



How Hotels Save Money and Attract Business by Going Green



Presenter

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Presentation Outline

- I. How Hotels Benefit by Going Green
- II. Strategies for Success
- III. How to Green your Hotel
 - Energy Efficiency and Renewable Energy
 - Water Efficiency
 - Waste Reduction
 - Toxic Use Reduction
 - Transportation Alternatives
 - Food





Benefits of Green Hotels: Increased Revenue, 1

Some meeting planners favor green hotels

- ✓ A growing # of RFP's include questions about environmental practices
- ✓ World Travel & Tourism Council's Hotel Carbon Measurement Initiative started this year; it influences hotels that host meetings and convention-goers
- ✓ APEX / ASTM green meeting standard may incentivize federal staff and mtg planners to choose green hotels





Benefits of Green Hotels: Increased Revenue, 2

Some leisure visitors favor green hotels

- ✓ Trip Advisor recognizes green hotels boldly on their hotel search pages: <http://green.tripadvisor.com/>
- ✓ AAA, Travelocity, Expedia and Orbitz highlight green-certified hotels, too





Benefits of Green Hotels: Increased Revenue, 3

Other Revenue Opportunities

- ✓ Allergy-free rooms sell at a premium
- ✓ Meeting planners ask for green menus
- ✓ Green weddings and meetings
- ✓ Hotels advertise and publicize their green virtues





Benefits of Green Hotels: Reduced Costs

- ✓ Some hotels have cut energy and water use by >40%
- ✓ Hyatt Regency Boston reduced electricity use from 12.2 million kWh/yr. to 6.6 million kWh/yr.
- ✓ Westin Copley Place reduced its water bills by >50%
- ✓ A 10% ↓ in fossil fuel use is equivalent of ↑ ADR (ave. daily rate) by \$2.86 and RevPAR (revenue/available room) by \$2.02





Hotel Chains are Reaping the Benefits of Going Green

Many chains have aggressive energy and water use goals

- Starwood (Sheraton, Westin, W, Element, Aloft, Le Meridien, etc.): ↓ 30% energy, ↓ 20% water by 2020
- Marriott: ↓ 20% energy, ↓ 20% water by 2020
- Hilton: ↓ 20% energy, ↓ 10% water by 2014
- Hyatt: ↓ 25% energy, ↓ 20% water, ↓ waste 25% by 2015
- IHG (InterContinental, Holiday Inn, Crowne Plaza, etc.): ↓ energy 6% to 10% between 2010 and 2012
- Wyndham: ↓ energy 12% by 2016





Incentives and Pressures for Hotels to Green Up

CT Energy Efficiency Fund provides financial incentives

- ✓ Technology is improving and some of it is getting cheaper (lighting, motors, etc.)
- ✓ ↑ in green certified hotels : CT Green Lodging, Energy Star, TripAdvisor, Green Key, Green Seal and Green Restaurant Association and state certifications;
- ✓ Climate is getting worse; consequences and public recognition are increasing. This might influence more business, govt and leisure purchasers to favor green hotels.





Benefits of Green Hotels: Other Advantages

- ✓ Recruiting: some people prefer to work for green businesses
- ✓ ↓ toxic products = ↓ health risks to staff
- ✓ Healthy indoor air quality may lead to improved productivity
- ✓ Tell your children that you are doing your part





Strategies for Success: Assess Performance

- ✓ Benchmark your facility using:
 - Use the information from this presentation!
 - Get Your EPA Energy Star Score:
www.energystar.gov/index.cfm?c=hospitality.bus_hospitality_bm_starter_kit
 - TripAdvisor Survey Guide: <http://green.tripadvisor.com/survey/guide>
 - AH&LA Environmental Guidelines:
www.ahla.com/Green.aspx?id=24560,
www.ahla.com/Green.aspx?id=24988
 - Green Key Self-Assessment:
www.greenkeyglobal.com/site/pdf/Green%20Key%20Self-Assessment%20Questions%20English.pdf
 - IHG's Innovation Hotel: <http://innovation.ihgplc.com/>
- ✓ Compare your hotel to its peers
- ✓ Consider a professional audit and retro-commissioning





Strategies for Success: Establish Objectives

Establish your objectives and priorities with owners and other stakeholders

What is your foremost goal?

- ↓ costs?
- Score high on RFP's with green criteria?
- Appeal to leisure visitors for new or repeat business?
- Become green-certified? Score a Platinum on TripAdvisor?
- Fulfill the mandate of your parent company?
- Modernize your building and operation?



Strategies for Success: Establish Management Structure

- ✔ Assign responsible parties for reducing energy, water, waste and toxins
- ✔ Form *and support* a Green Team; include engineering, housekeeping, food and beverage, sales and marketing, administration
- ✔ Assign other champions
- ✔ Consider incentives such as cutting energy bills by ___%





Strategies for Success: Goals and Reports

- ✓ Set goals
- ✓ Develop reports; they can be produced internally or by an outside firm
- ✓ Reports should be produced with sufficient frequency and specificity to identify trends, problems and achievements





Strategies for Success: Develop Expertise, 1

Develop the expertise you need or find it from outside the organization

- Enroll engineers in Building Operator's Certification course, www.theboc.info/
- Search for articles on the Green Lodging News website, www.greenlodgingnews.com/
- Have Green Team take classes in the Schneider Electric Energy Leaders Education Program, www2.schneider-electric.com/sites/corporate/en/products-services/training/energy-leaders-education.page
- Hire consultants if necessary



Strategies for Success: Develop Expertise, 2

- Join EPA's Energy Star for Hospitality:
www.energystar.gov/index.cfm?c=hospitality.bus_hospitality
- Join the EPA's WaterSense Program:
www.epa.gov/watersense
- Join the EPA's WasteWise Program:
www.epa.gov/wastewise





Strategies for Success: Identify Financial Resources

- ✓ Make room in your capital budget
- ✓ Identify CT incentives; ask NSTAR, National Grid about energy efficiency projects
- ✓ Ask accountant about tax breaks for energy projects
- ✓ Lump short and longer ROI projects together into one package with an acceptable ROI. That way you can justify projects with a longer ROI.





Strategies for Success: Get Staff Involved

- ✔ Inform staff about green program, its goals and how staff can support it
- ✔ Add associated behaviors to staff job description and evaluations
- ✔ Ask staff to sign a commitment letter
- ✔ Use “treasure hunts” (a GE strategy) to identify opportunities
- ✔ Consider incentives (for achieving a recycling rate of __%, for example)
- ✔ Publicize green program by celebrating Earth Hour and Earth Day



How to Green Your Hotel: What is Meant by “Green” (1)

Priority #1: ↓ fossil fuel use through

- efficiency and conservation
- renewable energy





How to Green Your Hotel: What is Meant by “Green” (2)

Other priorities

- ✓ ↓ water use
- ✓ ↓ waste: reduce, reuse, recycle
- ✓ ↓ toxins / improve indoor air quality
- ✓ Greener transportation
- ✓ Food
- ✓ Educate staff and customers





How to Green Your Hotel: Energy Efficiency (1)

Find Attractive Energy Use Reduction Opportunities

- ✔ Start with your own assessment
- ✔ Calculate your hotel's Energy Star score:
http://www.energystar.gov/index.cfm?c=hospitality.bus_hospitality;
track it over time
- ✔ Review the Hotels and Motels section of the Energy Star Building Upgrade Manual:
http://www.energystar.gov/index.cfm?c=business.bus_upgrade_manual
- ✔ Consider meters, so hotel can understand energy and water use for specific areas, and provide incentives to their managers
- ✔ Get an energy audit: retro-commission or ASHRAE level 2 audit, if you can afford it; if not, get a less thorough audit
- ✔ Review the Energy section of this presentation!





How to Green Your Hotel: Energy Efficiency (2)

Address these areas of your property:

- Operations and maintenance
- Lighting
- Reduce plug load
- HVAC systems
- Kitchen
- Hot water
- Steam
- Other energy consuming systems
- Building shell
- Transformers
- Demand response programs





How to Green Your Hotel: Energy Efficiency (3)

Operations and Maintenance, 1

- ▼ Some bldg managers reduce energy use by 10% with a rigorous maintenance schedule, including:
 - clean coils
 - clean PTAC units internally or with service companies
 - replace filters
 - calibrate controls
 - lubricate and adjust equipment
 - repair leaks in heating system ducts
 - optimize fresh air economizer operations; assure outside air dampers on AHU's work well
 - replace worn weather stripping and seals
 - Reset air handling unit static pressure to lowest pressure that operates the terminal boxes. Operating at a pressure higher than required wastes energy.





How to Green Your Hotel: Energy Efficiency (4)

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 available, have staff do it
- ✔ Program mechanical equipment to operate only when needed
- ✔ Schedule function rooms more tightly to reduce the need to condition the space





How to Green Your Hotel: Energy Efficiency (5)

Operations and Maintenance, 3

- ✓ Drapes/Blinds: strategically open or close them; keep closed during cooling season to eliminate heat gain; keep them open to gain heat on sunny winter days, and to provide free light
- ✓ De-lamp
- ✓ Towel and linen re-use program: design to be “opt-out” rather than “opt-in”
- ✓ Set guest room hot water at minimum necessary temperature
- ✓ Train bldg operators; consider Building Operators Certification Program (www.theboc.info/)



How to Green Your Hotel: Energy Efficiency (5)

Lighting, 1

- Replace incandescent bulbs with Energy Star LED's or fluorescents: they will ↓ energy, labor and a/c costs.
- Tubes: replace T-12's with T-8's or T-5's. LED's will overtake fluorescent tubes between 2013 and 2015.
- LED lighting is cost effective in many/most applications. Compared to fluorescents, LED's last many times longer, better dimming and color rendering, ↓ energy, labor and a/c costs. New products come to market monthly. Prices dropping. Avoid lemons by getting Energy Star or DLC aproved bulbs w/ long warranties from established companies.





How to Green Your Hotel: Energy Efficiency (6)

Lighting, 2

- ✔ Use natural light when possible. Adjust lighting to daylight levels, with “daylight harvesting” or manually.
- ✔ Shut off unneeded lights with motion or occupancy sensors and timers; use photocells for exterior lights. Use dimmers.
- ✔ Give staff or guests personal lighting control
- ✔ Motion detectors in stairwells can dim lights to 15% when unoccupied. ASHRAE 90.1 – 2010: stairwell lighting must have control devices that ↓ lighting by 50% or more.
- ✔ Other advanced lighting controls: variable load shedding in response to energy price spikes, task timing (↓ lighting after hours, etc.)





How to Green Your Hotel: Energy Efficiency (7)

Reduce Plug Load

- Reduce plug load by purchasing Energy Star equipment for guest rooms, kitchens, offices, common areas, etc. Energy Star products:

http://www.energystar.gov/index.cfm?c=bulk_purchasing.bus_purchasing

- Within Energy Star, choose the most energy efficient equipment that meets your needs.



How to Green Your Hotel: Energy Efficiency (8)

HVAC Central Plant Systems, General Principles, 1

- ✔ Get an ASHRAE level 2 audit, or a retro-commission study
- ✔ Proper size is important
- ✔ Schedule HVAC so it runs only when necessary, using both automation and daily management overview; some of the points below are about running the system less often or less intensely
- ✔ Variable air volume (VAV) air handling systems
- ✔ Variable Speed Drives
- ✔ Common space automation (event rooms, restaurants, cafeteria, health club, lobby): demand control ventilation, temperature and lighting controls
- ✔ Guest Room Automation Systems: control temperature, lighting, TV





How to Green Your Hotel: Energy Efficiency (9)

HVAC Central Plant Systems, General Principles, 2

- ✓ Set AHU's static pressure as low as feasible
- ✓ Low pressure drop high efficiency filters: ↓ energy needed to push air through filters in air handler; improves IAQ, lasts longer: ↓ waste and labor; saves \$ because energy is 60 – 80% of the cost to filter air. Cost effective?
- ✓ Use free cooling when appropriate
- ✓ Consider energy recovery ventilation if hotel is configured to take advantage of it
- ✓ Bathroom ventilation: replace fans with Energy Star units when renovating, or if there are problems. Energy Star systems: energy efficient, quiet; motors last longer. Get controls with humidity or moisture sensors.





How to Green Your Hotel: Energy Efficiency (10)

HVAC Systems, General Principles, 3

- ✓ Energy-efficient boilers: new condensing boilers operated correctly are up to 97% efficient, and can allow hot water supply temps of 120 and return temps of 100 or below; existing boilers: upgrade burner controls so boilers run efficiently and match the building's needs
- ✓ Energy-efficient magnetic bearing chillers; optimization software runs chillers at most efficient operating point
- ✓ Intelligent chiller control valves (Belimo is one)—prevents chiller plants from coming on line when it's unnecessary. Ready for prime time?
- ✓ Combined heat and power can be effective for hotels with high hot water needs





How to Green Your Hotel: Energy Efficiency (11)

HVAC Systems, General Principles, 4

- ✔ Use energy-efficient PTAC's, VTAC's and motors; replace AC motors with ECM's in fan coil units when there is a favorable ROI
- ✔ Favor heat pumps over electric heating; heat pumps might be sensible when boilers must be replaced, or for new additions
- ✔ Use ceiling fans to augment a/c
- ✔ Use gas-fired infra-red heating for outside (patios, front entrance, valet parking areas) and high-ceiling lobbies
- ✔ Energy Mgt. Systems: make sure they have good user interfaces, occupancy sensors, and scheduling and setback capabilities
- ✔ Insulate ducts, hot water pipes, etc.





How to Green Your Hotel: Energy Efficiency (12)

Maintain and Replace Motors

- ✔ Most motors: suboptimal performance and longer run times than necessary.
- ✔ Biggest maintenance problems: improper refrigerant charge, expansion valves need adjusting, dirty air filters. A good maintenance plan reduces costs! Consider hiring a service to clean PTAC's, VTAC's, etc.
- ✔ For motors that operate frequently: replace old tech (shaded pole motors: 20-30% efficient; PSC motors: 40-60% efficient) with electronically commutated (EC) motors (70-80% efficient). EC's ↓ maintenance costs, too.
 - Replace refrigeration motors—often good ROI's. They run 24/7.
 - Replace guest room fan motors with long run times (can be measured by power meters).
 - Consider EC motor (and Energy Star) replacements for pool and spa filter pumps.
- ✔ To establish an ROI for motor replacement: have hotel motors assessed and identify the incentives.
- ✔ When replacing motors, consider ones that provide reports and alarms.





How to Green Your Hotel: Energy Efficiency (13)

Kitchens, 1

- ✓ Air balance
- ✓ Add variable speed fan control on kitchen ventilation hoods; add side panels to hoods
- ✓ Dishwasher exhaust should run only when dishwasher is on
- ✓ New dishwashers use $< \frac{1}{2}$ the hot water of older units
- ✓ Add strip curtains and automatic door closers to your walk-in refrigerator
- ✓ Maintain refrigerators: check and replace door gaskets, clean evaporator and condenser coils, check refrigerant charge, etc.





How to Green Your Hotel: Energy Efficiency (14)

Kitchens, 2

- ✔ Install EC motors on refrigerator and freezer evaporator and condenser fans
- ✔ Don't set refrigerator and freezer temps too low—each degree ↑ costs by 3-5%
- ✔ Use Energy Star cooking appliances, refrigerators, ice machines; for example, new broilers reduce energy use by 25%
- ✔ Defrost meat in advance--not under running water





How to Green Your Hotel: Energy Efficiency (15)

↓ Hot Water Use, 1

- ✓ Laundry:
 - Ozone (cooler water, less water, less detergent)
 - Wash full loads only
 - Dryers with sensors that stop the machines when laundry is dry
 - Outsourcing might be more efficient
- ✓ Insulate hot water pipes and boilers
- ✓ Recirculation Loop Management Systems: Hot2OSavr and Enovative D'Mand Circ turn off water pumps when no demand for hot water; see if it is compatible with an old boiler system before installing; start with one boiler plant and see if it works
- ✓ Computerized Boiler Controls: adjust burner run patterns to match system's heat load





How to Green Your Hotel: Energy Efficiency (16)

↓ Hot Water Use, 2

- ✓ Heat Recovery: use a heat exchanger to transfer waste heat from cooling and refrigeration equipment to your water tank
- ✓ Guest room hot water: tank-less systems
- ✓ Swimming pools and hot tubs: use physical covers or “liquid pool covers”





How to Green Your Hotel: Energy Efficiency (17)

↓ Use of Steam

1. Inspect and repair steam traps
 2. Pump hot condensate water through a heat exchanger to preheat the bldg's hot water and domestic water systems
 - ↓ need for steam
 - ↓ water needed to temper the hot condensate
 - ↓ water goes down the sewer
- ✓ The savings in steam, water and sewer bill can lead to an ROI of < 3 years if the bldg configuration is acceptable



How to Green Your Hotel: Energy Efficiency (18)

Other Energy Consuming Systems

- Elevators: new elevators ↓ energy use by 50% or more; the savings might persuade hotel owners to replace old ones slightly sooner than planned
- Computers: ↓ energy use by up to 50% by using Energy Star equipment, laptops, power management, web-based software, fewer servers; make sure staff turn off computers at night
- Vending machines: use vending misers or EC motors





How to Green Your Hotel: Energy Efficiency (19)

Building Shell

- ✓ ↓ solar gain with awnings, overhangs, light shelves, window tinting, reflective shades. New window film (EnerLogic) adds insulation, too.
- ✓ Windows: if replacing them anyway, buy high-performance windows; also, insulate with energy-efficient shades that close at bottom, drapes and window film.
- ✓ Revolving doors best at keeping weather out
- ✓ Diagnose heat loss and moisture problems with infra-red analysis; improve air sealing of property; it's usually not cost effective to add insulation to existing hotels; inns often benefit from insulation.
- ✓ Green roofs add insulation and beauty, extend roof life and ↓ storm water runoff; the cost reduction is an added benefit, but doesn't justify this project on its own.





How to Green Your Hotel: Energy Efficiency (20)

Transformer

- ✔ If hotel transformers are >15 years old, consider replacing them; new transformers reduce loss of electricity coming into building
- ✔ Mass Save is studying incentives--they're needed to bring the ROI down from ~6 yrs.; the 6 yr. ROI doesn't include the savings from ↓ a/c costs
- ✔ Benefit of replacing transformers before they die (their life expectancy is 32 yrs.): avoid a 1-3 day downtime without electricity
- ✔ Case study: 300 room Boston hotel w/ 15 transformers; new unit would ↓ >150,000 kWh's/yr.





How to Green Your Hotel: Energy Efficiency (21)

Demand Response Programs

- ✓ Agree to cut power use on peak demand days (hottest days); in return, earn a monthly check for participating





How to Green Your Hotel: Energy Efficiency (22)

On-line Resources

- ✓ **ENERGY STAR for Hospitality:**
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
- ✓ **ENERGY STAR Building Upgrade Manual:**
www.energystar.gov/index.cfm?c=business.bus_upgrade_manual
- ✓ **NStar's Energy Advisor:**
www.nstar.com/business/energy_efficiency/energy_advisor/





How to Green Your Hotel: Renewable Energy

- ✓ Solar PV (electricity) can have attractive ROI in right circumstances and with strong incentives; hotels need considerable shade-free roof space to make a dent in their electricity use
- ✓ PV decreasing in price quickly--but incentives will decrease, too; check on the price, and ask for advice about purchasing them now or waiting several years
- ✓ PV might be economical now with Power Purchase Agreement
- ✓ Solar thermal (hot water): more expensive than most efficiency measures if hotel purchases and owns panels; does not need as much roof space as PV to have an impact
- ✓ Purchasing renewable electricity: usually more expensive; consider reverse auctions or purchasing a modest amount (10%); select green-e certified
- ✓ Solar panels and purchases of green energy can be a marketing tool





How to Green Your Hotel: Reducing Water Consumption, 1

- ✔ Some hotels achieve >50% reduction
- ✔ Meter to know how much water is used in each area
- ✔ Water use reports, audits and benchmarking help hotels understand their opportunities and manage their water use
- ✔ Target high use areas: kitchens, public areas, guest showers, toilets, showers, cooling towers





How to Green Your Hotel: Reducing Water Consumption, 2

- ✓ Leaks: detect and repair (AH&LA Guideline: Check guestroom toilets for leaking valves; place food coloring in toilet tank and see if it appears in toilet bowl. If so, replace valves.)
- ✓ Faucet aerators
- ✓ Showers: 1.25 gallons per minute showerheads; use the lowest gpm that will provide a good shower; upper floors might need greater flow; Toilets: convert to 0.8, 1.0 or 1.28 gallons per flush; Gate Tube Toilet Water Saver (www.gttws.com/) will ↓ water use for toilets with tanks.
- ✓ Urinals: consider no-flush with trap system (high maintenance) or low-flush (0.5 gallons per flush); or shut off water and use urinal pads





How to Green Your Hotel: Reducing Water Consumption, 3

- ✔ Pan washers: replace 2-3gpm units with 0.6 gpm units
- ✔ Dishwashers
 - Low flow pre-rinse spray valve: 0.65 gpm or 0.99 gpm
 - Operate with full loads; shut off when not in use; in conveyor washers, install sensors that shut off automatically
 - If possible, replace inefficient spray heads or flow regulators; or
 - Buy more efficient dishwashing equipment
 - Reuse rinse water for garbage disposer or scrapper trough
 - ↓ water needed for scrapper trough to minimum necessary
 - Install solenoid valve to shut off water to garbage disposer when unit not operating





How to Green Your Hotel: Reducing Water Consumption, 4

- ✔ Thaw meat and other food in walk-in refrigerator—not under running water; wash vegetables in tub—not under running water!
- ✔ Grounds: use timers, moisture sensors, satellite irrigation system; train staff to reduce water use; use gray water, harvested rainwater or cleaned cooling tower blow-down water; native species; compost and mulch
- ✔ Train housekeeping, kitchen and maintenance staff to ↓ water use
- ✔ Chemical-free treatment for cooling towers, chillers, heat exchangers





How to Green Your Hotel: Reducing Water Consumption, 5

- ✔ Laundry: ozone laundry system or a continuous batch washer; assure that machines are fully loaded; minimize rinse cycle; maintain machines well, including checks for leaks
- ✔ Swimming pools: use covers; check for leaks with meters, if possible; backwash system every 2-3 days—not daily; use push-button showers by the pool
- ✔ Steam systems: detect water loss; make repairs
- ✔ Water Awareness





How to Green Your Hotel: Waste Management, 1

Benefits

- ✓ Cost reduction: less purchasing, saves staff time and lowers waste disposal bills
- ✓ Recycling is noticed by customers more than any other green initiative
- ✓ Scores points on some RFP's
- ✓ Scores points on certifications such as TripAdvisor and Green Key
- ✓ Helps the environment
- ✓ Helps the local economy





How to Green Your Hotel: Waste Management, 2

Organizing a Waste Management Program, 1

- ✓ Follow the “3 R’s” in priority order: reduce, reuse, recycle. The biggest gains come from waste reduction.
- ✓ Audit waste stream: type and amt of waste/dept and opportunities for improvement





How to Green Your Hotel: Waste Management, 3

Organizing a Waste Management Program, 2

- ✔ Ask managers and staff how to reduce waste
- ✔ Set policies with goals, accountability and a training plan
- ✔ Establish goals
- ✔ Keep monthly statistics on trash and recycling: bills, # of pickups and weight
- ✔ Identify the companies who will take your materials for reuse and recycling based on price, convenience, etc.





How to Green Your Hotel: Waste Management, 4

Organizing a Waste Management Program, 3

- ✓ Gain staff cooperation (1)
 - Training
 - Hold staff accountable; put recycling in their job description, labor contract
 - Staff commitment letter
 - Staff field trips to recycling plants and the organizations that reuse the hotel's products



How to Green Your Hotel: Waste Management, 5

Organizing a Waste Management Program, 3

- ✓ Gain staff cooperation (2)
 - Have reusable goods go to countries where staff lived—and tell them with pictures or reports
 - Make a plan for non-English speakers, including pictures on bins
 - Recognition and incentives for staff or departments that excel; make program fun and positive



How to Green Your Hotel: Waste Management, 6

Reduce, 1

- ✔ Refillable amenity dispensers can replace soap, lotion, shampoo and conditioner bottles.
- ✔ Highly concentrated cleaning supplies.
- ✔ Switch from incandescent to fluorescent lights—they last 5x longer, or LED bulbs—they last 25x longer.
- ✔ Switch to low pressure drop high efficiency filters for air handler and PTAC units, because they last five times as long





How to Green Your Hotel: Waste Management, 7

Reduce, 2

- ✓ ↓ food waste: use a system to track it—to diagnose issues and raise staff awareness. Can ↓ pre-consumer food waste by 50%, ↓ annual food budget 2% - 6% and ↓ waste disposal costs. See : www.leanpath.com and www.epa.gov/epawaste/conservation/pubs/food-waste-log.pdf
- ✓ Restaurants: washable table linens or no table linens, washable dinnerware, reusable coffee filters, condiments in bulk dispensers
- ✓ Bottled water: eliminate it by using filtered water instead





How to Green Your Hotel: Waste Management, 8

Reduce, 3

- ✔ Use carpet squares so you can replace just the areas that are stained or worn
- ✔ Modular mattresses allow hotels to replace just the mattress tops
- ✔ Eliminate unrequested newspapers
- ✔ Copy paper: require documents to be double-sided; use a smaller font and margins
- ✔ Paperless check-in and check-out
- ✔ Ask hotel suppliers to reduce excess packaging
- ✔ Permanent mugs for staff





How to Green Your Hotel: Waste Management, 9

Reuse, 1

- Donate linens, blankets, towels, toiletries (soap, shampoo, conditioner, lotion), old uniforms to shelters, relief agencies
- Donate re-servable food to hunger relief agencies. Give pig farmers food that agencies won't take.
- Furniture
 - Refinish it: www.therefinishingtouch.com/ or www.remanufacturinganddesigngroup.com/
 - Donate it to relief agencies
- Mattresses: renew them
- Pillows: restore them at a fraction of the price of new purchases. See Pillow-Vac at www.harrispillow.com/.



How to Green Your Hotel: Waste Management, 10

Reuse, 2

✓ Construction & Demolition Materials

- There are markets for ~20 commodities; >80% reuse/recycling rate possible; plan carefully and specify reuse / recycling in contract
- Before project begins: furniture, casework, carpeting, ceiling tiles, lighting (bulbs, ballasts, fixtures), wiring and cable, HVAC equipment, bathroom fixtures
- Before demolition: wood, windows, doors, porcelain fixtures, partitions
- After demolition: asphalt, brick, concrete, wood, metals, glass, roofing, mixed debris





How to Green Your Hotel: Waste Management, 11

Reuse, 3

- ✓ Toner cartridges: ship to re-manufacturers. Close loop by buying remanufactured toner cartridges--at a fraction of original price.
- ✓ Cell phones can go to armed forces
- ✓ Reuse garbage can liners that are still clean
- ✓ Pallets: make vendors take them back
- ✓ Torn towels use as cleaning rags
- ✓ Replace plastic dry cleaning bags with reusable canvas bags
- ✓ Use a material exchange to get rid of unwanted items; here's a list of material exchanges in the northeast:

www.nerc.org/documents/material_exchanges_in_the_northeast.html



How to Green Your Hotel: Waste Management, 12

Recycle, 1

✓ Keys to a great recycling program:

- Have a champion
- Frequent audits and reports; ask haulers if they would help
- Monthly statistics
- Champion or green team takes action when audits and reports fall below your targets
- Keep staff involved and accountable; get management support
- Put recycling bins next to every trash container; they should look different than the trash containers and be clearly marked
- Coordinate with hauler



How to Green Your Hotel: Waste Management, 13

Recycle, 2

✓ Working with haulers:

- Find a hauler for any commodity: <http://earth911.com/>.
- Haulers can identify best equipment, staff ed materials, collection schedules and whether balers and compactors make sense; or whether you should convert a trash compactor to recycling.
- Should hotel buy a baler? Talk to hauler; consider better prices for baled cardboard (for example) vs. capital expense, cost of electric line to baler, space available, labor, etc.
- Single stream is easier, saves space, less training. However, consider segregating easily separable materials like cardboard, if you get a better price for it.





How to Green Your Hotel: Waste Management, 14

Recycle, 3

✓ Hauling Contracts

- review them to maximize savings.
- to cut bill, you might have to reduce size of trash containers or frequency of collection.
- eliminate volume requirements that discourage recycling.
- consider bidding trash and recycling separately.
- More advice: www.p2pays.org/ref/03/02098.pdf.





How to Green Your Hotel: Waste Management, 15

Recycle, 4

✓ Periodic Audits

- Check departmental wastebaskets, recycling bins, dumpsters at end of each shift. Are daily items being recycled: cardboard, paper, plastic containers, metal, glass?
- Clear plastic trash bags make audits easier to do.
- Take pictures to communicate your findings to department heads and staff



How to Green Your Hotel: Waste Management, 16

Recycle, 5

✓ Recycling bins

- Attractive bins available from T2 Site Amenities, JRS Amenities, Erwyn, Fibrex Group, etc.





How to Green Your Hotel: Waste Management, 17

Recycle, 6

✓ Recycling is the Law in Connecticut -

[http://www.ct.gov/deep/cwp/view.asp?a=2714&q=324896
&deepNav_GID=1645&deepNavPage=%7C](http://www.ct.gov/deep/cwp/view.asp?a=2714&q=324896&deepNav_GID=1645&deepNavPage=%7C)

- Cardboard
- Bottles and cans
- Paper
- See link for entire list of CT-mandated recyclables





How to Green Your Hotel: Waste Management, 18

Recycle, 7

✓ Food waste

- Find haulers that take food waste, yard waste, waxed cardboard to composting facilities; or food waste to pig farmers
- If the CT hotel is over 200 rooms, they may be covered under [PA 11-217](#) and Section 4 of [PA 13-285](#) and should understand the requirements for food waste
- Used fryer oil can be recycled, made into bio-diesel or burned to make electricity; filter used fryer oil to use it longer





How to Green Your Hotel: Waste Management, 19

Recycle 8

▼ Electronics

- Electronics recyclers take computers, televisions, cell phones, pagers, copiers, printers, faxes, stereos, etc.

link for e-stewards (electronic recycling)

<http://e-stewards.org/>

link for R2 (electronics recycling)

<http://www.r2solutions.org/>



Waste Management - CT

- Link for battery recycling - CT

http://www.ct.gov/deep/cwp/view.asp?a=2714&q=324832&deepNav_GID=1645

- Link for fluorescent lights – CT

http://www.ct.gov/deep/cwp/view.asp?a=2708&q=378846&deepNav_GID=1763



How to Green Your Hotel: Waste Management, 20

Recycle 9

✓ Other recyclable items:

- Mattress Recycling in CT -
http://www.ct.gov/deep/cwp/view.asp?a=2714&q=482160&deepNav_GID=1645
- Soap and shampoo: www.globalsoap.org/ or
www.cleantheworld.org
- Used soil, plants, landscaper products: compost, reuse or recycle



How to Green Your Hotel: Waste Management, 21

Purchase Recycled-Content Products

- ✓ Paper: office paper (30% recycled paper performs as well as virgin), toilet and facial tissue, napkins, menu paper, cardboard.
- ✓ Toner cartridges
- ✓ Glass: bottles, jars, floor tiles
- ✓ Carpet
- ✓ Trash can liners
- ✓ Trash cans
- ✓ Plastic lumber
- ✓ Computers with recycled material and other green attributes:
www.epeat.net/
- ✓ Recycled-content "to-go" containers in restaurants

EPP resource: www.epa.gov/epp/





How to Green Your Hotel: Waste Management, 22

Resources

- ✓ Recycling Guidebook for the Hospitality and Restaurant Industry, Metropolitan Washington Council of Governments, Department of Environmental Programs, www.p2pays.org/ref/05/04032.pdf
- ✓ EPA WasteWise Program: www.epa.gov/epawaste/conserve/smm/wastewise/index.htm



How to Green Your Hotel: Toxic Use Reduction, 1

Product Substitution, 1

- ✔ Green cleaning products
- ✔ Greener disinfectants
- ✔ Green laundry products
- ✔ Integrated pest management: require landscaper and plant management company to eliminate pesticides
- ✔ Low or no VOC: paints, carpets, sealants, caulks, adhesives, furniture, wallboard. Avoid formaldehyde in countertops, glued wood, particleboard, insulation.





How to Green Your Hotel: Toxic Use Reduction, 2

Product Substitution, 2

- ✓ Greener furniture (avoid PVC's, flame retardants, etc.)
- ✓ Boiler and chiller water treatment: consider non-chemical and less toxic alternatives
- ✓ Pool chemicals: storage hazards, avoid overuse; consider alternatives to chlorine
- ✓ Organic Landscaping





How to Green Your Hotel: Toxic Use Reduction, 3

Product Substitution, 3

- ✔ Choose alternatives to dry cleaning with perc, such as wet cleaning
- ✔ Bed bugs: heat treatments work better than pesticides
- ✔ Amenities: fragrance free, and products with little or no sulfates, pthalates, parabens, ureas, dyes, formaldehyde





How to Green Your Hotel: Toxic Use Reduction, 4

- ✓ Read the EPA's Building Air Quality Guide:
http://www.epa.gov/iaq/largebldgs/baq_page.htm
- ✓ Determine the right amount of ventilation: too little leads to poor indoor air quality; too much reduces energy efficiency
- ✓ Make sure that your make-up air is far from truck exhaust, chemicals, garbage and dust
- ✓ Combustion sources (sterno, gas stoves, furnace, cars, candles) can be unhealthy; use CO monitors, seal ducts; use rechargeable or LED candles
- ✓ Routinely inspect vents, belts, filters, fans: can have energy efficiency benefits as well
- ✓ Add indoor plants; use non-toxic pest control





How to Green Your Hotel: Transportation, 1

- ✓ Bicycle rental or bike-sharing option for guests; facilitate bicycle commuting by staff
- ✓ Facilitate walking; give maps to guests
- ✓ Carbon offsets: make it easy for guests to purchase them
- ✓ Hotel van or car: hybrid, plug-in, bio-diesel, CNG
- ✓ Offer hybrid taxis, if they're available





How to Green Your Hotel: Transportation, 2

- ✓ Preferred parking for low-emission vehicles
- ✓ Electric vehicle charging stations:
<http://www.ahla.com/Green.aspx?id=34385>
- ✓ Subsidize staff's use of mass transit
- ✓ Encourage staff to commute by walking, bicycle and carpool. Facilitate telecommuting. Participate in the Green Streets Initiative
(<http://gogreenstreets.org/>)





How to Green Your Hotel: Food

- ✓ Local
- ✓ Organic
- ✓ Fair Trade
- ✓ ↓ red meat
- ✓ ↓ cheese
- ✓ Eliminate non-sustainable seafood
- ✓ Shade-grown organic coffee
- ✓ Local, organic flowers
- ✓ Rooftop herb gardens and beehives





Conclusion

- ✓ Your hotel will benefit in many ways by going green www.ct.gov/deep/greenlodging
- ✓ There are great opportunities and much work to do!

Questions? Comments?



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