

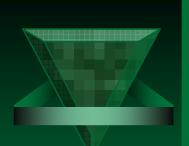
Greening the Hilton Garden Inn Providence Airport /Warwick: Why and How



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Presentation Outline

I. The benefits of greening your hotel II. How to green your hotel **Energy Efficiency and Renewable Energy** \checkmark Water Efficiency \checkmark ✓ Waste Reduction ✓ Toxic Use Reduction **Transportation Alternatives** \checkmark **III.** Successful Practices IV. Proving that You're Green



 Meeting planners are starting to patronize businesses that care about environment
 in RFP's from businesses that ask hotels for environmental achievements

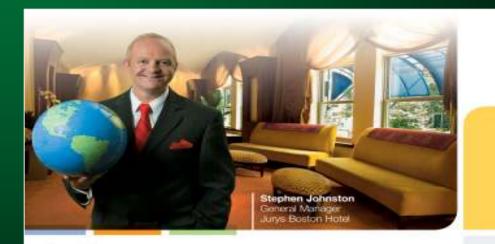
- ✓ U.S. EPA and State of Florida require staff to stay in green hotels
- ✓ U.S. govt. developing a green meeting standard that will incentivize federal staff and mtg planners to choose green hotels
- ✓ AAA, Travelocity, Expedia and Orbitz now highlight green-certified hotels; AAA recognizes the RI Green Hospitality certification
- Customer interest in choosing green hotels is growing; however, there is confusion about what constitutes a "green" hotel



 Hotels are advertising their green virtues and using internal marketing to demonstrate their green achievements
 Hotels are installing allergy-free rooms and

selling them at a premium

Meeting planners now ask for green menusHotels now offer Green Wedding packages



Check into a green hotel. And CO₂ checks out."

Jurys Boston Hotel wanted its friendly service to cater to the environment as well as to its guests. "We are an Energy Star hotel," says General Manager Stephen Johnston. "And Constellation NewEnergy helped us to take our environmental sensitivity a step further."

Already a Constellation NewEnergy customer, it was easy for CNE to direct Jurys' energy dollars toward renewable energy resources. "It's within budget and didn't take long to accomplish. It's easy being green," Johnston adds. Jurys has a reserved place as one of the first hotels in Boston to go 100% green, avoiding enough CO2 to equal 10,372 barrels of oil annually. And as Johnston says, "Now our well-known hospitality extends to Planet Earth."

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Benefits of Green Hotels: Reduced Costs

- Energy Star buildings use 35% less energy than comparable buildings
- Y Hyatt Regency Boston reduced electricity use from 12.3 million kWh/yr to 7.0 million kWh/yr
- ✓ The Colonnade Hotel is cutting from 4.1 million Energy Star to 2.5 million kWh/yr
- ✓ A 10% ↓ in fossil fuel use is equivalent of ↑ ADR by \$2.86 and RevPAR by \$2.02
- ✓ Westin Copley Place reduced its water bills by <50%</p>
- ✓ Reduced energy, water and waste disposal bills go directly to the bottom line

Why Green Your Hotel: Other Reasons

- Recruiting: some people prefer to work for green businesses—especially younger professionals
- $\forall \downarrow$ toxic products = \downarrow health risks to staff
- Healthy indoor air quality may lead to improved productivity
- ✓ Tell your children that you are doing your part



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



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

Other priorities:

 $\forall \downarrow$ water use

- $\checkmark \downarrow$ waste: reduce, reuse, recycle
- $\checkmark \downarrow$ toxins / improve indoor air quality
- ✓ Greener transportation
- ✓ Food: ↑ local, organic, Fair Trade; ↓ red meat; eliminate non-sustainable seafood; shade-grown coffee
- Educate staff and customers

How to Green Your Hotel: Assess Performance

Benchmark your facility using measures like EPA Energy Star, the Green Key checklist

(www.greenkeyglobal.com/site/pdf/Green Key Audit - Summary of Audit Questions.pdf), IHG's Innovation Hotel

(http://innovation.ihgplc.com/) and other green hotel checklists

- ✓ Compare your hotel to its peers
- Consider performing a gap analysis for LEED O&M certification
- ✓ Consider a professional audit and retro-commissioning



How to Green Your Hotel: Establish Objectives

Establish your objectives and priorities with owners and other stakeholders

What is your foremost goal?

- $-\downarrow$ costs?
- Score high on RFP's with green requirements?
- Appeal to new and repeat customers by being green?
- Other?



How to Green Your Hotel: Develop Expertise, 1

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

- Organize a Green Team
- Enroll engineers in Building Operator's Course
- Read Green Lodging News and its website
- Hire consultants if necessary

How to Green Your Hotel: Develop Expertise, 2

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

How to Green Your Hotel: Identify Financial Resources

✓ Identify funds in your capital budget
✓ Identify tax breaks and utility rebates: call National Grid; see http://dsireusa.org/.
✓ Lump short ROI and longer ROI projects together into one package with an acceptable ROI; that way, you can gain greater efficiencies.

How to Green Your Hotel: Energy Efficiency (1)

- ✓ Start with your own assessment
- ✓ Retro-commission
- ✓ Consider hiring an energy consultant
- ✓ Follow the EPA Energy Star steps in order; doing so can allow hotel to purchase smaller fans, boilers, chillers, etc:
 - Operations and maintenance
 - Upgrade lighting
 - Reduce plug load
 - HVAC systems
 - Other energy consuming systems

How to Green Your Hotel: Energy Efficiency (2)

Operations and Maintenance, 1:

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



How to Green Your Hotel: Energy Efficiency (3)

Operations and Maintenance, 2:

✓ Turn off when not needed:

- HVAC
- lighting
- electronics

Best option for shutting down this equipment: upto-date EMS's with occupancy sensors; if not available, have staff do it

How to Green Your Hotel: Energy Efficiency (4)

Operations and Maintenance, 3:

V Drapes/Blinds: 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

- Y Towel and linen re-use program: design to be "opt-out" rather than "opt-in"
- ✓ Set guest room hot water at 120 degrees

How to Green Your Hotel: Energy Efficiency (5)

Lighting

- ✓ Use natural light when possible.
- ✓ Shut off unneeded lights with motion or occupancy sensors and timers; use photocells for exterior lights.
- ✓ Replace incandescent bulbs with Energy Star compact fluorescents (CFLs) or LED's.
- \checkmark Replace T-12's with T-8's or T-5's.
- ✓ LED lighting is cost effective in many applications now. Better dimming and aesthetics than fluorescents. Reduces energy, labor and a/c costs even more than fluorescents. More products coming to market weekly. Prices coming down. Avoid lemons by getting long warranties with established companies. Determine *when*, not if, your bldg will switch to LED's for each kind of lighting.
- ✓ Fluorescents and LED's cast off much less heat than incandescents.



How to Green Your Hotel: Energy Efficiency (6)

Reduce plug load by purchasing 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



How to Green Your Hotel: Energy Efficiency (8)

HVAC Central Plant Systems, 2:
✓ Variable speed drives
✓ Demand control ventilation
✓ Insulate ducts, pipes, etc.
✓ Use ceiling fans to augment a/c

How to Green Your Hotel: Energy Efficiency (9)

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

How to Green Your Hotel: Energy Efficiency (10)

Kitchens, 1:

- VAir balance
- Variable flow exhaust control on hoods; add side panels to hoods
- ✓ Dishwasher exhaust should run only when dishwasher is on
- New dishwashers use < 1/2 the hot water of older units

How to Green Your Hotel: Energy Efficiency (11)

Kitchens, 2:

- ✓ Add strip curtains and automatic door closers to your walk-in refrigerator
- Install electronically commutated motors (ECM) on refrigerators' and freezers' evaporator and condenser fans
- ✓ Use Energy Star ice machines, refrigerators, freezers, steamers and fryers
- ✓ New broilers reduce energy use by 25%



How to Green Your Hotel: Energy Efficiency (12)

Other Major Energy Consuming Systems, 1: ✓ Laundry:

- Ozone
- Wash full loads only
- Outsourcing may be more efficient
- Swimming pools and hot tubs: use covers
 Guest room hot water: tank-less systems

How to Green Your Hotel: Energy Efficiency (13)

 Other Major Energy Consuming Systems, 2:
 ✓ Computers: ↓ energy use by up to 50% by using Energy Star equipment, laptops, power mgt, webbased software, fewer servers, etc.

Vending machines: use misers

Guest room hot water: tank-less systems

How to Green Your Hotel: Energy Efficiency (14)

Building Shell:

- ✓ ↓ solar gain with awnings, overhangs, light shelves, window tinting, reflective shades
- ✓ Windows: if replacing them anyway, buy highperformance windows; if not, insulate with energyefficient shades, drapes or reflective film
- **V** Revolving doors best at keeping weather out
- ✓ Diagnose heat loss and moisture problems with infra-red analysis; add insulation and air sealing measures



How to Green Your Hotel: Energy Efficiency (15)

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_manag ement_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 thermal (hot water) and PV (electricity): more expensive than most efficiency measures; incentives may make them reasonable; PV coming down in price—if too expensive now, check again in several years
- Purchasing renewable electricity: usually more expensive; consider reverse auctions; select greene certified
- ✓ Solar panels and purchases of green energy can be a marketing tool

How to Green Your Hotel: Reducing Water Consumption, 1

- \checkmark Some hotels achieve >50% reduction
- ✓ Meter and audit to know where your water is used
- Benchmark or have a water audit to better understand your opportunities
- ✓ Target high use areas: kitchens, public areas, guest showers, toilets, showers, cooling towers

How to Green Your Hotel: Reducing Water Consumption, 2

Common places to \downarrow water use, 1:

- ✓ Leaks: detect and repair
- ✓ Faucet aerators
- ✓ Showers: 1.25 gallons per minute showerheads
- ✓ Toilets: 1.28 gallons per flush
- ✓ No-flush urinals with trap system (high maintenance) or low-flush (0.5 gallons per flush)

How to Green Your Hotel: Reducing Water Consumption, 3

Common places to \downarrow water use, 2:

- Kitchen: pre-rinse spray valve, efficient dishwashing equipment, thaw food in walk-in refrigerator—not under running water; review other habits
- ✓ Ozone laundry system
- **V** Swimming pools covers
- Irrigation: satellite-based system, cleaned cooling tower blow-down water, rainwater and gray-water

How to Green Your Hotel: Reducing Water Consumption, 4

Common places to \downarrow water use, 3:

- Chemical-free treatment for cooling towers, chillers, heat exchangers
- ✓ Steam systems: detect water loss; make repairs
- Efficient water heating: insulate water pipes, recover heat from refrigeration and cooling systems
- ✓ Water Awareness



Benefits:

- ✓ Cost reduction: less purchasing, saves staff time and lowers waste disposal bills
- Recycling is noticed by customers more than any other green initiative
- **V**Recycling scores points on RFP's
- ∀Helps the environment
- ∀Helps the RI economy

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; good audit form:

www.earth911.org/library/brrc/pdf/WasteAssFor m.pdf



Organizing a Waste Management Program, 2:
✓ Ask staff how to reduce waste
✓ Set policies with goals, accountability and a training plan
✓ Consider incentives and staff commitment letter
✓ Keep monthly statistics on trash and recycling: bills, # of pickups and weight



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 use LED bulbs—they last 25x longer.



Reduce, 2:

Restaurants: washable table cloths and dinnerware, reusable coffee filters, condiments in bulk dispensers

Bottled water: eliminate it by using filtered water instead

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 un-requested newspapers
- Copy paper: require documents to be doublesided; use a smaller font and margins
- Ask hotel suppliers to reduce excess packaging
 Permanent mugs for staff



Reuse, 1:

- ✓ Donate linens, blankets, towels, toiletries, 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: <u>www.therefinishingtouch.com/</u> or <u>www.remanufacturinganddesigngroup.com/</u>
 - Donate it to relief agencies

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



Reuse, 3:

 Toner cartridges: ship to re-manufacturers. Close loop by buying remanufactured toner cartridges--at a fraction of original price.
 Reuse garbage can liners that are still clean.
 Torn towels use as cleaning rags.



Recycle, 1:

VKeys to a great recycling program:

- Have a champion
- Frequent audits
- Monthly statistics
- Hold staff accountable
- Coordinate with hauler



Recycle, 2:

- ✓ Working with haulers:
 - Find a hauler for any commodity: http://earth911.com/.
 - Haulers can identify best equipment, staff education materials, collection schedules and whether compactors make sense.
 - Single stream is easier, saves space, less training.
 Consider segregating easily separable materials like cardboard, if you get a better price for it.



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.



Recycle, 4:

- V 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.
 - Recycling bins should be located next to every trash container, look different than the trash containers and be clearly marked.



Recycle, 5:
✓ Recycling bins
– Attractive bins available from T2 Site Amenities, JRS Amenities, etc.



Recycle, 6: ✓ Food waste

- find haulers that take food waste, yard waste, waxed cardboard to composting facilities; or food waste to pig farmers
- Consider decomposition machines
- Used fryer oil can be recycled, made into biodiesel or burned to make electricity



Recycle 7:

- ✓ Electronics
 - Electronics recyclers take computers, televisions, cell phones, pagers, copiers, printers, faxes, stereos, etc.
 - See www.mass.gov/dep/recycle/reduce/electron.htm,
 http://earth911.com/, and
 www.epa.gov/osw/conserve/materials/ecycling/fag.htm
 - www.epa.gov/osw/conserve/materials/ecycling/faq.htm

Recycle 8:

- ✓ Other recyclable items:
 - Mattresses: www.greenlodgingnews.com/biggest-barrier-mattressrecycling--not-knowing-it
 - Fluorescent bulbs: www.epa.gov/epawaste/hazard/wastetypes/universal/lamps/faqs.ht m
 - Batteries:
 - www.http.com//earth911.com/recycling/hazardous/single-usebatteries
 - Pallets: give back to vendors or recycle them
 - Soap and shampoo: shelters, www.cleantheworld.org, www.globalsoap.org/

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/



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/osw/partnerships/wastewise/about.h tm



Product Substitution, 1
✓ Green cleaning products
✓ Greener disinfectants
✓ Green laundry products
✓ Integrated pest management
✓ Low VOC: paints, carpets, sealants, caulks, adhesives, furniture, wallboard. Avoid formaldehyde in countertops, glued wood, particleboard, insulation



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, alternatives, overuse
- ✓ Organic Landscaping

- 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) can be unhealthy; use CO monitors, seal ducts
- ✓ Routinely inspect vents, belts, fans: can have energy efficiency benefits as well

- V Develop a plan for mercury
- Mercury is in bulbs, thermostats, switches, gas and water flow meters, boilers, standing pilot lights
- V Ensure proper disposal at end of life
- Faulty seals and preparation for disposal can cause exposure and vapor emissions
- ✓ Substitute other products when upgrading
- ✓ Substitute LED bulbs for fluorescent bulbs, as it becomes practical to do so

How to Green Your Hotel: Transportation, 1

Bicycle program for guests; facilitate bicycle commuting by staff
 Facilitate walking; give maps to guests
 Carbon offsets: make it easy for guests to purchase

How to Green Your Hotel: Transportation, 2

Hotel van or car: CNG, hybrids, bio-diesel or electric cars
Offer hybrid taxis, if they are available
Preferred parking for low-emission vehicles
Charging station for electric vehicles
Subsidize staff's use of mass transit



How to Green Your Hotel: Successful Practices

What gets measured gets done \checkmark Carrots work better than sticks **V**Ask staff to sign a commitment letter **Assign champions for recycling, energy**, etc.; offer them an incentive Collaborate with peers in other hotels ✓ Make this project fun; celebrate your successes

How to Green Your Hotel: Proving that You Are Green, 1

- ✓ Benefit of certification: outside parties proclaim that your facility is green--it confers credibility
- ✓ If your hotel isn't certified, make the point yourself: website, media stories, ads, statistics, responses to RFP's etc.
- A Marketing representative should be on your Green Team
- ✓ Internal marketing: recycling bins, brochures in rooms, signs, etc.; helps secure repeat business

How to Green Your Hotel: Proving that You Are Green, 2

 Certification programs: imperfect but improving
 Hotel certification programs: RI Green Hospitality program, EPA Energy Star, USGBC's LEED, Green Key, Green Seal

 Hotel restaurants: Green Restaurant Association, Certified Green Commercial Kitchen Program



Your hotel will benefit in many ways by going green

There are great opportunities and much work to do!

Questions? Comments?

Contact Information

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