

Energy Conservation at Attractions and Accommodations

Chris Metzler

President, Verde Evolution

(704) 578-3692

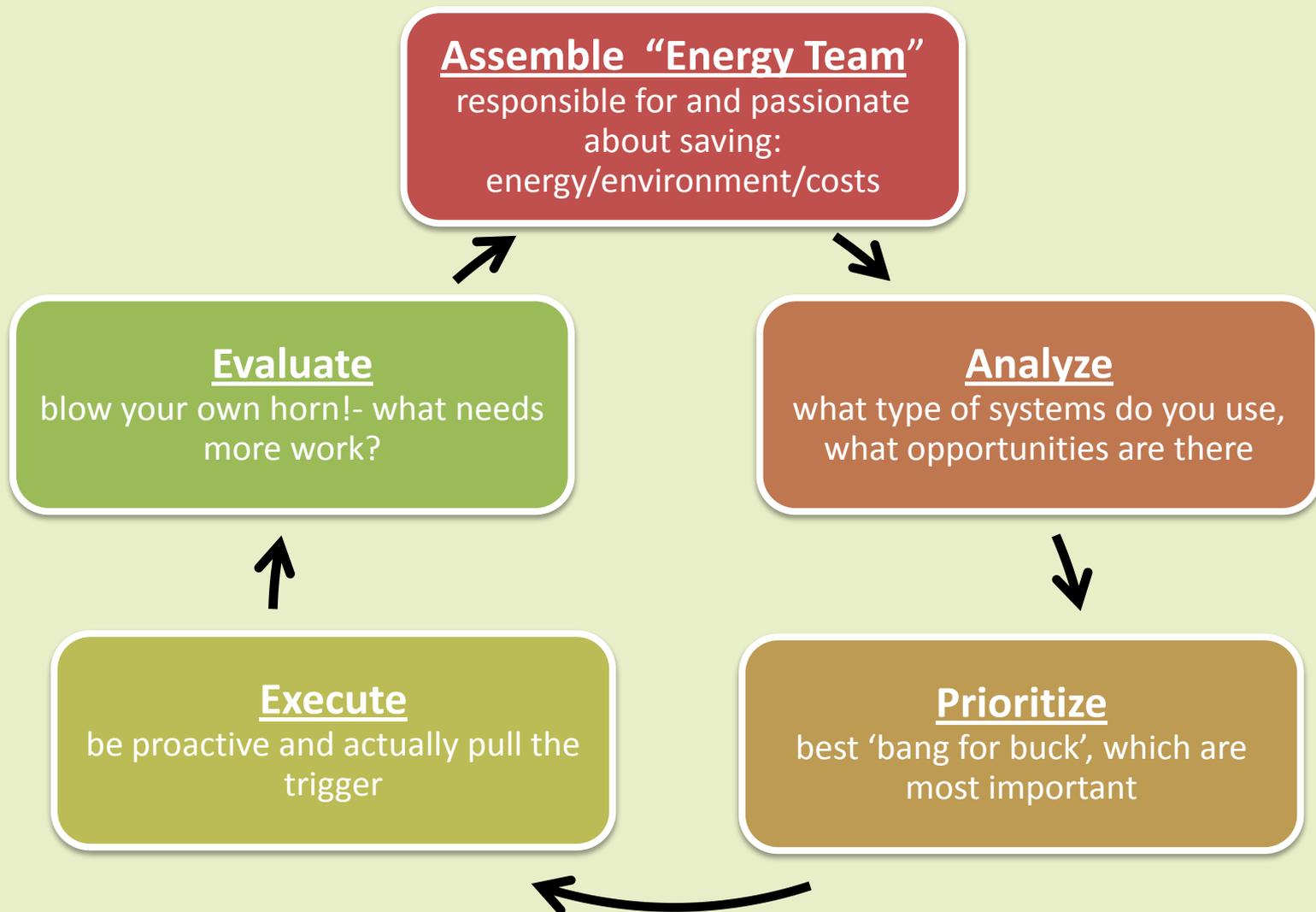
cwmetzler@hotmail.com

Why Should Tourism Care about Energy?

- According to the EPA, an average hotel spends \$2,196 per available room each year on energy
- According to Pacific Gas and Electric's Food Service Technology Center, the commercial food service sector wastes \$8 billion on inefficient cooking, holding and storage
- According to the US Energy Information Administration, commercial electricity prices have risen about 40% between 1999 and 2009
- Lodging and food service are two of the biggest users of energy



Step One: Developing an Energy Plan

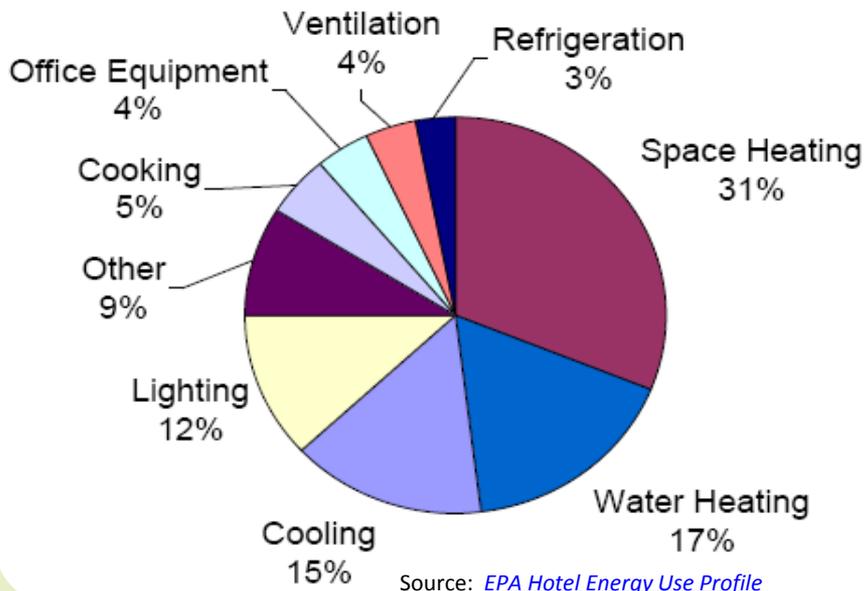


Energy in the Tourism Industry

Where does all that energy go?

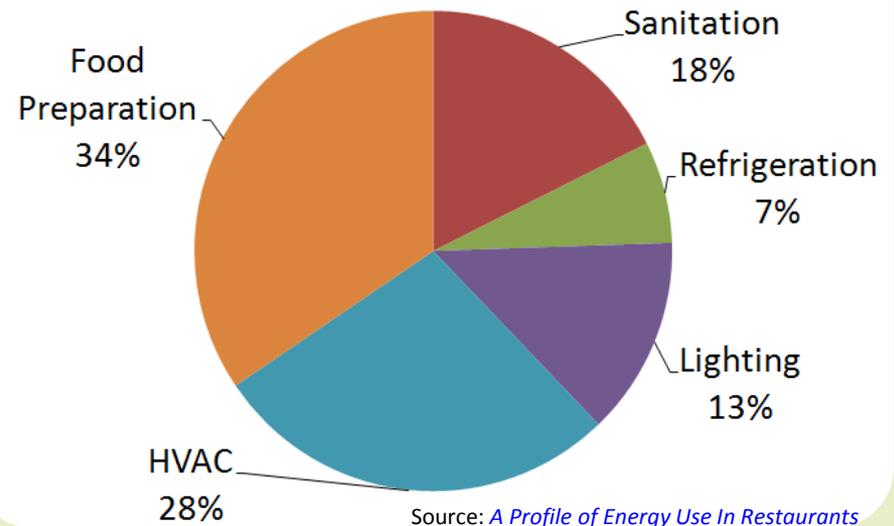
Hotel

Total Energy Consumption by End Use



Restaurant

Total Energy Consumption by End Use



Calculating Energy Costs of an Appliance:

To calculate how much an appliance would cost to operate per year:

1. Appliance's wattage multiplied by the # of hours used per day multiplied the # of days used per year
2. Divide the by 1,000 to get the number of kilowatt-hours used annually
3. Then multiple the number of kilowatt-hours by your electricity rate in \$/kilowatt-hour (typically around \$0.08 per kWh)

Step #1

Lamp with three 60 watts bulbs X 10_{hours/day} X 300 days a year = 540000_{Wh/year}

Step #2

900000_{Wh/year} ÷ 1000_{Wh/kWh} = 540_{kWh/year}

Step #3

9_{kWh/year} X 0.08_{\$/kWh} = \$43 a year

Energy Audits and Paybacks:

- An analysis or inspection of energy flows within a building or a process
- Conducted to identify
 - Where improvements can be made
 - Establish baselines compare with industry standards and measure success of future efforts
- Focus primarily on electricity and HVAC systems
 - Test system's efficiencies and calibrations by analyzing the type of system and current output
- Building envelope and plumbing audits



Photo: [John Wilson](#)



Photo: [Mr.Thomas](#)



Photo: [Bari D](#)

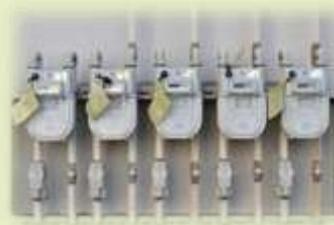


Photo: [mxmstryo](#)



Photo: [acme](#)



Photo: [pauladamsmith](#)

Energy Audits and Paybacks:

3 Levels of Energy Audits recognized by ASHRAE:

(American Society of Heating, Refrigeration and Air-Conditioning www.ashrae.org)

Level I – low hanging fruit, water, no engineer necessary

– many templates and resources available to use

- NC State Energy Office (www.energync.net)
- US EPA: EnergyStar for Hospitality (www.energystar.gov/hospitality)
- Center for Sustainable Tourism Checklists (www.ecu.edu/cs-acad/sustainabletourism/Business-Resources-Checklists.cfm)
- check with local utility or government (www.wastereductionpartners.com)

Level II – more in-depth analysis, engineer needed

– many available directories of energy professionals

North Carolina: www.greenprofessionals.org

Colorado: www.coloradoenergy.org/directory/

Level III – highest level of analysis

Price ranges : \$.025 - \$.12 psf

Savings: average “systems tune up” = approximately 15%

5 Energy Practices You Can Implement Today:

1. Get the Plan Started: Assemble an Energy Team, do an Initial Energy Audit, and Visit Web Sites for Education:

- www.dsireusa.org
- www.epa.gov
- www.doe.gov
- Local Utility Companies

2. Look for Low Hanging Fruit: Lighting Options, Low Flow Plumbing Fixtures, and Programmable Thermostats

3. Clean and Maintain Current Appliances and Fixtures

4. Most Energy is used for Heating/Cooling. Building Envelope: window/door seals and opportunities

5. Conserve! Recycle! Use sustainable products when you can and let others know about it!!!

Contact Information

Chris Metzler

President, Verde Evolution

(c) 704-578-3692

cwmetzler@hotmail.com