

# **Reducing Energy Use in Your Connecticut Hotel**

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# Presenter

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# Approaches to Energy Efficiency, 1

## 1. List energy efficiency projects:

- Free
- Cheap
- Expensive and quick payback
- Expensive and longer payback

Do these in order, from top to bottom.

## 2. Lump all capital expenses for energy efficiency into one loan; could be paid with savings on energy bills

# Approaches to Energy Efficiency, 2

## 3. Follow the EPA Energy Star steps:

- Operations and maintenance
- Upgrade lighting
- Reduce plug load
- Upgrade HVAC systems and other energy consuming systems

## 4. Retro-commission

# Operations and Maintenance, 1

- Some hotels reduce energy use by 10% with a rigorous maintenance schedule:
  - clean coils
  - replace filters
  - calibrate controls
  - lubricate and adjust equipment
  - repair leaks in heating system ducts
  - optimize fresh air economizer operations
- Train bldg operators; consider Building Operators Certification Program ([www.theboc.info/](http://www.theboc.info/))

# Operations and Maintenance, 2

- Turn off when not needed:
  - HVAC
  - lighting
  - electronics
- Best option for shutting down this equipment: up-to-date EMS's with occupancy sensors; if not, have staff do it

# Operations and Maintenance, 3

- Drapes: strategically open or close them; keep closed during summer to eliminate heat gain; keep them open to gain heat in winter and provide free lighting
- De-lamp
- Towel and linen re-use program: design to be “opt-out” rather than “opt-in”
- Set guest hot water at 120 degrees

# Lighting

- Replace standard incandescent bulbs with ENERGY STAR compact fluorescents (CFLs)
- Replace T-12's with T-8's or T-5's
- Install LED's for exit signs and hard-to-replace lights; cost them out for other applications
- Fluorescents and LED's cast off much less heat than incandescents
- Shut off unneeded lights with motion or occupancy sensors and timers; use photocells for exterior lighting



# Reduce Plug Load

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- Use Energy Star equipment for guest rooms, kitchens, offices and common areas

# HVAC Central Plant Systems, 1

- Proper size is important
- Energy-efficient boilers and chillers
- Use free cooling when possible
- Consider an energy recovery ventilation system
- Recover waste heat: combined heat and power, laundry waste water, refrigerators

# HVAC Central Plant Systems, 2

- Variable speed drives
- Demand control ventilation
- Insulate ducts, pipes, etc.
- Use ceiling fans to augment a/c

# HVAC: Distribution and Terminal Units

- Favor heat pumps over electric heating
- Energy-efficient PTAC's, VTAC's and motors
  - Replace AC motors with Electronically Commutated Motors (ECM) in fan coil units (there is a “dramatic reduction in power required to operate them versus a typical AC motor”)
- Variable air volume (VAV) air handling systems and variable flow pumping stations
- Energy Mgt. Systems: make sure they have good user interfaces, occupancy sensors, and scheduling and setback capabilities

# Building Shell

- For B&B's and inns: insulation and air sealing are important, too! They are less important for larger properties.

# Other Major Energy Consuming Systems

- Laundry:
  - Ozone
  - Wash full loads only
- Guest room hot water: tank-less systems
- Kitchen: variable flow exhaust control on hoods; new dishwashers use  $< \frac{1}{2}$  the hot water of older units
- Computers: ↓ energy use by up to 50% by using Energy Star equipment, laptops, power mgt, web-based software, fewer servers, etc.

# On-line Resources about Energy Efficiency

- ENERGY STAR for Hospitality:  
[www.energystar.gov/index.cfm?c=hospitality.bus\\_hospitality](http://www.energystar.gov/index.cfm?c=hospitality.bus_hospitality)
- ENERGY STAR Tools and Resources:  
[www.energystar.gov/index.cfm?c=tools\\_resources.bus\\_energy\\_management\\_tools\\_resources](http://www.energystar.gov/index.cfm?c=tools_resources.bus_energy_management_tools_resources)
- NStar's Energy Advisor:  
[www.nstar.com/business/energy\\_efficiency/energy\\_advisor/](http://www.nstar.com/business/energy_efficiency/energy_advisor/)

# Consider Renewable Energy

- Solar thermal (hot water) and PV (electricity): more expensive than many efficiency measures; but rich incentives often make them reasonable
- Solar electricity costs keep dropping in price
- Solar panels can be a marketing tool
- Purchasing Renewable Energy Certificates (REC's):
  - Select green-e certified
  - Consider reverse auctions



# Transportation, 1

- Bicycle program for guests
- Facilitate bicycle commuting by staff
- Facilitate walking
- Carbon offsets: make it easy for guests to purchase

# Transportation, 2

- Hotel van or car: CNG, hybrids, bio-diesel or Smart Cars
- Preferred parking for low-emission vehicles
- Charging station for electric vehicles
- Subsidize staff's use of mass transit

# Contact Information

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