and Education
- ComEd (www.comed.com) and Ameren Illinois (www.AmerenEnergy.net) provide incentives for businesses and residential customers.

The programs offered by DCEO’s Bureau of Energy and Recycling are as follows:

**Public Sector Electric Efficiency**

These programs include the Standard and Custom Incentive Programs and New Construction Program. These are offered to the Public Sector:

- federal, state and local government (county, township, municipal),
- public schools, community colleges, public universities and colleges,
- public safety, water and park districts

In ComEd and Ameren Illinois electric service territories.

YEAR 2 Public Sector Electric Efficiency Program Guidelines and Forms have been posted here.

To encourage the Public Sector to implement electric savings measures, we have made the following changes:

- The incentive cap you can apply for has increased from $100,000 to $200,000 per building.
- The incentive cap has increased from 50% to 75% of Total Project Cost (equipment + labor).
- Most of the Standard Incentives available have increased.
- The Custom Incentive has increased from $0.07 to $0.08 per annual kWh savings.
- New measures have been added to the Standard Incentive Program.

We would like to thank you for your participation in Program Year 1, we are still running numbers to determine Program Year 1 impacts on energy savings.

**Standard and Custom Incentive Programs**

Provides grants and rebates to public sector entities for electric system efficiency improvements including lighting, motors, variable frequency drive controls, HVAC equipment, traffic signals, among others. Guidelines, Application, Worksheets

**Standard Incentive Program**

Provides set incentive levels for common retrofits for lighting, HVAC, motors and refrigeration. Application and Standard Incentive Forms in Excel format. Use these spreadsheets to fill in the Application from Appendix A and Standard Incentive Worksheets from Appendix B: Lighting, HVAC, Motors, Refrigeration

**Custom Incentive Program**

Provides incentives for electric efficiency improvements not listed in the Standard Incentive Program. Custom Incentive Forms and Worksheets. Use these Worksheets for additional documentation along with the Custom Incentive Program Application in Appendix C.

**New Construction Program**

Provides grants to public sector entities to encourage applicants to design new or rehabbed buildings to achieve the highest level of energy efficiency. Guidelines and Application
Welcome to Illinois Clean Energy Community Foundation

The Illinois Clean Energy Community Foundation invests in clean energy development and land preservation efforts, working with communities and citizens to improve environmental quality in Illinois. The Foundation supports programs and projects that will improve energy efficiency, develop renewable energy resources and preserve and enhance natural areas and wildlife habitats throughout the state.

The Foundation's programs have grown steadily since it awarded its first sets of grants in 2001. Over the last seven years, the Foundation has awarded 2859 grants, totaling $151 million to Illinois nonprofit organizations, schools, municipalities and other local government agencies. The grants support activity in all of our 102 counties in the state of Illinois.
DSIRE is a comprehensive source of information on state, local, utility, and federal incentives that promote renewable energy and energy efficiency. Choose one or both databases to search:

- Renewable Energy
- Energy Efficiency
Proposed Plan of Action

Establish baseline, assess
  Get technical assistance if needed
Become familiar with incentives
Identify 1\textsuperscript{st} and next priority opportunities
Short & long term energy efficiency plan
Address 1\textsuperscript{st} priority opportunities ASAP
Address next priority opportunities when possible or convenient
Technical Assistance

Illinois Sustainable Technology Center

www.istc.illinois.edu
(217) 333-8940

Smart Energy Design Assistance Center

http://smartenergy.arch.uiuc.edu/
(800) 214-7954
“Sometimes when I consider what tremendous consequences come from little things...I am tempted to think...there are no little things...”

– Bruce Barton
Water costs more than you think
What is the real cost of driving to work?
Buy Green
Five Guiding Principles for Green Purchasing

- Consider environmental factors in addition to price and performance.
- Emphasize pollution prevention early in the purchasing process.
- Examine multiple environmental attributes throughout a product's or service's life cycle.
- Compare relative environmental impacts when selecting products and services.
- Collect and base purchasing decisions on accurate and meaningful information about environmental performance.
Beware of greenwashing
Be a Smart Consumer

- Environmental claims should be specific
  - Look for specific amounts (recycled content, a certain percentage less packaging, etc.)

- Some claims are too vague to be meaningful
  - “eco-friendly”, “environmentally friendly”

- Degradable products don't save landfill space
  - Anything degradable put into a landfill degrades very slowly
  - Composting turns degradable material into usable compost

- Symbols can be useful
  - Recycling symbol
  - Green certification symbols → Energy Star, Green Seal, EPEAT, WaterSense

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Cleaners, electric chillers, paint, floor care, paper, hand soaps, windows, doors

Toilets, showerheads, faucets, landscape irrigation services

Wood and paper products

Low emitting interior building materials, furnishings, and finish systems.

Electronics, lighting

Office furniture systems, components, and seating, building materials, carpet, flooring, paint
Attributes of green products

- Recycled content
- Recyclability
- Potential for disassembly
- Durability
- Reusability
- Take-back
- Bio-based
- Energy efficient
- Water efficient
- Reconditioned or remanufactured
- Other positive environmental effects
The Green Purchasing Top 10 + 1

1) Review purchase specifications and contracts to see if they contain environmental performance standards or requirements.

2) Ask your existing suppliers about green alternatives. Give them a try.

3) Consider how to make your product or service green and what you'll need to purchase differently to make it happen.

4) Choose a suitable green products listing and use it when making purchases.

5) Purchase and install energy efficient lighting for your buildings.
6) Determine who supplies your energy and consider changing to renewable energy sources.

7) Request vendors to provide supplies in reusable packaging that can be used for your products or returned to the supplier.

8) Purchase appropriately sized lots to minimize waste. Purchase bulk where feasible but in small quantities for shelf life/dated materials.

9) Change your office purchasing policies: buy recycled office consumable products, Energy Star certified office equipment, and reusable utensils, plates and cups for meetings.

10) Buy and use less toxic cleaners or hire those who do.

+1) Rethink your giveaway items
Developing a Green Purchasing Plan

- Make a statement of intent.
- Put someone in charge.
- Work with departments and suppliers one-on-one. Set reasonable expectations and reward small accomplishments.
- Start where you are. Ask existing suppliers for environmentally preferable products.

- Collect data and publicize.
- Look for products that save money and meet other performance needs.
- Test the new products over a few months to assess efficiency, quality, and user friendliness.
- Network and share information.
Next Steps

- Perform a product life cycle cost analysis.
- Green your service contracts.
- Lease equipment.
- Buy green office supplies.
- Develop a coordinated purchasing system.
- Buy renewable energy.
- Rethink demos.
- Get to know your suppliers.
- Learn from government programs.
- Consider products certified by third parties.
Specific Products to Consider

- Carpet tiles/modular carpet instead of single piece wall-to-wall
  - Interface Carpet is made from material that can be recycled back into itself
- Furniture
  - Look for products made from certified wood, nontoxic adhesives, and recycled materials
  - Several library companies advertise green furniture, including Brodart, Gaylord, Demco, and International Library Furniture
- Janitorial products

Illinois Sustainable Technology Center
Each year, 6 billion pounds of chemicals and 4.5 billion pounds of paper products (representing about 25 to 50 million trees) are used to clean commercial buildings – Ashkin Group
Why Convert to Green Cleaners

- Helps you meet green purchasing goals
- Promotes a healthier working environment
- Improves safety for janitorial workers
- Reduces your organization's environmental footprint
- Helps create a bigger market for cost effective high performance green products
EPA Guidelines for Green Cleaners

- Minimizes exposure to concentrates
- No ozone depleting substances
- Reduced/recyclable packaging
- Recycled content in packaging
- Reduced bioconcentration factor

- Reduced flammability
- Reduced or no added dyes, except when added for safety purposes
- Reduced or no added fragrances
- Reduced or no skin irritants
- Reduced or no volatile organic compounds (VOCs)
How to Choose Green Cleaners

- Green Seal Standard for Industrial and Institutional Cleaners (GS-37)
  - Standard covers all purpose, bathroom, and glass cleaners.
  - Establishes criteria for 13 factors, such as toxic compounds, carcinogens, skin and eye irritants, and combustibility.
  - More than 5 dozen products certified to standard

- EPA Database of Environmental Information for Products and Services

- *Greening Your Purchase of Cleaning Products: A Guide For Federal Purchasers*
Purchasing is only part of the green cleaning picture
Green Cleaning Practices

- Keep dirt out of the building.
  - Durable welcome mat encourages visitors to wipe their feet
- Minimize product use.
- Match the product with the need.
  - Don't use a strong cleaner on a mild stain
- Choose durable, energy efficient, and quiet cleaning equipment.
- Train your staff to use products properly.
Setting an example is not the main means of influencing others; it is the only means. -- Albert Einstein
Bibliography/resource list available at http://www.istc.illinois.edu/info/library_docs/other_pubs/selected-resources-for-greening-the-library.pdf