United States Environmental Protection Agency | Air and Radiation 6202J | EPA 430-N-95-005 June 1995

EPA

Green Lights & ENERGY STAR Update

EPA Green Lights

3 DAYS ONLY

Breathtaking clarity, luminous illumination and affordability are available at the Green Lights Club.

Dear Green Lights Update reader:

Did you know that hotels all across the country are upgrading their facilities with Green Lights? Look inside to learn more about what they're doing and how you can use energy-efficient lighting to save money, make your guests more comfortable, and prevent pollution!

Wish you were here!

TOTAL SQUARE FOOTAGE IN GREEN LIGHTS HOTELS: 73,132,500

401 M STREET, SW (6202J), WASHINGTON, DC 20460
ENERGY STAR FAX LINE SYSTEM • 202 233-9659
GREEN LIGHTS/ENERGY STAR HOTLINE 202 775-6650 • FAX 202 775-6680

CASE STUDY: NY MARRIOTT MARQUIS

Managing Energy in the Big Apple

New York Marriott Marquis Reduces Electricity Usage

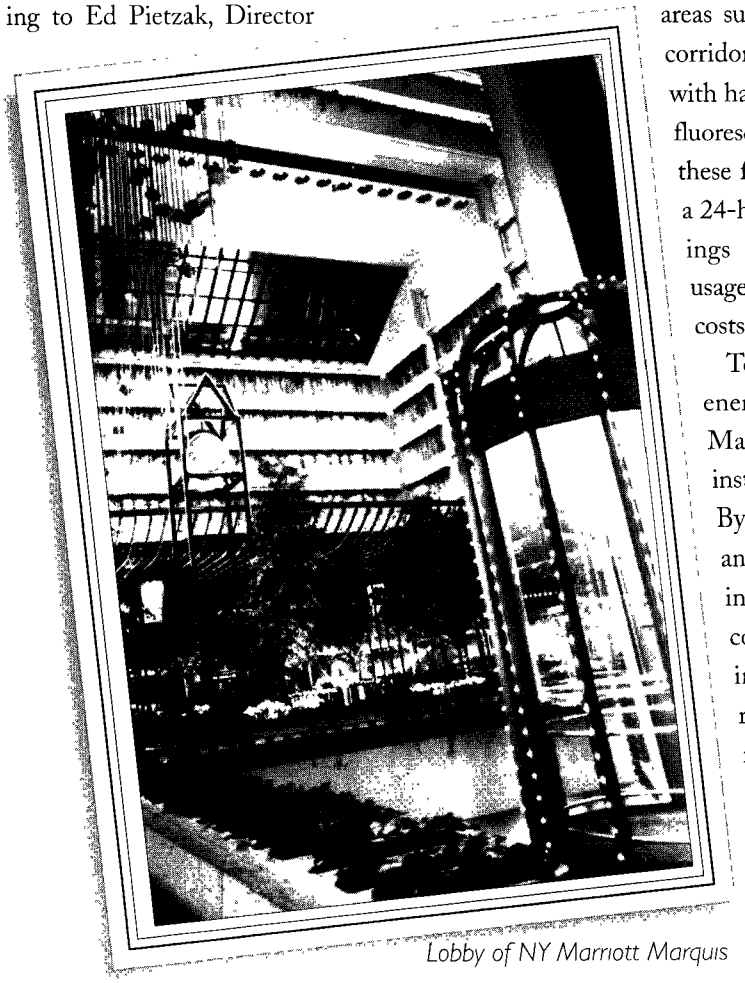
Contents

The *Green Lights Update* is a free monthly publication with a circulation of over 35,000. Recipients of the *Update* include: Green Lights participants, program prospects, members of Congress, and interested members of the general public. Receipt of this publication is not an indication that your organization is a participant. To add your name to the subscription list, or to find out how to join Green Lights, call the Green Lights/ENERGY STAR Hotline at 202 775-6650.

Although publication of all submissions is not guaranteed, the *Update* encourages Partners, Allies, and Endorsers to submit articles of interest and to provide input for future issues. Please keep in mind that EPA seeks only to promote energy efficiency and does not endorse any particular product or service. If your organization would like to submit material for publication in the *Green Lights Update*, please fax material to Eric Carlson at 202 233-9578 or send materials to: Update Editor, EPA Green Lights (6202J), 401 M Street, SW, Washington, DC 20460.

The New York Marriott Marquis has discovered that increased guest room occupancy does not have to mean larger electric bills. Using Green Lights technology and a sophisticated energy management system (EMS), the hotel has actually reduced its energy usage by 12 percent while annual guest room occupancy rates grew from 83.9 percent in 1989 to 90.7 percent in 1994.

In 1990, the Marriott Marquis, located in New York City's theater district, undertook a major lighting upgrade initiated by Chief Engineer Chuck Duffner. According to Ed Pietzak, Director of Engineering, when Marriott began their upgrading they "were on the cutting edge of many of the lighting technologies." Hotel upgrades included installing electronic ballasts in every fluorescent fixture located in "back of the house" areas such as hallways, administrative offices, storage areas, kitchens, and laundry facilities. Exit signs were also upgraded with compact fluorescent kits, and incandescent lighting in guest rooms was upgraded to hardwired compact fluorescent quad lamps. Incandescent flood lamps, in recessed downlight "cans" located in public areas such as lobbies and corridors, were replaced with hard-wired compact fluorescent fixtures. Since these fixtures operate on a 24-hour basis, the savings in both energy usage and maintenance costs are significant.



Lobby of NY Marriott Marquis

To further reduce energy usage, the Marriott Marquis installed a new EMS. By optimally starting and stopping heating, ventilation, and cooling equipment in hotel meeting rooms and ballrooms, the EMS enables the hotel to carefully monitor and manage its energy usage. According to

Assistant Chief Engineer, Walter Irizarry, this system controls 17 major air handling units, exhaust fans, heat exchangers, three central chillers, cooling towers, chilled water and condenser water pumps, and lighting in certain public areas and meeting rooms.

To get the most from the hotel's EMS, Marriott Marquis sales representatives are required to inform the engineering staff about the times and dates of upcoming events. This information is entered into the EMS, which then automatically starts and stops HVAC equipment according to scheduled uses. The system can be reprogrammed easily to accommodate changing schedules. The EMS can also turn on and shut off lighting in some of the hotel's meeting rooms and ballrooms. The Marriott Marquis plans to add more meeting room and ballroom lighting panels to the EMS so that the lighting hours of operation can be reduced even further.

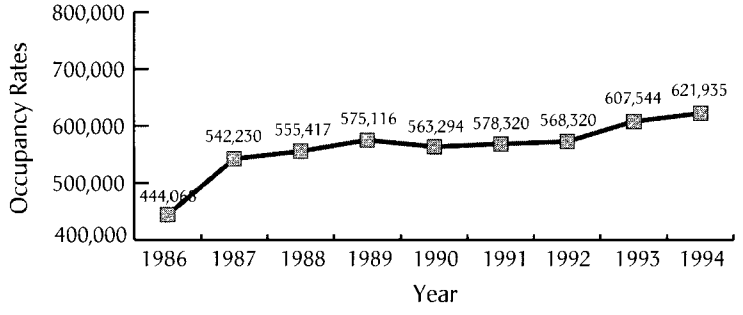
To lower electric bills more, the Marriott Marquis takes advantage of a new rate system offered by the hotel's electric utility, Consolidated Edison (ConEd). Since 1993, the hotel has participated in ConEd's experimental Real Time Pricing (RTP). Under this rate system, the price of electricity fluctuates on an hourly basis, 365 days a year. The price per kWh, therefore, is determined by the weather, the status of ConEd's power plants, and the status of the power pool. For example, during a peak winter day in February 1995, the price of electricity to the hotel varies from 4.62 cents per kWh at 4:00 a.m. to a high of 31.48 cents per kWh at 11:00 a.m. During a peak summer day in 1994, the price variation was even more dramatic—ranging from 5.08 cents per kWh to $2.51 per kWh. Using this rate system saves the hotel more money annually.

Irizarry said the hotel receives hourly electricity prices for the following day at 2:00 p.m. each afternoon. This information, received via modem, is sent to the EMS. Based on the price of electricity, the EMS computes a strategy which will use less energy during the high cost periods. Where possible, the hotel goes "above and beyond" what the EMS can do when responding to the price signals.

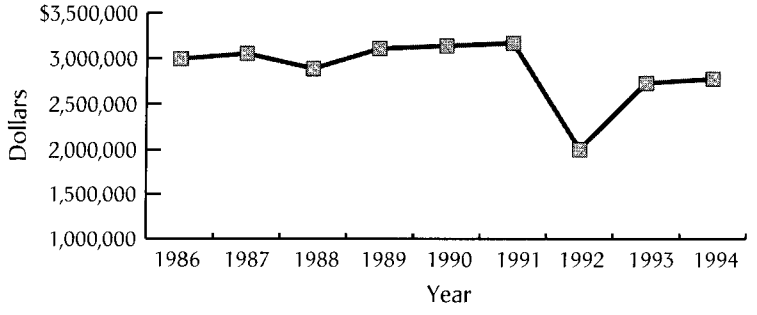
The Marriott Marquis plans to continue its efforts to reduce energy usage. In fact, as a Charter Partner in the ENERGY STAR Buildings program, future plans include the installation of variable speed drives on all applicable fans and pumps.

The Marriott Marquis successfully demonstrates how a hotel using energy-efficient technologies can save money and electricity at the same time, even with increased guest room occupancy.

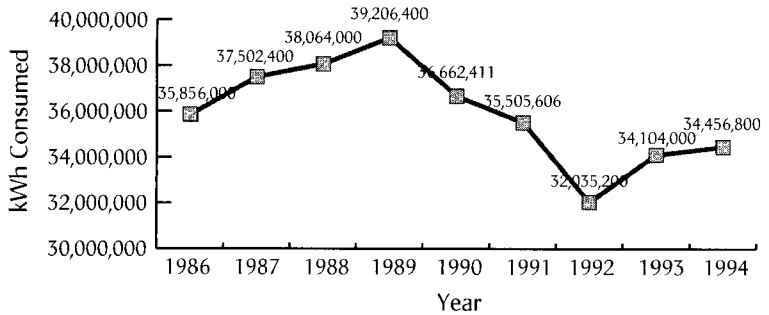
NY Marriott Marquis' occupancy rates (see charts, below) have risen steadily while energy usage and costs per year have decreased.



Occupied Rooms



Annual Cost



Annual kWh Consumption

CASE STUDY: LIVONIA MARRIOTT

Fast and Efficient Lighting Upgrades

Livonia Marriott Completes Upgrade in Five Months

The Livonia Marriott lighting upgrade project shows how a complete energy-efficient lighting upgrade can be performed in five months, with little or no interference to guests, while saving over $51,000 per year.

Livonia Marriott engineers initiated the lighting project after attending a national Marriott engineers' meeting in San Francisco. Here, the latest technologies in energy conserving lighting products were introduced into Marriott properties.

"The Livonia Marriott saw energy saving lighting as a way to reduce operating costs, enhance light levels and color rendition while benefiting the environment," said Joe Helbert, Chief Engineer at the Livonia Marriott.

Before beginning the upgrade, Livonia Marriott engineers tested the TV cable communications, guest cellular phones and computers for interference from the proposed electronic ballasts and compact fluorescents. After several weeks of testing, the Marriott Livonia was ready to find an energy management company to perform the energy audit, provide a detailed report and propose the most effective lighting program that would meet Marriott criteria. The company selected also needed to provide support to the Livonia Marriott after the upgrade was completed. After careful deliberation, American Energy Control Systems, Inc. was chosen to perform the audit. Existing fixture types, number of lamps and their wattage and voltage were determined by lighting schedules from blueprints and physical walk-throughs by Livonia's engineering staff. American Energy Control Systems performed a complete count of fixtures, hours of operation, wattage, cost of electricity and maintenance and labor costs. American Energy Control Systems then proposed an upgrade program that would save Livonia Marriott the most energy, increase its light output and improve its light rendering.

One interesting challenge the Livonia Marriott team overcame was the selection of a ballast and a lamp for the public space recessed fixtures. Because Marriott uses thermal insulated recessed light fixtures with a narrow cone-shaped inner housings, Livonia Marriott staff were only able to test two different compact fluorescents—one with a magnetic ballast and the other with an electronic ballast.

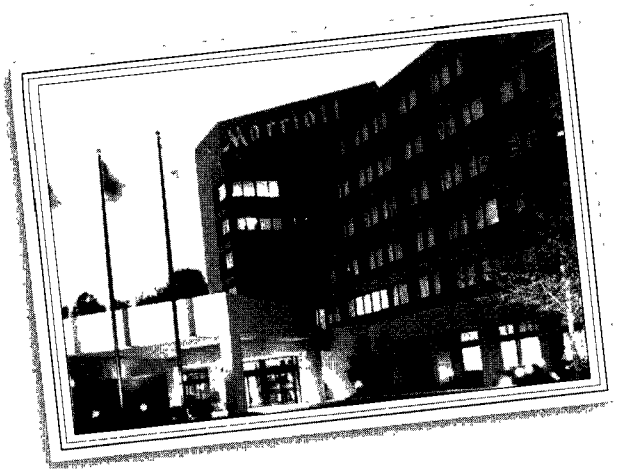
After approximately four weeks of testing, the electronic ballast with interchangeable light diffusers was chosen because the electronic ballast sat up higher in the recessed can and looked aesthetically more pleasing than the magnetic ballast.

With the combination of the electronic ballast sitting higher in the can and the polished aluminum inner housing of the recessed fixtures, the Livonia Marriott was able to decrease the wattage from a 135-watt incandescent to a 10-watt compact fluorescent in a room with a 10-foot high ceiling and to an 18-watt compact in an area with a 20-foot high ceiling. By replacing these public space incandescent lamps, the Livonia Marriott saved over $8,000 in lamp replacement and labor and $35,668 in annual operational costs.

To see these lighting upgrades firsthand, visit the Livonia Marriott at the Detroit Lighting Upgrade Workshop June 29–July 1, 1995.

UPGRADE RESULTS

Annual Operational Savings	445,850 kWh	$35,668.05
Annual Incandescent & Fluorescent Lamp Replacement and Labor Savings	4,496.68 Lamps	$8,386.87
Annual Air Conditioning Savings	63,311 kWh	$7,090.81
Annual Possible Heating Increase	761 MCF	$361.45
Annual Ballast and Labor Savings	2,328.79 Ballasts	$545 34
Total Annual Savings		**$51,329.62**



CASE STUDY: SEATTLE WESTIN

Seattle Westin Pleases Customers & Saves Money

South Tower Lighting Upgrade Makes Good Business Sense

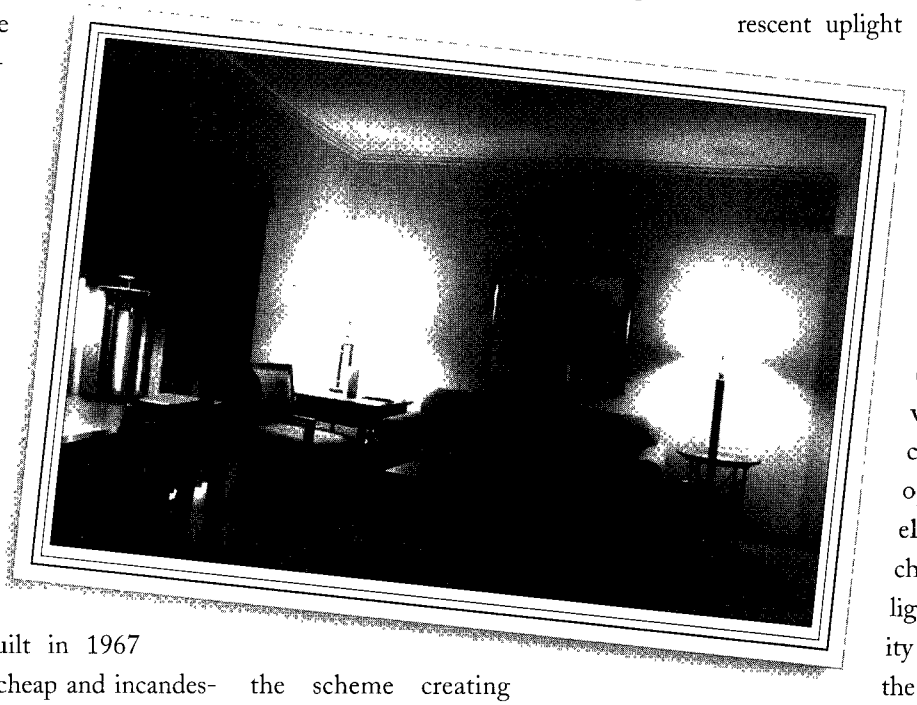
Have you ever checked into a hotel and spent the evening watching TV because there wasn't enough light to read? Or had trouble finding your room in the first place in dimly lit, disorienting hallways? Green Lights Partner Westin wanted to avoid these common occurrences at its downtown Seattle hotel and provide its customers with not only adequate, but also comfortable and effective lighting.

The Westin Hotel began working with Seattle City Light in 1993 to upgrade all lighting systems in the entire facility. The process has been completed in the south tower and in most of the public spaces. The north tower is scheduled for completion in the Fall of 1995.

A major force behind this upgrade was a desire to eliminate the need for room attendants to replace incandescent light bulbs. The variety of wattages used in each room caused confusion about which lamp went in each fixture. The potential for reducing energy costs was another factor in the project. The south tower was built in 1967 when electricity was cheap and incandescent lighting was the only way to create the warm residential glow that hotels like to project.

The Seattle Westin sought to accomplish the upgrade without degrading the visual environment of the guest rooms and hallways. The tools at its disposal were lamp and ballast changes, luminaire changes, and more centralized control of the lighting in unoccupied spaces.

In the south tower hallways, each ceiling-mounted crystal incandescent fixture was upgraded with two seven watt compact fluorescent lamps. In the elevator lobbies, the surface-mounted incandescent fixtures were changed to custom-made pendants with four 26-watt quad tube compact fluorescent lamps, and table lamps were upgraded with circline fluorescent lamps. A 50-watt PAR 20 downlight at each elevator door completed the scheme creating softer ambient light and more inviting guest areas.



The lighting in the guest rooms was upgraded as well. Guest room floor and table lamps were upgraded with 3000K circline fluorescent lamps of different wattages. Headboards of the beds were altered to accommodate a two-foot fluorescent uplight and two adjustable 50-watt PAR 20 halogen reading lights.

In the bathrooms, louvered soffit lighting with T-12 fluorescent lamps and magnetic ballasts was replaced with two wall sconces, each containing two 26-watt quad tube 3500K compact fluorescents, operated with one remote electronic ballast. This change improved both the lighting quantity and quality for a person looking in the mirror. Illumination on the vertical plane increased, and shadowing of facial features was reduced because

continued on page 6

Lighting Features

- ✔ Total conversion from incandescent to fluorescent and halogen incandescent
- ✔ Lighting Power Density in guest rooms: 0.72 w/ft2, with improved visibility
- ✔ More aesthetically pleasing lighting in guest bathrooms
- ✔ "Brighter" visual environment in elevator lobbies
- ✔ Reduced maintenance costs from extended lamp life

Westin, continued from page 5

light came from the sides instead of from overhead. The color rendering index of the lamps increased from 75 to 84 and skin tones appeared more pleasing.

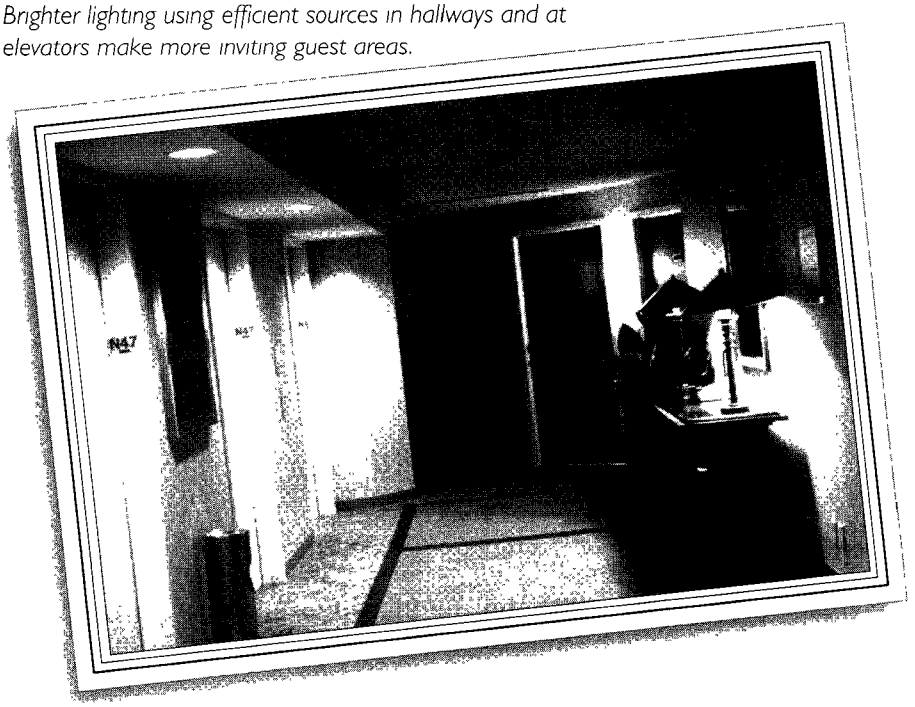
The results of the upgrade were significant. Wattage in each guest room was reduced by 66 percent, from an original installed load of about 800 watts to approximately 270 watts. Light levels not only increased with the change but exceeded the Westin Hotel's standards for lighting its guest rooms. The annual energy savings from the lighting changes are projected to be about $40,000.

After the upgrade was completed, the hotel surveyed guests about the new lighting and received compliments on the "increased" lighting in the rooms. Guests were also happy to be able to work at the desk in their rooms.

Customer satisfaction is the name of the game in the hotel business, and the Seattle Westin's guests have given their enthusiastic approval. Pleasing customers and saving money...that's good business.

Thanks to the Lighting Design Lab of Seattle, WA for providing this case study and photographs.

Brighter lighting using efficient sources in hallways and at elevators make more inviting guest areas.



Lighting-Related Articles

"Finding the Best Lighting Retrofit Value," *Building Operations Management*, March 1995, pp.30-36

"Lenders Stand Ready to Fund Energy Projects," *Energy User News*, March 1995, pp.19-25

"Unlocking the Power of Electronic Ballasts," *Building Operations Management*, March 1995, pp.40-46

"Showcasing Cost Savings, EPA's Energy Star Buildings," *Building Operations Management*, March 1995, pp. 38-44

HOTEL SNAPSHOT

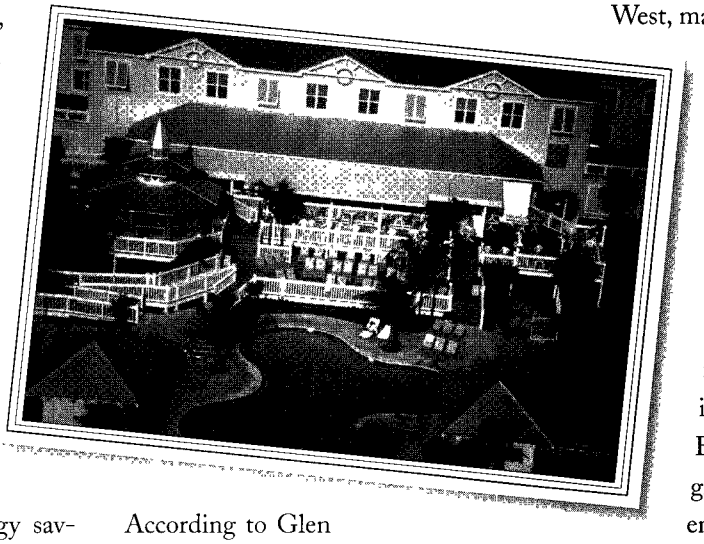
Environmentally Responsible Hotel Rooms

ITT Sheraton Key West's Enviro-Rooms

Energy efficiency and comfort go hand-in-hand in ITT Sheraton Key West's new Enviro-Rooms. ITT's Sheraton Key West Suites Hotel, in partnership with the University of Florida's Energy Extension Service (UF-FEES), has recently equipped two rooms with energy-efficient technologies as part of UF-FEES' statewide Enviro-Room demonstration. Typical installations in Enviro-Rooms include efficient lighting technologies, energy management systems, efficient air conditioners and water saving devices. UF-FEES' Enviro-Rooms project was designed to provide information to enable hotel and motel management to make informed decisions about their energy consumption. Currently, nine hotels statewide, including the ITT Sheraton Key West, are participating in this UF-FEES initiative and are using this information to predict energy savings, maintenance requirements and impact on guest comfort.

Since ITT Corporation joined Green Lights, the ITT-owned Sheraton hotels have aggressively implemented Green Lights technologies at many of its properties. In the Spring of 1995, ITT Sheraton Key West management installed two Enviro-Rooms featuring compact fluorescent lamps in the guest room and T8 lamps with electronic ballasts in the bathroom. The lamps in the bathroom and the fan are controlled by an occupancy sensor. Other technologies installed include efficient cooling and heating systems tied to an energy management system, a pulsating water-efficient showerhead, automatic faucets, and a water saving 1.5 gallon flush toilet.

For ITT Sheraton Key West management, partnering with UF-FEES and the Florida Hotel & Motel Association was an easy decision to make. Jeff Calvert, General Manager at the hotel, was very supportive of the Enviro-Rooms project.



According to Glen McGrew, Director of Property Operations, ITT Sheraton understands that hotel travelers "want to see an environmental presence in the resorts and hotels in which they stay, and not only is environmental responsibility the right thing to do in the community, but there are financial reasons to use high efficiency equipment." Using energy-efficient technologies will allow the ITT Sheraton Key West to reduce electricity consumption, for which they pay 11.5 cents per kWh. Jay Furbay, ITT Corporate Purchasing Manager and Energy Council Co-Chairman, said that one of the reasons ITT formed an Energy Council in 1991 was to reduce ITT's annual company-wide energy costs by at least 10 percent. Usha Wright, Vice President and Director of Environment and Safety, said that Enviro-Rooms is one of their energy reduction initiatives to meet the established goal of their Environmental and Safety Mission Statement to "reduce the consumption of natural resources and energy....and to conduct their activities in a safe and environmentally responsible manner.

Because Enviro-Rooms are just in the infancy stages at the ITT Sheraton Key West, management has yet to receive any comments from guests about the Enviro-Rooms, which indicates that the guests are satisfied with the comfort level provided. Dr. Mike West, Extension Specialist of UF-FEES said that in other Florida hotels with Enviro-Rooms, maintenance calls have neither increased nor decreased in the Enviro-Rooms and the technologies used appear to be "transparent to guests." Energy savings, environmental impacts and cost savings for Enviro-Rooms will soon be complied for participants in this pilot program.

The UF-FEES' Hotel/Motel Environmental Resource Efficiency Program consists of Enviro-Room demonstrations and a series of energy and water seminars. The program provides information and demonstrations of the latest energy and water saving equipment and upgrades to hotel and motel owners, managers and engineers. For more information on Enviro-Rooms, please contact Mike West at 904 392-4714.

ENERGY STAR BUILDINGS

Tuneups Make ES Buildings Run Better

Stage 2: Building Tuneup

To help Green Lights participants follow the ENERGY STAR Buildings program, the Update *is documenting the ENERGY STAR Buildings five-step process and highlighting the results of Showcase Buildings participants as they implement the program. This article, the fourth in a series, describes Stage 2, the Building Tuneup.*

Like a car, buildings need to be tuned up periodically, and like a car tuneup, a good building tuneup can make the building run better. The building tuneup includes checks such as:

- Are filters and strainers in good condition?
- Are air handling units and cooling equipment turned off when associated zones are not occupied?
- Are free cooling opportunities (economizers) being fully utilized?
- Have thermostats have been calibrated within the last year?
- Are the sequences of operation correct for heating and cooling equipment, and are site personnel trained to operate equipment to reduce energy costs?

The tuneup basically tries to get the building to operate close to the way the designer originally intended. This process is sometimes referred to as recommissioning. A helpful side effect of the recommissioning/tuneup process is that it often uncovers things about the building that were never anticipated during the original design. For example:

- After a Green Lights upgrade, less waste heat is given off by the new lighting. Therefore, a building manager may find that less cooling is needed for parts of the building, so cooling air temperatures can often be set higher, and energy is saved.
- The air conditioning system for a space may have been set to handle the heat from 100 people in the space, but if 100 people never use the space, it may be helpful to reduce the supply of cold air.
- In a different room, a large photocopier may have been added without adjusting the cooling air available to the room, so the air flow needs to be increased.
- To be safe, a designer may have provided hot water to heat a building during certain months of each year, but during the running of the building some of those months did not require heat after all. During the tuneup process, hot water pumps can be set to turn off during those months, and in some cases boilers can be turned off as well.
- Is the amount of outside air appropriate? Sometimes dampers should be adjusted to keep from heating and cooling excess air. In other cases dampers should be opened more to help provide adequate ventilation.
- Because of their age, many control systems are in need of adjustment, repair, or upgrade. During the tuneup it is a good time to evaluate whether modifications should be made to enhance the degree of control of the heating and cooling systems.

One of the most important aspects of the tuneup is that, like other ENERGY STAR stages, it has a ripple effect on the later stages. A tuneup will often reduce cooling loads. This often lowers the cost of fan and plant upgrades because, together with the impact from Green Lights and Stage 3 load reductions, lower cooling loads can translate into smaller variable speed drives on fan systems and smaller chiller replacements. Tuneup measures are often the most cost effective changes to a building, and sometimes provide big savings. In the Montgomery County Showcase building, for example, the tuneup alone reduced energy use around 28 percent.

The July *Update* will take a closer look at the implementation of Stage 3: Load Reductions. To learn more about the ENERGY STAR Building and Showcase programs call the Green Lights/ENERGY STAR Hotline at 202 775-6650.

Green Lights Welcomes New Participants

Forty-four (44) new participants joined Green Lights in March to take advantage of the benefits of energy-efficient lighting upgrades. Green Lights now has more than 1,700 participants, with expectations of enormous energy savings and pollution prevention through the program.

Green Lights welcomes its new participants and looks forward to working with them. If your organization would like more information about the program, please call the Green Lights/ ENERGY STAR Hotline at 202 775-6650.

PARTNERS (31)

City of Ada, Oklahoma ■ Alamo Community College District ■ Alpine Inn Bed & Breakfast ■ Applied Materials, Inc. ■ Boulder Community Hospital ■ Bradytrane Service ■ County of Chester, Pennsylvania ■ Colorado Army National Guard ■ Crown Cork & Seal Company, Inc., Machinery Division ■ Dynatron Bondo ■ Eveready Battery Company, Inc. ■ Fordham Preparatory School ■ The George Washington University ■ Hancock Fabrics, Inc. ■ Kaiser Permanente-Northern California Region ■ Mary Kay Cosmetics, Inc. ■ Mercy Hospital of Pittsburgh ■ Midlantic Bank, N.A. ■ Milpitas Unified School District ■ National Broadcasting Company, Inc. ■ Pequod Associates ■ Riviana Foods, Inc., Edison Distribution Center ■ Square D Company ■ Southern Illinois University at Edwardsville ■ Team Tierno Enterprises, Inc., DBA The Hanford House ■ Thomas Jefferson University ■ University of California, Berkeley ■ University of San Diego ■ Veterans Affairs Medical Center, Wadsworth - West LA ■ Veterans Affairs Medical Center, New Orleans ■ Wesleyan University of Connecticut

ALLIES (9)

Buckles-Smith Electric Co. ■ Central Illinois Light Company ■ Energy Saver Lighting Company ■ Erik Lighting, Inc. ■ Gulf Power Company ■ JJI Lighting Group, Inc. ■ Landman ■ PJS ■ Richmond Power & Light Company

ENDORSERS (4)

Association of Higher Education Facilities Officers ■ California Society for Hospital Engineering, San Francisco ■ Council of Teaching Hospitals ■ The PENJERDEL Council

10% Plan Participants Upgrade for Earth Day

The 10% Plan was featured in the April/May Update. The Participants did an accelerated approach to upgrading their lighting.

Want to hear about a concrete step taken to reduce pollution for Earth Day 1995? Consider what Green Lights 10% Plan participants in New England, New York and New Jersey accomplished.

Between February 1 and April 3, 1995 Green Lights participants in these areas were invited to submit reports on new lighting upgrades in 10% of their total square footage. In return, EPA offered to help publicize these companies' pollution prevention efforts in conjunction with the 25th anniversary celebration of Earth Day on April 22nd. Thirty-three organizations responded by sending EPA reports on completed lighting upgrades covering an impressive 45 million square feet.

Organizations of all types and sizes participated in the 10% Plan. The common element that ensured success in each case: individuals excited about energy efficiency who made completion of Green Lights upgrades a high priority. To honor these individuals and the organizations they represent, EPA sponsored award ceremonies in Boston at the Massachusetts Institute of Technology on April 12th and in New York City April 18th.

Hope Davis with the Commonwealth of Massachusetts was one person honored at the Boston Event. In a time of tight

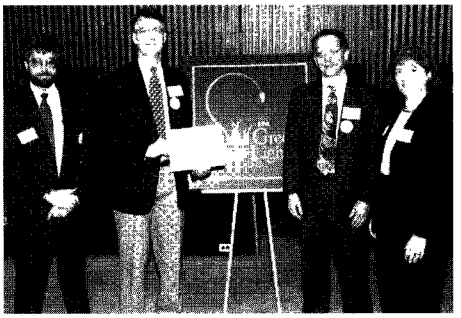
continued on page 12

The following is a list of 10% Plan participants and their company champions:

Alternative Energy Technologies, *Mark Judson*
American Express,
Peter Kane and Michele Kilcullen
American Standard, *Daniel Elliott*
Barr Laboratories, *John Bridges*
Bear Stearns Companies, Inc., *Melvyn Kass*
Beth Israel Hospital, *Francis J. Sullivan*
Brooklyn Union Gas, *Gregory J. Roach*
Brown University, *Kurt Teichert*
Carrier Corporation of North America,
Charles Bertuch and Richard Bianchi, Jr.
Citicorp/Citibank, N.A., *John J. Ritter*
Commonwealth of Massachusetts,
Terry Civic and Hope Davis
Connecticut College, *Peter Horgan*
Connetquot Central Schools,
Keith G. Anderson
Enersave Incorporated (NY),
Dennis Wilson and Jeffrey A. Titus
Gillette, *Karl Christ*
Hasbro Industries, *Kevin P. England*
Hoffman-La Roche Inc., *Ottmar Hedemus*
Home Box Office, *Regina Panico*
ITT Corporation, *Jay Furbay*
Johnson & Johnson,
Erik Allen and Harry Kauffman
Major Electric Supply, Inc., *Dave Leven*
Massachusetts Institute of Technology,
William Wohlfarth
Mercer County, New Jersey,
Jim Naples and Edward Kelly
Merck & Company–World Headquarters,
Gerry Pentlicky
New England Electric System, *Paul Fagerquist*
Osram Sylvania, Inc., *Peter A. Bleasby*
Pathmark Stores, *Richard DeToro*
Polaroid Corporation, *Robert Crockett*
Quebecor Printing (Depew, NY),
Janet E. Schmidt
Self-Powered Lighting, Inc., *Dalbert Benoit*
Shaw's Supermarkets, Inc., *Andrew Hayes*
Tufts University, *Elizabeth Isenstein*
University of Rochester, *Patricia Beaumont*

Representatives of MIT are recognized for their 10% Plan Achievements. Shown (l-r) are Steve Miskowski, Bill Wolhfarth, Maria Tikoff, Bill Dickson, Victoria Sirianni, and Tom Shepard

(l-r) Charles Bertuch and Richard Bianchi, Jr of Carrier Corporation, John Hoffman, Director, EPA APPD, and, Jeanne Fox EPA Regional Administrator at the New York 10% Plan ceremony.



(l-r) Jeanne Fox, EPA Regional Administrator joins Steve Yagos and Gregory Roach of Brooklyn Union Gas, and John Hoffman, EPA APPD Director at the New York 10% Plan ceremony.

GREEN LIGHTS IMPLEMENTATION REPORT

OMB # 2060-0255 Exp. 3/31/96

☐ **SURVEY REPORT** *(fill in sections 1,2,4,6, and 12 below)*

☐ **COMPLETED PROJECT REPORT** *(fill in sections 1-12 below)*

Date: _____

Page _____ of _____

(attach additional pages as needed)

1. FACILITY INFORMATION

Company Name:		Facility Manager:	
Facility Name:		Telephone No./FAX No.	
Facility address:		Total Floorspace for this Facility:	sq ft.
City/St./ZipCode		Floorspace included in this report:	sq.ft.
Facility type*	New Construction? Yes No	Is this the FIRST report sent to EPA for this floorspace?	Yes No

2. LIGHTING FIXTURES BEFORE UPGRADE *(*use codes on back)*

Fixture Type*	Fixture Quantity	Lamp Type*	Lamp Wattage	Lamps/ Fixture	Ballast Type*	Lamps/ Ballast	Wattage per Fixture	Lighting hours/year

3. LIGHTING FIXTURES AFTER UPGRADE *(*use codes on back)*

Upgrade Type*	Fixture Type*	Fixture Quantity	Lamp Type*	Lamp Wattage	Lamps/ Fixture	Ballast Type*	Lamps/ Ballast	Wattage per Fixture	Lighting hours/year

4. LIGHTING CONTROLS BEFORE UPGRADE

Type 1*	Quantity	Type 2*	Quantity	Type 3*	Quantity

5. LIGHTING CONTROLS AFTER UPGRADE

Type 1*	Quantity	Type 2*	Quantity	Type 3*	Quantity

6. MAINTENANCE METHODS BEFORE UPGRADE

Group relamping? Yes No Fixture cleaning? Yes No

7. MAINTENANCE METHODS AFTER UPGRADE

Group relamping? Yes No Fixture cleaning? Yes No

8. COMMENTS

9. PROJECT COSTS

Survey	$
Administrative	$
Materials	$
Installation Labor	$
Disposal/Recycling Costs:	$
Other Costs	$
Total Project Cost	$
Rebates/Grants	$

10. LIGHTING SAVINGS

Lighting Load Reduced	kW
Electricity Reduction	kWh/yr
% Lighting Savings	%
Energy Cost Savings	$/yr
Internal Rate of Return	%

11. IMPLEMENTATION METHODS:

Survey/Analysis*	
Equipment Provider*	
Installation Method*	
Financing Method*	

use codes on the back for these entries

12. SIGNATURE

Are you? GL Implementation Director Facility Manager Other

Send to: Jackie Krieger, Green Lights, US-EPA 6202J, 401 M St. SW, Washington DC 20460 , or FAX to (202) 233-9569. For questions, call the Green Lights technical hotline: 202-775-6650

6200 (11/28/94)

GREEN LIGHTS IMPLEMENTATION REPORT CODES

Facility Type

1000 Office
1001 Warehouse
1002 Industrial Manufacturing
1003 Retail sales
1004 Health Care
1005 Lodging (hotels, dormitories etc)
1006 Assembly (churches, auditoriums, etc.)
1007 Education (classrooms)
1008 Food sales and service
1009 Parking Garage
1010 Laboratory
1011 Outdoor

Fixture Type

13 Fluorescent- commercial- no lens
14 Fluorescent- commercial-clear lens
15 Fluorescent- commercial-translucent lens
16 Fluorescent - deep cell louver
17 Fluorescent - small cell louver
18 Fluorescent- industrial-open fixture
19 Fluorescent- industrial-enclosed fixture
20 Incandescent- downlight ("can")
21 Incandescent-spotlight/floodlight
22 Incandescent-decorative/sconce
23 Incandescent-pendant fixture
24 Incandescent-general illumination
25 Incandescent-exterior/landscape
26 Incandescent - track lighting
27 HID-outdoor-cobra head
28 HID-outdoor-shoe box
29 HID-outdoor-wallpak/flood
30 HID-outdoor-landscape
31 HID-outdoor-sports lighting
32 HID-indoor-high bay
33 HID-indoor-low bay
34 HID-indoor-recessed commercial
35 HID-indoor-sports lighting
36 Exit sign-incandescent
37 Exit sign-fluorescent
38 Exit sign-LED
39 Exit sign-electroluminescent
40 Exit sign- tritium
41 Exit sign- luminescent
42 Indirect

Installation by

2030 in-house staff
2031 contractor
2032 utility

Lamp Type

54 T-8
55 T-10
56 T-12 Energy Saving
57 T-12 Cathode cut-out
58 T-12 High Lumen
59 T-12 Standard
60 T-12 High Output (800ma)
61 T-12 VHO (1500ma)
62 T-17 VHO (1500ma)
63 T-5 single ended
64 Compact twin-tube
65 Compact quad-tube
66 Compact-integrated ballast
67 Compact-circular
68 Incandescent-general service (A, PS,T)
69 Incandescent-Reflector (R, PAR, ER)
70 Incandescent-decorative
71 Halogen-general service
72 Halogen-reflector (R,PAR, MR)
73 Halogen-tubular
74 HID-mercury vapor
75 HID-metal halide
76 HID-high pressure sodium
77 HID-white-HPS
78 Low pressure sodium
79 T-12 Slimline

Ballast Type

80 Fluorescent-old standard magnetic
81 Fluorescent-efficient magnetic
82 Fluorescent-hybrid cathode cutout
83 Fluorescent-standard electronic
84 Fluorescent-integrated electronic
85 Fluorescent-extended output electronic
86 Fluorescent-partial output electronic
87 Fluorescent-dimming electronic
88 Fluorescent-step dimming electronic
89 Fluorescent-HO standard magnetic
90 Fluorescent-HO (800ma) electronic
91 Fluorescent-VHO standard magnetic
92 Fluorescent-compact magnetic
93 Fluorescent-compact electronic
94 HID-magnetic
95 HID-electronic
96 Fluorescent-HO efficient magnetic
97 Fluorescent-VHO efficient magnetic

Upgrade Type

110 Relamp only
111 Delamp only
112 Relamp and reballast
113 Specular reflector delamp
114 Reflector/Reballast
115 New Lens/Reflector Reballast
116 New lens/louver
117 New fixture
118 Convert Incand to Fluorescent or HID
119 Task Lighting

Control Type

100 Manual switching
101 Manual dimming
102 Occupancy sensor
103 Timed switching
104 Timed dimming
105 Daylight switching
106 Daylight dimming
107 Panel level dimming
108 Panel level EMS
109 Power reducer

Survey/Analysis by

2010 in-house personnel
2011 independent consultant
2012 electrical contractor
2013 utility representative
2014 equipment supplier
2015 lighting management company
2016 energy services company
2017 Green Lights Surveyor Ally
2018 Architect
2019 Lighting Designer
2024 Electrical Distributor

Equipment Provided by

2020 lighting equipment supplier
2021 lighting management company
2022 utility
2023 contractor

Financing by

2040 internal funds
2041 conventional loan
2042 utility
2043 lease/lease-purchase
2044 shared savings
2045 other

POLLUTION PREVENTION

You may want to estimate the pollution prevention of this project for your own use Use the following formulas and factors

CO2:	kWh/yr saved	x	emission factor	=	lbs/yr
SO2:	kWh/yr saved	x	emission factor	=	g/yr
NOx:	kWh/yr saved	x	emission factor	=	g/yr

EPA Regional Emission Factors (see note below)

REGION 1: CT, MA, ME, NH, RI, VT			
Emission per kWh saved	CO2 1.1	SO2 4.0	NOx 1.4
REGION 2: NJ, NY, PR, VI			
Emission per kWh saved	CO2 1.1	SO2 3.4	NOx 1.3
REGION 3: DC, DE, MD, PA, VA, WV			
Emission per kWh saved:	CO2 1.6	SO2 8.2	NOx 2.6
REGION 4: AL, FL, GA, KY, MS, NC, SC, TN			
Emission per kWh saved:	CO2 1.5	SO2 6.9	NOx 2.5
REGION 5: IL, IN, MI, MN, OH, WI			
Emission per kWh saved:	CO2 1.8	SO2 10.4	NOx 3.5
REGION 6: AR, LA, NM, OK, TX			
Emission per kWh saved.	CO2 1.7	SO2 2.2	NOx 2.5
REGION 7: IA, KS, MO, NE			
Emission per kWh saved:	CO2 2.0	SO2 8.5	NOx 3.9
REGION 8: CO, MT, ND, SD, UT, WY			
Emission per kWh saved:	CO2 2.2	SO2 3.3	NOx 3.2
REGION 9: AZ, CA, HI, NV, Guam, Am Samoa			
Emission per kWh saved:	CO2 1.0	SO2 1.1	NOx 1.5
REGION 10: AK, ID, OR, WA			
Emission per kWh saved:	CO2 0.1	SO2 0.5	NOx 0.3

Note: State pollution emission factors are aggregated by EPA region. Factors for U.S. territories are national average emission factors. See the Green Lights Lighting Upgrade Manual.

FOCUS

Signing Ceremonies Highlight Energy Savings

During April, signing ceremonies took place all over the United States, bringing many new Partners into the program.

New York City

April 18, 1995

Ten organizations joined Green Lights at a signing ceremony held in New York City on April 18th. Present at the event were Jeanne Fox, EPA Regional Administrator, and John Hoffman, Director of EPA's Atmospheric Pollution Prevention Division (APPD). The new Partners, representing over 30 million square feet of facility space, include: Adelphi University; Becton Dickinson and Company; City of White Plains, NY; County of Nassau, NY; County of Rockland, NY; Foxwoods Resort and Casino; Mannington Mills; Midlantic Bank; NBC; U.S. Military Academy-West Point.

Maria Tikoff, Director of Green Lights and ENERGY STAR Programs,(second from left) joins representatives of Shaw's Supermarkets at the Boston 10% Plan Recognition Ceremony. Pictured (l-r) are Andrew Hayes, GLID, Tikoff, Phil Francis, President and CEO of Shaw's, and John Kelleher, Senior Vice President of Shaw's

San Francisco

April 18, 1995

What do Joe Montana and Maria Tikoff, Director of Green Lights and ENERGY STAR programs, have in common? Well, Maria did not announce her retirement on April 18 in San Francisco, but she did rally her team in recognition of their great achievements over the year. Tikoff was joined by James Strock, California's Secretary for the Environment, and 15 other Region 9 Green Lights Partners and Allies at the Pacific Energy Center for a signing ceremony welcoming seven new Partners. Welcomed into the program were representatives from Applied Materials Inc., California State Automobile Association, Mervyns Department Stores, Oak Grove Unified School District, Stanford University, Stanford Health Services, and Safeway. Existing Partners recognized were Bank of America and the Louisiana Pacific Corporation-Western Division.

Special EPA recognition went to the State of California for its outstanding Green Lights implementation, which has yielded the State $2.8 million dollars in energy savings to date. Green Lights Utility Allies Southern California Edison, Los Angeles Department of Water and Power, and ceremony host Pacific Gas and Electric were presented awards for the financial incentives they offer participants in support of Green Lights. Each participant received a Green Lights certificate and a Governor's Proclamation applauding their dedication and participation.

(l-r) James Strock, Secretary of CA/EPA is shown with Randy McAdam of Safeway and Maria Tikoff, Director of Green Lights and ENERGY STAR Programs, at the San Francisco signing ceremony

Arlington, VA

April 25, 1995

On April 25, 1995, over 200 people gathered at the Readiness Center in Arlington, Virginia to help the Army National Guard celebrate Earth Day. As part of its celebration, the Army National Guard joined Green Lights, demonstrating their national commitment to upgrade existing facilities with energy-efficient lighting. Dick Wilson, Deputy Assistant Administrator, EPA Office of Air & Radiation, signed along with Major General John D'Araujo, Director, Army National Guard. Also present at the ceremony were Gwendolyn Taylor, EPA Green Lights Federal Program Manager and members of Green Lights Partner

continued on page 12

10% Plan, continued from page 10
state budgets, Davis has continued her lighting work through aggressive use of third-party financing. As a result, she and her colleagues have upgraded more than 6,000,000 square feet, and are saving Massachusetts taxpayers $1,157,000 per year.

At the Massachusetts Institute of Technology (MIT), Green Lights Implementation Director Bill Wohlfarth reported on upgrades in nearly 9,000,000 square feet of university-owned space. Wohlfarth surveyed campus facilities by hiring students to perform the work. This helped lower MIT's total project costs and contributed to their annual energy savings of more than $980,000.

Many private sector companies accepted the challenge of the 10% Plan as well. Andy Hayes, Energy Manager at Shaw's Supermarkets, reported upgrades on 585,000 square feet. In addition to increased light levels and improved appearance, each Shaw's store now saves an average of $20,000 in electricity annually, or about $2.4 million dollars for the entire company each year.

Keith Anderson of Connetquot Central School District in Bohemia, NY is so enthusiastic about Green Lights that in the 10 months since they joined the program, he has already surveyed 75 percent of the district's 1,150,000 square feet, and has upgraded 10 percent. On a single project, he secured nearly $100,000 in grants and rebates on his way to achieving annual savings of nearly $100,000. And, he's not keeping his methods a secret—he recently authored a front-page Green Lights article in his community newspaper.

In the future, 10% Plan participants may appear elsewhere in the media due to EPA's efforts to spread the word about their extraordinary success. Watch for their names.

Signing Ceremonies, continued from page 11
Arlington County Public Schools.

"The Army National Guard is proud to be a part of the many organizations that have joined Green Lights," said Major General D'Araujo. "In signing-on with Green Lights, the Army National Guard commits itself to inspect its facilities to make lighting improvements that save money...and help save valuable resources! I'd call that a good investment!"

Ted Milson, a fourth grade student from Barrett Elementary School in Arlington, VA attended the event to present his book on energy efficiency to EPA and the Army National Guard. Milson's book, *Saving Energy,* was part of the Arlington Public Schools energy efficiency awareness campaign. The following is a list of initial Army National Guard Green Lights Federal Participants: Arizona, Alaska, Arkansas, California, Colorado, Connecticut, District of Columbia, Florida, Georgia, Indiana, Iowa, Louisiana, Maine, Mississippi, Missouri, Montana, Nevada, New Jersey, Ohio, Oklahoma, Pennsylvania, Tennessee, Utah, Vermont, Virginia, Wisconsin, Washington.

(l-r) Captain Greg Castello, Major General John D'Araujo join Dick Wilson, EPA Deputy Administrator, Office of Air & Radiation, Gwendolyn Taylor, EPA Green Lights Federal Program Manager and Lt. Colonel Scott at the Army National Guard signing ceremony

State representatives from Army National Guard units.

TIP OF THE MONTH

Three Easy Steps to a Lighting Survey

Upgrading made quick and easy

If planned accordingly, a lighting survey does not need to be a cumbersome task. In fact, if properly done, it can save time during the analysis of the upgrade options. The lighting survey is not only about counting light bulbs. To accurately analyze the existing system and specify a high-quality, economical upgrade you must collect a variety of information. The following steps outline what data is needed and the most efficient way to gather this information to minimize the amount of "walking" time.

1. Presurvey Data Collection

The purpose of this step is to obtain as much information about the facility without leaving your desk. By looking at floor plans and making a few phone calls much of the needed information can be obtained.

Obtain general facility information

- ✔ Total floor space
- ✔ Operating hours
- ✔ Future use of the building (to determine if a lighting upgrade is practical)
- ✔ Age of the building and upgrade history (to determine the age of the lighting)
- ✔ Disposal practices for lamps and ballasts

Obtain financial information

- ✔ Electric rates, demand and energy
- ✔ Labor, tax, and inflation rates
- ✔ Depreciation schedules
- ✔ Rebates
- ✔ Disposal costs

Develop upgrade preferences

Thinking about this information during the survey will help considerably during the analysis.

- ✔ Target light levels
- ✔ Lighting quality issues (e.g. color temperature)
- ✔ Upgrade vs. replace
- ✔ Technologies to use
- ✔ Design approach (e.g. task/ambient lighting)

2. Facility Walk-Through

Before doing an extensive room-by-room survey, first take a "quick" walk through the facility to see the most common spaces and lighting systems there are. This step will help minimize the data collection during the individual room survey

Identify unique fixture configurations with respect to

- ✔ Lens/louver type
- ✔ Ballast and lamp type
- ✔ Lamps per fixture and lamps per ballast

Collect data about the physical features

- ✔ Ceiling type and height
- ✔ Work surface height
- ✔ Room surface colors and conditions, including partitions

3. Individual Room Survey

During the facility walk-through, you should have identified specific room and fixture configurations to help minimize the amount of "counting" (e.g. if there are a number of offices with the same dimensions and number of fixtures), only write down the specifics on one office and then label the other offices as identical rooms.

- ✔ Determine the number and type of luminaires in each room
- ✔ Measure existing light levels and compare with visual task needs
- ✔ Determine the number of task lights needed
- ✔ Determine the number and type of automatic controls needed
- ✔ Additional data might be needed

Refer to the Lighting Survey section of the Lighting Upgrade Manual for detailed instruction on performing a lighting survey. In addition, Green Lights Surveyor Allies can help with lighting surveys and analyses. To obtain a list of Surveyor Allies call the Green Lights/ENERGY STAR Hotline at 202 775-6650.

IN THE SPOTLIGHT

What Hotels Can Do to Support Green Lights

Hotel Partners' broad commitment to energy-efficiency through Green Lights is something worth communicating about. Energy-efficient lighting does more than just save money. It improves lighting quality for an improved guest experience and reduces energy consumption for a healthier environment — things hotel employees, guests, and the community can identify with.

Hotel Partners have already begun to promote their participation and educate visitors about the environmental, lighting quality, and cost benefits of energy-efficiency. Listed below is a summary of creative communications efforts hotels and other participants can utilize to promote their involvement in Green Lights:

- Green Lights lobby displays (i.e., interactive displays, standing signs with tear sheets, continuous feed videos featuring a hotel's Green Lights Partnership);
- Brochures available in lobby or at information/check-in desk featuring Green Lights Partnership information;
- Green Lights signs/posters in lobby area;
- Green Lights information in guest rooms (i.e., table tents, brochures);
- Green Lights logo on room key cards;

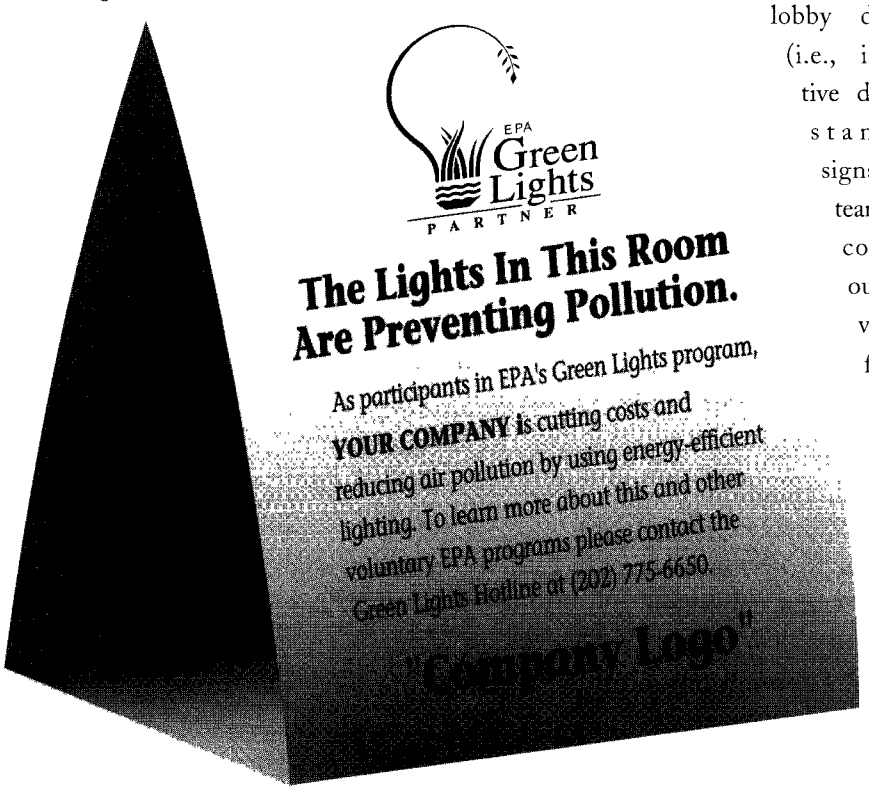
Employees can be trained and encouraged to participate in customer education activities and can wear Green Lights buttons.

EPA encourages hotels and other Green Lights Partners to implement environmental programs before they promote them. Hotels can go beyond lighting upgrades and develop environmentally friendly guest rooms that include water conservation measures and temperature controlling occupancy sensors as well as other environmental improvements.

The Seattle Westin has just begun a "green rooms" program with one floor of rooms devoted to the environment. To find out more about environmentally friendly guest rooms, see page 7 for an article about the ITT Sheraton Key West's Enviro-Rooms project.

EPA understands the importance of communications efforts like these and the time and commitment it takes to implement such efforts. To request assistance or to order communications materials, contact the Green Lights/ENERGY STAR Hotline at 202 775-6650.

Sample Green Lights table tent to be placed in hotel guest rooms.



Are There Ghosts In Your Room?

Steps to Take to Remove Interference

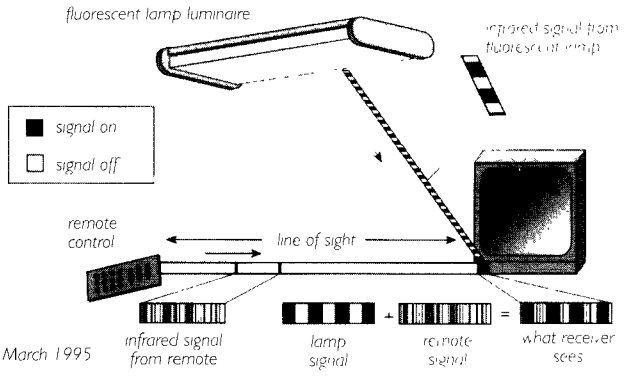
Have you ever had your TV set turn off when you turn your desk lamp off? Some hotels that have upgraded guest rooms with electronic-ballasted compact fluorescents have experienced similar, rare problems of interference between their compact fluorescents and their remote controlled TVs. Interference can cause unpredictable, but harmless results such as the TV changing channels on its own, turning on and off, or changing volume sporadically merely by turning the lights on or off. At times this phenomena seems to come and go for no reason. Sometimes interference occurs for the first five minutes after the lights are turned on, while other situations may persist for hours.

Experts are not sure what exactly causes these rare events, but many believe interference is caused by the high frequency infrared pulses emitted from lamps operating on electronic ballasts. (Lamps with magnetic ballasts also generate infrared pulses, but at a significantly lower frequency that doesn't interfere with the remote control signals.)

Industry contacts suggest the following tips to reduce the possibilities of this problem occurring and to troubleshoot current problems.

- First, test for compact fluorescent lamp interference by placing the lamp near or directly in front of the TV. The remote control and lamp can be considered compatible if the remote control work properly in this configuration. If problems result, try using another manufacturers product. If there are no problems, then upgrade a sample of rooms with different room configurations and test them for several days. Other rooms can be upgraded if the sample rooms experience no interference problems.
- If problems currently exist, move the lamps further from the remote control receiver and out of its line of sight.
- As a last resort, change to a magnetic-ballasted compact fluorescent lamp. Magnetic ballasts operate at lower frequencies that don't interfere with the remote controls, however some guests complain about the starting flicker and the warm-up time.

Infrared Interference from Remote Controls



Graphic courtesy of Lighting Answers, March 1995

New From Green Lights: Technology Directories

EPA has just released three new technology directories on *Compact Fluorescent Task Lights, Deep-Cell Parabolic Louvers* and the *Green Lights Manufacturer Ally Product Matrix*. These directories are the first in a series designed to help Green Lights participants locate manufacturers of energy-efficient lighting upgrade products. Each directory provides background technical information, a glossary of terms, and tables that contain manufacturer and product information. Only Green Lights Manufacturer Allies are listed in the directories.

The *Compact Fluorescent Task Lights Directory* provides the following information.

- Manufacturer Name
- Phone/Fax Numbers
- Trade Name/Catalog Number
- Mounting Options
- Articulating Arm? (Y/N)
- Lamp Type
- Ballast Type
- System Wattage
- Special Features

The *Deep-Cell Parabolic Louvers Directory* provides the following information.

- Manufacturer Name
- Phone/Fax Numbers
- Catalog Number
- Number of Cells
- Louver Depth
- Contoured Interior? (Y/N)
- Spacing Criteria
- Luminaire Efficiency
- Meets IES RP-24 Criteria?
- Visual Comfort Probability
- Coefficient of Utilization

The *Green Lights Manufacturer Ally Product Matrix* lists all manufacturer ally companies and indicates which types of lighting upgrade technologies they manufacture. This matrix may be used with the existing Directory of Manufacturer Allies to contact selected manufacturers for specific product information.

To order a directory, call the Green Lights/ENERGY STAR Hotline at 202 775-6650

"Do You Offer a Group Rate?"

"I not only reduce the cost of labor, but with group relamping, there are fewer work interruptions and less periodic maintenance requirements."

– Michael Quimbey, Club Corporation Int'l.

Some hotel and corporate engineers are hesitant to perform group relamping and cleaning because they feel there are too few benefits and the effort will not save significant money. But Michael Quimbey, Corporate Vice President of Environmental Affairs for Club Corporation International in Dallas, Texas, has seen many benefits and financial savings.

"Our group relamping labor costs are usually one-eighth the cost of spot replacement and rarely exceed 60 cents per lamp. I not only reduce the cost of labor, but with group relamping there are fewer work interruptions and less periodic maintenance requirements," said Quimbey, who uses a national lighting purchasing contract to help with group maintenance.

Group relamping is determined by the hours of lamp operation. Once a lamp reaches 80 percent of its life or significant lumen depreciation, group relamping should be scheduled. Both of these traits are easily determined when hours of operation are known, so group relamping can be planned many months before the event. Spot relamping requires significantly more labor and time, especially when lamps reach the end of their life and the rate of failure increases rapidly. Considering the amount of time required to change one lamp and the time to generate the work order to get it done, labor for spot relamping is the most expensive aspect of lighting maintenance.

Quimbey said Club Corporation's resorts and clubs use group relamping to improve their lighting quality and appearance. Spot relamping often results in nonuniform lighting because it mixes lamps with different stages of lumen depreciation. Poor lighting quality and appearance results from lumen and dirt depreciation reducing the lumen output up to 50 percent while lamp energy usage is still at 100 percent. Occasional spot relamps are needed, however, group relamping and cleaning restores and maintains the appearance on a regular basis.

National contracts can provide financial gains for group relamping not only because of volume discounts but for simplified purchasing as well. Group relamping is based on a set schedule so quantities and types of lamps can be ordered with no guess work.

"I maintain an inventory of 276 different lamp types for my 263 locations. Group relamping reduces the amount of inventory I have to carry and because I buy in large quantities, I receive discounts," said Quimbey.

Obviously, some spaces are not suited for group relamping. Spaces where lighting hours are not regular, such as guest rooms, would not benefit from group relamping. However, public and service areas where lighting runs on a fixed schedule provide financial benefits and better lighting quality when group relamping is used.

For more information on the advantages of group relamping, consult the Lighting Upgrade Manual chapter on Maintenance.

Lighting-Related Events

Green Lights Workshops are listed on the back page of this *Update*.

Illuminating Engineering Society of North American (IESNA) 1995 LIGHTFAIR
Location: Chicago, IL
Date: June 7-9, 1995
Contact: AMC Tradeshows, 404 220-2215, Fax 404 220-2442

NeoCon '95/The Buildings Show
Location: Chicago, IL
Date: June 12-14, 1995
Contact: NeoCon, 800 677-6278; The Buildings Show, 312 527-7598

1995 Illuminating Engineering Society of North American (IESNA) Annual Conference
Location: New York, NY
Date: July 29-August 3, 1995
Contact: Valerie Landers, 212 248-5000, ext. 117, Fax 212 248-5017

EXTRAS

Lighting Tips for Small Inns and Bed & Breakfasts

Lighting upgrade options for small inns and bed & breakfasts are very different from those of large hotels. Antiques, small spaces and decorative light fixtures do not lend themselves to many of today's energy-efficient lighting technologies. Bed & breakfast and inn owners have asked what they can do to improve lighting and reduce energy costs. Here are some lighting considerations specific to inn and B&B owners:

Energy-efficient light bulbs for antique lamps

If a source is not visible, a compact fluorescent with an integral ballast is a good choice. Another option is a halogen lamp which provides more lumens per watt with a brighter, whiter light. But, exercise caution when using halogen bulbs. Some delicate antique glass can break because of the extra heat generated by halogens, and always check socket wattage limits before doing any upgrade.

Increasing luminance in a room with dark surfaces

To brighten a room with dark wall and fabric colors, the best option is to paint the ceiling a light or white shade, and use an indirect lighting system to reflect light off the ceiling and back into the room. If this method is used, whatever color the ceiling is painted will be the shade of light that is reflected into the room. The room's walls will still appear dark due to the dark colors absorbing the light, but objects in the room will be better illuminated and the space will appear brighter.

Improving bathroom lighting

Good bathroom lighting eliminates harsh shadows while providing excellent color rendering that flatters skin tones. Placement of lighting is key in reducing harsh shadows and is best achieved by placing the light sources on either side of the mirror. This floods the face with even and diffused lighting. Use T8 fluorescent lamps to provide diffused light and excellent color rendering. Decorative custom-made fluorescent fixtures can incorporate this light source in an attractive design element, and some companies may already offer the decorative fixture that can be upgraded with T8 lamps and electronic ballasts.

Announcing the Green Lights Hotel "Certificate of Distinction" Award

A Certificate of Distinction will be awarded to one outstanding hotel for excellent performance in the Green Lights Program in 1995. Watch the *Update* for more information regarding this new award.

Hyatt Joins the Green Lights Program

Hyatt Hotels Corporation signed a Memorandum of Understanding on April 10, 1995 during EPA's Profitable Market Opportunities for Pollution Prevention Forum. The largest hotel chain ever to join Green Lights, Hyatt brings 48.8 million square feet into the program for possible upgrades. Welcome aboard.

Mary Nichols, Assistant Administrator, EPA Office of Air & Radiation, signs a Certificate of Partnership for Hyatt while Thomas D. Riegelman, Hyatt's Vice President of Technical Services and Engineering looks on.

Utility Ally Demonstrates Commitment

To demonstrate its commitment to energy efficiency, Green Lights Utility Ally Jersey Central Power & Light Company (JCP&L) recently upgraded the lighting fixtures in two of its facilities at their Morristown, NJ headquarters. "This project was a complete success for JCP&L, and the Company's management and employees are very happy with the results," said Lou Holzberger, JCP&L's Green Lights Administrator. "We have substantially reduced our air-conditioning load because these light fixtures do not generate as much heat as the old system and help keep our buildings cooler. Plus we know that we performed a job that benefited the environment."

The utility relamped and reballasted 4,841 outdated fixtures with 3,489 fluorescent fixtures, and because the newer fixtures were more efficient than the old, fewer were needed to maintain existing light levels. For example, approximately 2,000 single lamp fixtures were replaced with about 670 new deep-cell parabolic fixtures. And in some cases, reflectors were installed where applicable. JCP&L now enjoys an estimated $191,170 in annual cost savings and has reduced its electricity consumption by 1,634,052 kWh.

Lighting Upgrades Make A Difference in the Eyes of GL Implementation Director

The Green Lights upgrade process opened Brant Rogers' eyes to the many ways of realizing energy savings that Larry's Markets might not have previously considered. Rogers, Environmental Manager of the Bellevue, Washington-based grocery store, found that identifying lighting upgrade opportunities was easier than he thought. Rogers said that although employees were skeptical at first, they soon became extremely enthusiastic about the upgrades. "Employees know that less energy use means less CO_2, SO_2, and NO_X as well as less impact on the fish runs—they like that," said Rogers.

Above, Brant Rogers, Environmental Manager of Larry's Markets Right, Larry's Markets Bellevue, WA store

Under Rogers' direction, Larry's Markets 65,000 square foot Bellevue store reduced electricity by 702,947.5 kWh/year and saw $38,662 in energy cost savings. The store upgraded 530 T-12 lamps, 484 incandescent lamps, and 150 HID metal halide lamps to 530 T-8 lamps, 363 compact fluorescents, a mixture of decorative incandescents, and occupancy sensors and timed switches in service rooms.

If you or someone in your organization is interested in being featured in a GLID Profile in a future Update, please contact your implementation account manager.

March 1995 Upgrades

The following program participants submitted implementation reports on completed lighting upgrades during March.

Abbott Laboratories, *Al Musur*
Allegheny Power Service Corporation, *J.F. Hose*
Allergan, *Jon Reed*
Alta Bates Medical Center, *Joseph Rieger*
American Light, Inc., *Greg Mattison*
American Standard, *Daniel Elliott*
Aristech Chemical Corp., *Robert Volkmar*
Arizona Public Service Company, *Michael Spielman*
Atlantic Electric, *Louis Davila*
Brookln Union Gas Company, *Gregory J. Roach*
Brown University, *Kurt Teichert*
Chase Manhattan Corporation, *Edward J. O'Shea*
Chicago Botanic Garden, *Greg Detlie*
Club Corporation, International, *Michael Quimbey*
Colorado Lighting, *Norma Frank*
Comerica Incorporated, *Fred Emery*
Consolidated Edison of New York, Inc., *John Mitchell*
Dade County, Florida, *Peter W. Rouse*
Dauphin Electric, *Don Fraley*
Dolco Packaging Corporation, *Robert C. Lee*
Embarcadero Center, *Daryl Berg*
Enterprise Property Management, Inc., *Louis V. Scorpati*
Environmental Law Institute, *Judy Murray*
GDE Systems, Inc., *J.M. Yazbek*
Graybar Electric Company, *William Trussell*
HB Fuller Company, *Chong-Hue B. Lim*
Harris Corporation, *Ray E. Rader*
Hoffman-La Roche Inc., *Ottmar Hedemus*
Honeywell, Inc., *William P. Sikute*
ICF International, *Lynn Blasch*
Jantzen, Inc., *Scott Perry*
Jersey Shore Medical Center, *Robert Lahey*
Johnson & Johnson, *Harry Kauffman*
Kenetech Windpower, *Thomas W. Solberg*
Kennametal Inc., *William L. Gregory*
Kinko's Service Corporation, *Mike Evans*
Litetronics International, *Boyd Corbett*
Louisiana-Pacific Corporation, Western Division, *Terry Coleman*
Louisville Resource Conservation Council, *Walter F. Ball*
MCI Telecommunications Corporation/ Downers Grove Operations, *Mike Popovic*
MacWhyte Company, Division of Amsted Industries, *Thomas Geb*
Major Electric Supply, Inc., *Dave Leven*
Marriott Corporation, *Alan Watson*
Martin Marietta Corporation, *J. David Weiland*
Mattel Inc., *Magdy E. Awad*
Medical Area Total Energy Plant Inc. of Harvard University, *Donald Yeaple*
MicroLite Corporation, Subsidiary of Pittway, *Rick LeBlanc*
Microsoft Corporation, *Paul Selsor*
National Jewish Hospital, *Richard Palestro*
Northbrook (IL) School District #30, *George Becker*
Northwest Georgia Regional Hospital, *Billy Nicholson*
OSRAM Sylvania, Inc., *Peter A. Bleasby*
Ocean County College, *Ken Olsen*
Old Kent Financial Corporation, *David Troyer*
Paragon Electric Company, Inc., *Richard Lubenow*
Pathmark Stores, Inc., *Richard DeToro*
Pine Run Community, *Christopher Felicetti*
Platt Electric Supply, *Walter Figueras*
Pomona Valley Hospital Medical Center, *Bill Sergent*
Power Savers, Inc., *Tim Carnes*
Quebecor Printing (Depew, NY), *Janet Schmidt*
Ricoh Electronics, *Steve Majicek*
Rutgers University, *Glenn Vliet*
Salt River Project, *Lori Jones*
Seaquist Dispensing, A Division of Aptargroup, Inc., *Jeff McCaffrey*
Springfield Utility Board, *Paul Warila*
St. Luke's Regional Medical Center (ID), *Bill Morgan*
State Farm Mutual Automobile Insurance Co., *Joseph Miskulin*
Summit Electric Supply, *Becky Gary*
Taylor Hospital, *Terry M. Hart*
The City of Phoenix, Arizona, *Paul Hudson*
The City of Provo, Utah, *Scott Glazier*
The City of Sierra Vista, Arizona, *John Taylor*
The Gillette Company, *Karl Christ*
The Goodyear Tire & Rubber Company, *Allen A. Moff*
The Graduate Hospital, *Frank McFadden*
The Ocean County Utilities Authority, *Kenneth G. Stegemann*
The State of Maryland, *Donald Milsten*
Toshiba America, *Doug Bagrowski*
USX/US Steel Group, *Roy J. Weiskircher*
Underwriters Laboratories, Inc., *John J. Ritchie*
United Companies Realty and Development, Inc., *Joe Goudeau*
University of Missouri at Columbia, *Mark K. Culp*
Ventura County, California, *David Inger*
WW Grainger, Inc., *Arshad Ali*
Waterford Mortgage Corporation, *William Hoffman*
Welborn Baptist Hospital, *William Gillam*
Witco Corporation, *Ed Malley*
Woodloch Pines, *George Korb*
World Wildlife Fund, *Amelia S. Salzman*
Yellow Freight Systems, Inc., *Richard Cooper*

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Register by Phone: Call the Green Lights/ENERGY STAR Hotline at 202 775-6650
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Please Indicate Preferred Workshop*:

❑ Raleigh, NC June 14–16 ❑ Minneapolis, MN July 19–21 ❑ New Brunswick, NJ August 2–4

❑ Detroit, MI June 29–July 1 ❑ Boston, MA July 26–28

*Please call 202 775-6650 for current workshop information. The Surveyor Ally exam will be given on the morning of Day 3 and will conclude by 11:00 a.m

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