Energy Conservation Opportunities/Measures

Energy Conservation Opportunities (ECO’s)
- possible areas/options to save energy
- potential improvement in components, function and/or procedures
- conduct site walk to evaluate condition of existing systems
- survey customers for ideas- start “communication process”

Energy Conservation Measures (ECM’s)
- taking action on ECO’s
- might not directly result in reduced cost (i.e. improved comfort = improved productivity)
- ”Primary” vs. ”Applied” ECM’s
  - Primary ECM- financed thru normal O & M budget
  - Applied ECM- require special financial investment beyond normal O & M budget

Eco’s/ECM’s

“No Cost- Low Cost” Primary ECM’s:
- adjusting temperature setpoints
- make preventative maintenance a PRIORITY !
- Shutdown systems when not in use
- Signage in workplace
- optimize start/stop times of large HVAC system components
ECO's/ECM's

**Applied ECM's:**
- life-cycle cost analysis
- strategic planning process
- administration/customer "buy-in" required (shared objectives)
- learn the language of the customer
- good communications a must!

Energy Conservation Opportunities (ECO's)

**Building Envelope:**
- weatherproofing
- glazing upgrades
- install shading devices (films, blinds, deciduous trees)
- wall/roof insulation
- roof coatings (CEC/"Cool-roof" program)
- automatic door closers

**Lighting Systems:**
- re-lamping
- replace ballasts
- occupancy sensors
- photo-cells on exterior lighting systems

**Electrical Systems:**
- high efficiency motors
- check existing panels
- demand limiting

**HVAC Systems:**
- install VFD's on fans/pumps
- calibrate/replace existing temp controls
- convert CV systems to VAV
- check insulation on ducts/pipes
- upgrade equipment efficiency

**BMS/DDC controls:**
- replace/augment existing pneumatic control systems
- turn systems off when not needed (time-of-day scheduling)
- duty cycling
- load shedding
- demand limiting
- optimum start/stop
<table>
<thead>
<tr>
<th><strong>Energy Conservation Opportunities (ECO’s)</strong></th>
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<tr>
<td><strong>Office Equipment:</strong></td>
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<tr>
<td>1. Turn off when not in use.</td>
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<td>2. Utilize “Energy Star” equipment where practical</td>
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<td>3. Share printers/reduce printer usage</td>
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<td>4. Batch copying</td>
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<td>5. 2-sided copying</td>
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<td><strong>Water Heating:</strong></td>
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<tr>
<td>1. Insulate tanks/pipes</td>
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<td>2. Check for leaks</td>
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<td>3. Upgrade efficiency of equipment</td>
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<tr>
<td><strong>Renewable Energy:</strong></td>
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<tr>
<td>1. PV cells for outdoor lighting</td>
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<td>2. Fuel-cells</td>
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