



Green Lights Update



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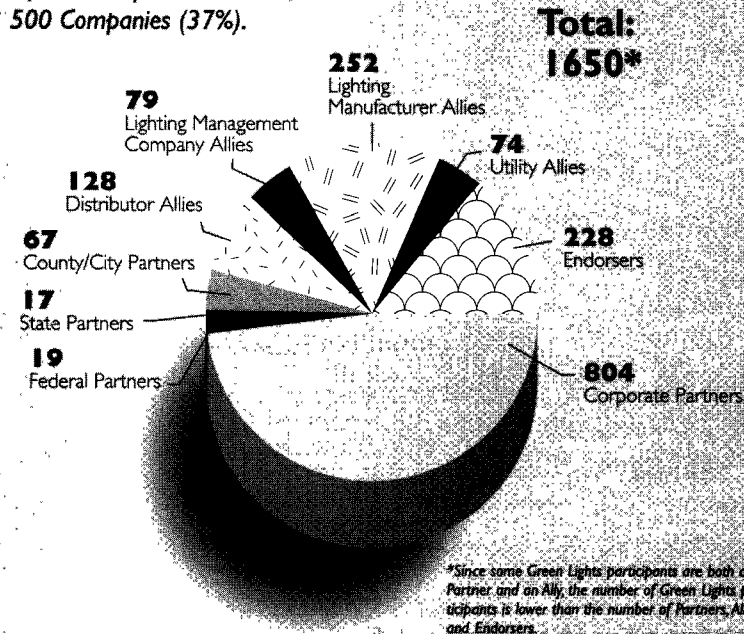
Since its launch in early January 1991, EPA's Green Lights program has expanded rapidly, attracting more than 1,600 participants by January 1, 1995. As Green Lights celebrates its fourth anniversary, Green Lights participants, including corporations, hospitals, colleges and universities, governments, not-for-profits, utilities, and lighting manufacturers, have committed 4.3 billion square feet of floorspace—more than 5 percent of all U.S. commercial and industrial space. Completed energy-efficient lighting upgrades are already producing energy cost savings of more than \$80 million annually. And this is only the beginning. Representing both the public and private sectors, Green Lights participants are part of a nationwide initiative making great strides in preventing pollution, saving money, and improving lighting quality.

A graphic profile of the Green Lights program as it enters its fifth year of steady growth begins on page 2. ■

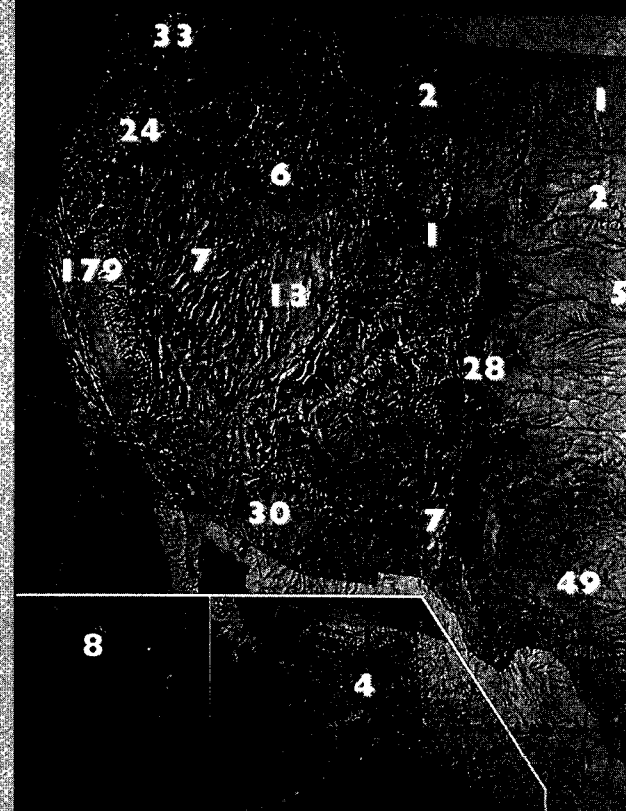


PARTICIPANT PROFILE

Of 804 Corporate Partners, 184 are Fortune 500 Companies (37%).

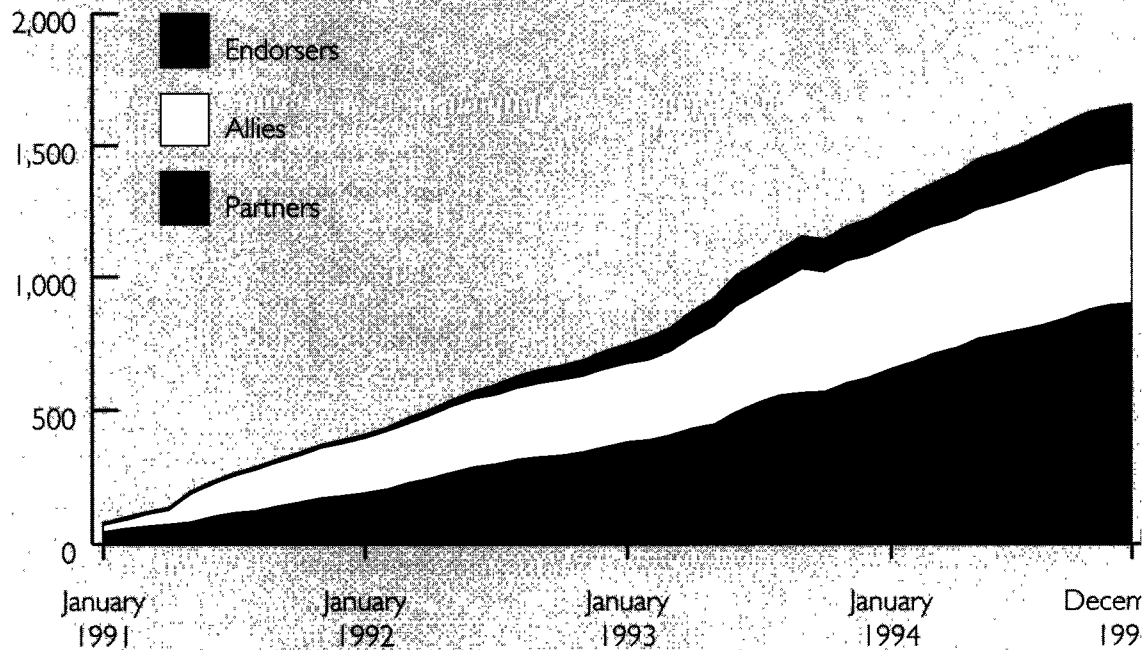


GREEN LIGHTS PARTICIPATION OF THE UNION AS WELL



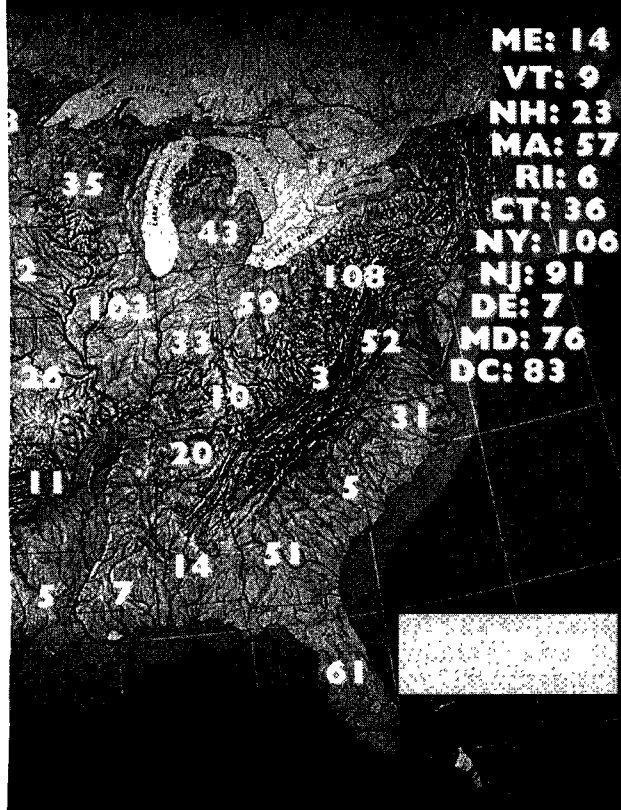
PARTICIPANT GROWTH

Organizations continue to join as Partners, Allies, and Endorsers, playing a tremendous role in the success story that is Green Lights.

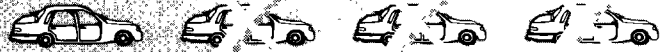


Note: All figures above are as of 1/13/95.

RE BASED IN EVERY STATE SEVERAL TERRITORIES



POLLUTION PREVENTION RESULTS



The environment will breathe a little easier each and every year as more participants complete their upgrades, preventing even more pollution.

- 1.4 billion pounds of CO₂ (equivalent to removing 132,400 cars from the road)
- 11.1 million pounds of SO₂
- 5.0 million pounds of NO_x

The figures above represent annual pollution prevention as of 1/13/95.

FINANCIAL RESULTS

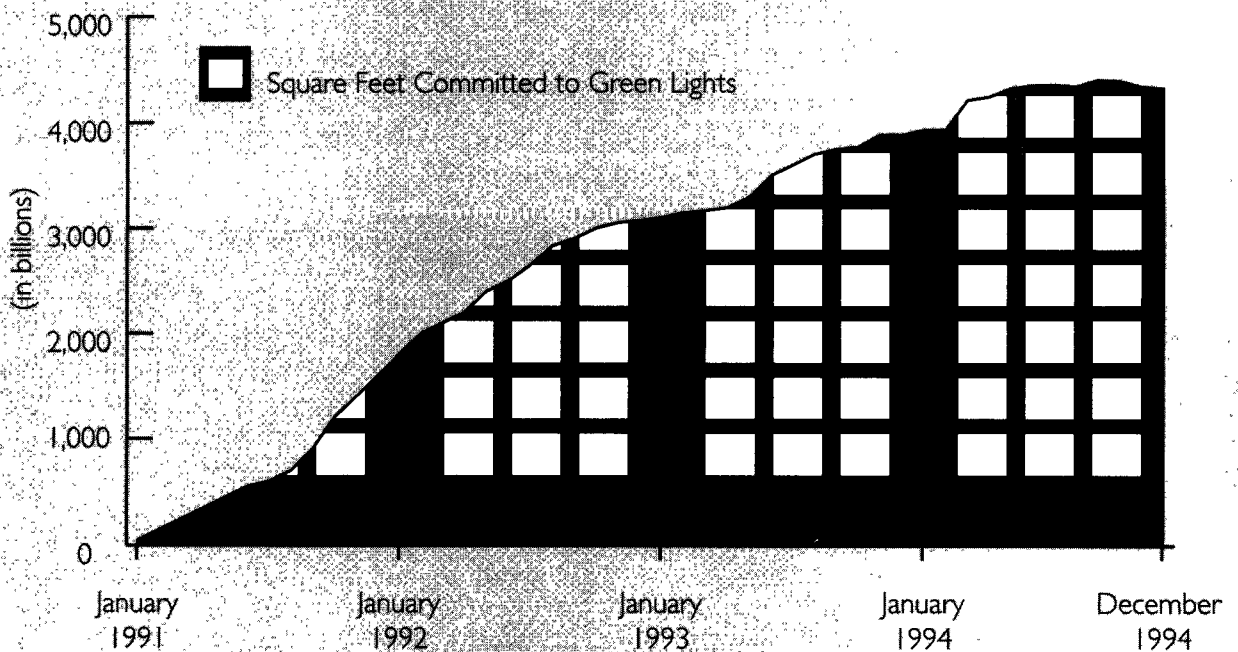


These investments are already paying significant yearly returns—and the savings will continue and grow as more upgrades are completed.

- 1.1 billion kilowatt-hours saved annually
- \$80.1 million saved on electric bills annually
- \$317.4 million in utility power plant construction avoided
- \$51.9 million received in rebates
- \$276 million invested in upgrades (includes rebates)

The figures above represent savings and investments as of 1/13/95.

UPGRADE GROWTH



Bell Atlantic Rings Up Energy Savings With Improved Lighting as a Result

With 42 million square feet of facilities, Green Lights Partner **Bell Atlantic** has an opportunity to save money and prevent pollution on a large scale—and improve lighting quality with its Green Lights upgrades. In the 135,000 square foot Richmond (VA) Data Center, the upgrades directed by Andy Yesolitis, Bell's Green Lights Implementation Director for southern Virginia and West Virginia, involved innovative means. Bell used panel-level dimming to prevent glare where upgrades were expected to cut the lighting load in half but increase light levels substantially.

According to Surveyor Ally Kirk White of **Shane Companies**, the Richmond Data Center upgraded 7,157 fixtures between November 1993 and March 1994 (see box below). In the area where workstations are used, however, the initial T-8 retrofits

increased light levels (>40 foot-candles [fc]), creating a significant glare problem on computer screens.

One solution was to install small-cell parabolic louvers to direct more light straight down out of fixtures. This solution would reduce light levels by blocking 30 percent of the light emitted from the fixtures at a cost of \$100 per fixture, with no electricity reduction. Bell Atlantic opted for one smart solution—to install a variable voltage panel-level dimming system to reduce voltage to the ballasts, thereby reducing light output and glare. The dimming system cost \$6,600 and reduced the lighting load by 2.7 kilowatts (kW) and the light level to 24 fc, eliminating glare following IES-RP-24 lighting level guidelines for offices containing video display terminals.

SNAPSHOT: BELL ATLANTIC RICHMOND DATA CENTER

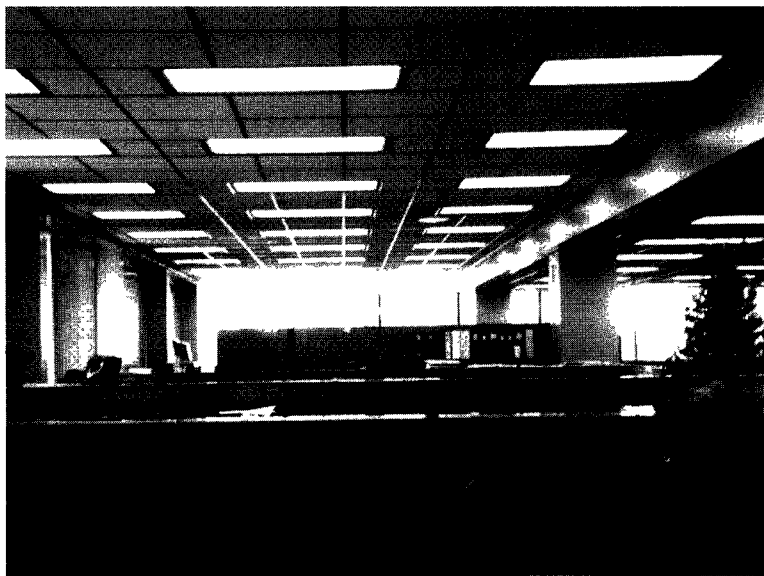
- Total project cost: \$399,000
- Energy cost savings (15 years): \$1.5 million (\$109,000 per year)
- Internal rate of return: 26.23%
- Payback period: 3.66 years
- Lighting load reduction: 340 kW (52%)
- Energy savings (annual): 1.6 million kWh
- Pollution prevented (annual): 3.0 million pounds of CO₂
15.7 million grams of SO₂
5.0 million grams of NO_x

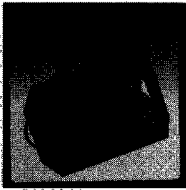
An additional benefit of the upgrades has been an annual air-conditioning energy reduction of 273,000 kilowatt-hours

continued on page 5

Richmond Data Center Upgrades

- Replace 2-, 3-, and 4-lamp fluorescent fixtures with 2-lamp T-8s and low-power electronic ballasts
- Tandem-wire fixtures to reduce number of ballasts—reduces equipment costs and saves 5 watts more per fixture
- Replace small-cell parabolic louvers with reflectors to increase fixture efficiency by 10 percent
- Replace hallway and cafeteria 150-watt incandescent flood lamps with 13-watt 2-piece compact fluorescents with integral reflectors and lenses
- Upgrade 150-watt incandescent high hats on dimmers in conference rooms with 60-watt halogen flood lamps






With Green Lights and Energy Star, "The Power Is Yours!"

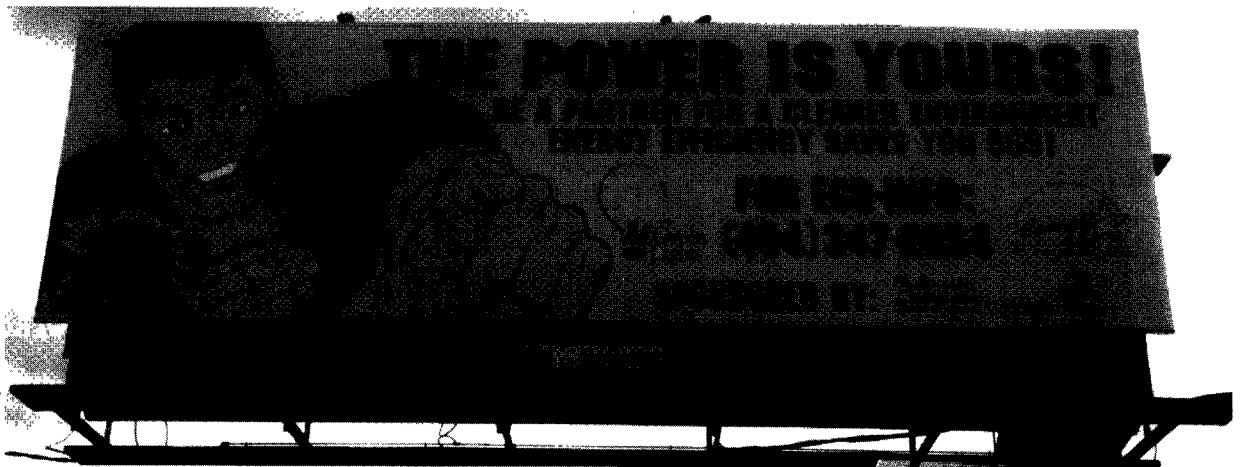
From a billboard at Spring and 14th Streets in midtown Atlanta, Superhero Captain Planet is spreading the word: Green Lights and Energy Star are good for the environment and the bottom lines of area organizations that join these voluntary, energy-efficiency programs.

Mike Newman, formerly of EPA's Region 4 Policy Planning and Evaluation Branch, conceived of using Captain Planet as the focus of a billboard promoting Green Lights and Energy Star. Produced by **Turner Broadcasting System**, each episode of *Captain Planet and the Planeteers* has an environmental theme, making Captain Planet a perfect spokesperson for Green Lights and Energy Star.

According to Danny Orlando of EPA's

Region 4, who assisted with the project, Newman pulled together the Green Lights team that made the billboard possible: Green Lights Partner Turner Broadcasting provided Captain Planet and the graphics staff; Utility Ally **Georgia Power Company** provided the plastic sheeting on which the graphic is printed; and Endorser **Greater Atlanta Chamber of Commerce** obtained the billboard space through 3M National. Erected in September 1994, the Captain Planet message will appear on billboards in the Atlanta area for 1 year.

"It's a great collaboration that gets the message across," says Orlando of the teamwork among Turner, Georgia Power, the Chamber of Commerce, and EPA. 




continued from page 4

(kWh) due to lower lighting heat loads. According to Yesolitis, the Richmond Data Center now plans to install occupancy sensors in conference, storage, and mail rooms to further increase its energy savings. Shane Companies, which will soon become a

Lighting Management Company Ally, has surveyed 190 Bell Atlantic buildings in Maryland, Virginia, and West Virginia and foresees significant savings throughout these facilities.

"Reducing energy costs and doing our part to improve the environment are two major

objectives that Bell Atlantic has achieved through its participation in the Green Lights program," says Yesolitis. "And I have found that working with a Green Lights Ally, such as Shane Companies, not only saves my time but also assures the success of our lighting upgrades." 



The Energy Star Showcase Buildings Series: Measurement and Verification

To help Green Lights participants follow EPA's Energy Star Showcase Buildings initiative (launched June 16, 1994), the *Update* is documenting the results of Showcase Buildings participants as they implement each stage of the program. This article, the second in a series, describes the special measurement and verification process being used at each Showcase site to:

- Help Showcase Buildings Partners effectively identify major energy savings opportunities
- Ensure that the Showcase Buildings serve as solid case studies for the Energy Star Buildings program
- Set guidelines for monitoring Showcase Buildings results to produce consistent, practical data for program use
- Minimize the cost of Energy Star Building monitoring by relying largely on energy management systems that already exist in buildings

The target for Energy Star Buildings is a 40 percent reduction in energy loads. The measurement and verification process establishes a baseline energy use profile segmented by major energy loads.

While utility bills can be used to assess a building's overall baseline energy use, they do not typically reveal potential energy savings. Electric and gas bills do not break down energy usage by end use and do not include data on important load-influencing factors, such as heating and cooling degree days. In addition, a complete 3-year record is generally necessary to accurately analyze electric and gas bills—data sets that are not always easy to obtain.

To achieve a more accurate profile of a building's energy use, it is useful to document energy use segmented by the following major loads: air handling; lighting and lighting pan-

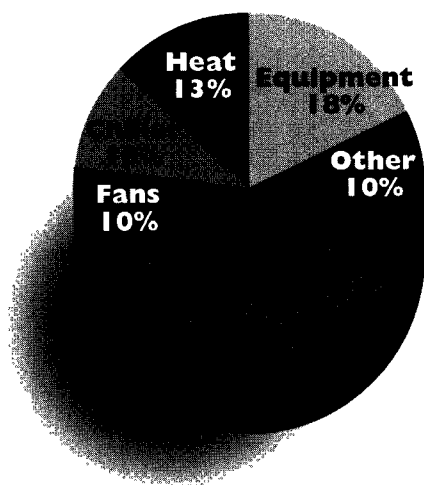
els; cooking equipment; computer data center; receptacle (plug loads); and heating/reheating and cooling equipment.

On-site metering equipment can record energy used by specific loads. For example, recording meters attached to air handler motors can determine the actual amount of energy required to move air to various areas of a building. By also recording and analyzing weather conditions in conjunction with metering, an accurate assessment of the building's systems and energy efficiency can be made.

While this level of sophistication for measuring and verifying will probably not be required when the full-scale Energy Star Buildings program is launched, potential participants will benefit from the detailed monitoring used in the Showcases.

The April/May *Update* will take a closer look at the implementation of Stage 1: How Green Lights optimizes benefits from the Energy Star Buildings program. To learn more about the Energy Star Buildings and Showcase programs, call the Green Lights/Energy Star Hotline at 202 775-6650. ■

Sample Energy End Use Profile



CLARIFICATION: In the article regarding the new 20 percent IRR requirement that appeared in the January/February Green Lights Update, both Options 1 and 2 are winners. While Option 2 produces a higher IRR, Option 1 does meet the minimum IRR required, and it produces greater kilowatt-hour/year savings than Option 2. EPA regrets any misunderstandings this may have caused.

Low-Interest Loans Have Ohio Businesses Seeing Green

The Pollution Prevention Loan Program, a joint effort between the Ohio Environmental Protection Agency (Ohio EPA) and Ohio Department of Development (Ohio DoD), is offering fixed-rate, low-interest loans to help small and medium-sized businesses (500 employees or less) upgrade or purchase equipment for pollution prevention and/or energy efficiency, including Green Lights upgrades.

Ohio EPA and DoD saw a need for more financial incentives to get environmental efforts going. "We're ecstatic to be providing money for pollution prevention programs to qualified businesses," says William Narotski of Ohio EPA's Office of Pollution Prevention. The loan program, designed with the help of Craig Butler, Ohio EPA's Green Lights program officer, was announced November 21, 1994, by Governor George V. Voinovich. Requests for the Technical Review Worksheet, which applicants must complete, are coming in at a rate of three per day, and Narotski wants to see requests from businesses seeking to finance Green Lights upgrades.

The Pollution Prevention Loan Program will provide \$5 million in loans in its first year, \$5 million in its second, and

thereafter a revolving fund will provide loans as funds become available. Preferential interest rates will be available to business located in distressed areas of the state.

Ohio EPA will evaluate submitted Technical Review Worksheets for approval, after which Ohio DoD will determine loan eligibility. Ohio requires that a conventional lender and the business itself participate to the maximum extent possible, and preference will be given to projects maximizing these sources. Funds received may be used for:


- Equipment upgrade or purchase costs
- Architectural/engineering costs
- Installation costs
- Bank loan financing costs

Projects must be completed within 2 years, and the loan term cannot exceed 7 years for equipment financing.

With 59 Ohio organizations already participating in Green Lights, including the **State of Ohio**, Ohio EPA and DoD are doing their part to support the program. For more information about the Ohio Pollution Prevention Loan Program, contact Narotski at

SNAPSHOT: OHIO POLLUTION PREVENTION LOAN PROGRAM

- **Loans:** \$25,000 to \$200,000
- **Interest rate:** two-thirds the prime rate plus .25% annual servicing fee
- **Purpose:** encourage small to medium-sized Ohio businesses to invest in energy conservation and pollution prevention equipment upgrades/purchases

614 728-1264, Brad Biggs of Ohio DoD at 614 644-8201, or the Office of Pollution Prevention at 614 644-3469. To learn more about what Green Lights can do for your organization, call the Green Lights/Energy Star Hotline at 202 775-6650 

New Lighting Upgrade Manual Sections


Two new appendices to the *Lighting Upgrade Manual*—"Upgrading Tenant Spaces" and "Green Lights for Federal Participants"—are now available.

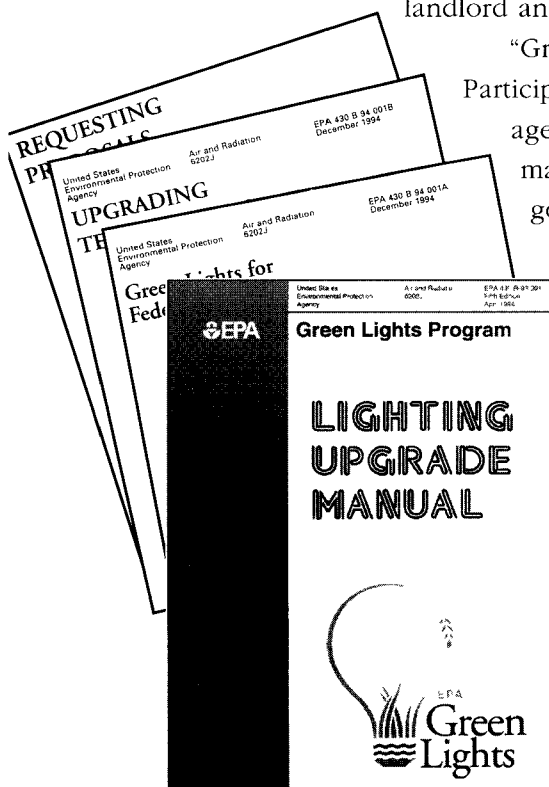
"Upgrading Tenant Spaces" is a practical document that discusses how both tenants and landlords can gain financial and qualitative benefits from lighting upgrades. Features included in this appendix are:

- How to increase property value with energy-efficient lighting
- Upgrade approaches for net, gross, and fixed-base leases
- Renegotiating leases to incorporate a lighting upgrade project
- Identifying benefits to landlord and tenant
- Model letters to facilitate discussion between landlords and tenants
- Sample lease clauses
- Case study of how lighting upgrades can benefit landlord and tenant

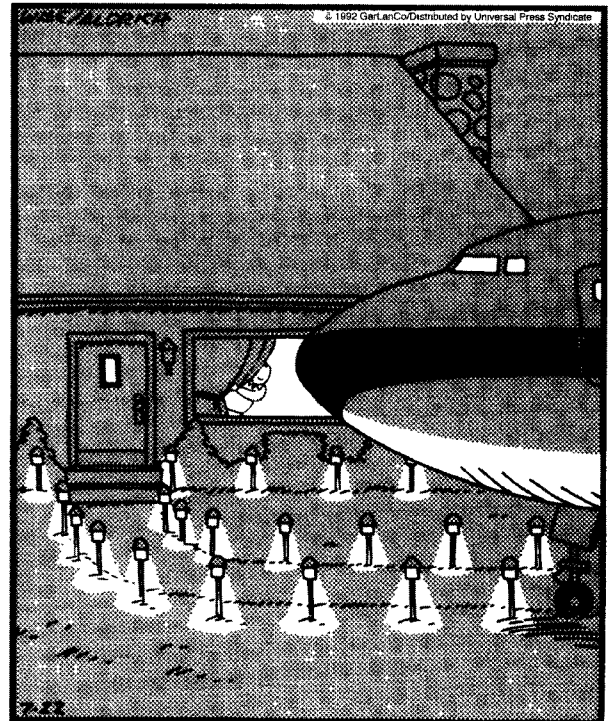
"Green Lights for Federal Participants" is intended to assist Federal agencies in complying with their mandated energy conservation goals. Topics reviewed in this appendix include:

- Overview of the Energy Policy Act of 1992
- Overview of Executive Order 12902
- Financing options for Federal agencies
- Assistance available from the Green Lights program

To order a copy of these appendices, call the Green Lights/Energy Star Hotline at 202 775-6650. 



REAL LIFE ADVENTURES by Gary Wise and Lance Aldrich



Just one of those consequences of too many landscape lights.

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Green Lights Announces New Management

With the continued growth of the Green Lights program and Bob Kwartin's departure as director, the following staff management changes and additions have taken place:

Maria Tikoff, Director, Green Lights and Energy Star Programs

Jackie Krieger, Green Lights Implementation Team Leader

Linda Latham, Energy Star Programs Team Leader

Johanna Platt, Marketing Team Leader

Sol Salinas, Communications Team Leader

These leaders are working to ensure the program's continued success and to meet the needs of all Green Lights participants.

Q. How much power do energy-efficient signs and retrofit kits use?

A. *Power ranges from 0 to 26 watts per sign.*

Q. How visible are today's energy-efficient exit signs and retrofit kits in smoke?

A. *In computer simulations, the visibility of signs degrades rapidly in smoke, but some products are much more visible than others.*

Q. Are the most energy-efficient products sufficiently bright and visible?

A. *Not necessarily.*

Q. Are all exit signs and retrofit kits basically the same?

A. *No. Testing revealed significant performance differences among exit signs.*

Q. Where can I get answers to my questions about exit signs?

A. *The National Lighting Product Information Program (NLPIP) answers these questions and many others.*

NLPIP's **Specifier Reports** include independently tested, manufacturer-specific product evaluations—information not available to contractors, architects, building services companies, utility representatives, or building owners from any other source.

In addition to exit signs, **Specifier Reports** are available on electronic ballasts, occupancy sensors, screwbase compact fluorescent lamp products, reflector lamps, retrofit reflectors, and more.

Specifier Reports: Exit Signs

Data included:

Active power
Power factor
Rated lamp life
Battery operating time
Battery recharge time
Warranty period
UL status
Lettering/background luminances
Luminance contrast
Readability with other lights on
Readability with other lights off
Performance in smoke

57 products tested. Manufacturers:

Beghelli Inc.
Brownlee Lighting
Computer Power Inc.
Dual Lite
Emergi-Lite
Energy-Wise Lighting, Inc.
Enersave Co.
Flexlite, Inc.
Hetherington Industries, Inc.
Incon Industries Inc.
Janmar Lighting
Kenall
Lithonia Lighting
Loctite Luminescent Systems
Martek Industries, Inc.
Mule Emergency Lighting, Inc.
OSRAM SYLVANIA INC.
ProLight
Radiant Illumination Inc.
SPL, Inc.
SRB Technologies
Standard Enterprises, Inc.
Teron Lighting Corp.
TLS Mfg., inc.
Trace Lite Corporation
USI Prescolite

NLPIP Publications

Use the form at right to order *Specifier Reports*, *Exit Signs* or other publications from the National Lighting Product Information Program, including *Lighting Answers* and the *Guide to Performance Evaluation of Efficient Lighting Products*.

Subscriptions

Purchase a two-year NLPIP subscription and receive upcoming issues of *Specifier Reports* and *Lighting Answers*, and *Specifier Reports Supplements* with data on the newest available products. NLPIP subscribers may also purchase back issues at discounted rates.

Single copies of *Specifier Reports* are \$30.00 (\$15.00 for subscribers). Each issue contains manufacturer-specific performance data and results from independent NLPIP evaluations. Topics for upcoming issues include luminaires for compact fluorescent lamps, HID accent lighting systems, daylight-sensing control systems, and an all new issue on occupancy sensors.

Specifier Reports Supplements are periodically published to provide performance data on the latest available products. The first of the *Supplements* covers new screwbase compact fluorescent lamps. *Supplements* on electronic ballasts and exit signs are in the works. *Supplements* are included with new orders for their corresponding *Specifier Reports*, and may also be ordered separately for \$4.00 each (\$2.00 for subscribers).

Each issue of *Lighting Answers* addresses a lighting topic in a question-answer format, with illustrations and a glossary of related terms. Topics for upcoming issues include electromagnetic interference from electronic ballasts; 2'-x-4' lighting systems; power quality and lighting; and T9 and T10 fluorescent lamps. Single copies are \$8.00 (\$6.00 for subscribers).

Guide to Performance Evaluation of Efficient Lighting Products (\$20.00 per copy, \$15.00 for subscribers) identifies performance concerns, industry standards, and test methods for several lighting technologies. Data collection sheets and directories to laboratories and standards organizations are also included.

Rensselaer

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Source: SR8-EPA

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Single copies \$8.00 each; 10-99 copies \$6.00 each; 100 or more copies \$4.00 each; Subscriber's rate \$6.00 each			
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Multilayer Polarizer Panels			
Task Lighting for Offices			
Dimming Systems for HID Lamps			
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* The New England Electric Companies include New England Power Service Company, New England Power Company, Massachusetts Electric Company, The Narragansett Electric Company, and Granite State Electric Company.

Green Lights Welcomes New Participants

Sixty-four new participants joined Green Lights in November and December to take advantage of the benefits of energy-efficient lighting upgrades. Green Lights now has more than 1,600 participants, with expectations of enormous energy savings and pollution pre-

vention 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 Hotline at 202 775-6650.

Partners (45)

A-B Emblem ■ Allegheny County ■ The City of Annapolis, Maryland ■ Anne Arundel Community College ■ Applied Computer Technologies ■ Arlington County ■ Baltimore County Schools ■ Beltway Heating & Air Conditioning Co., Inc. ■ CES/WAY International, Inc. ■ Cap and Seal Company ■ Carlsbad Caverns National Park ■ The Town of Cheverly, Maryland ■ Connecticut College ■ Cottage Hospital ■ Craig Hospital ■ Enviro-Management & Research, Inc. ■ Fontana Unified School District ■ Garden State Tanning ■ Good Samaritan Hospital (Oregon) ■ Hitech Corporation ■ Holy Cross Hospital of Silver Spring ■ The Immune Response Corporation ■ Kabelin Commercial Supply ■ Lakes Region General Hospital ■ Media On ■ Mitre Corporation ■ Multek ■ National Jewish Hospital ■ Oak Park Unified School District ■ PHH Corporation ■ City of Pittsburgh, Pennsylvania ■ Riverside Regional Medical Center ■ Riverside Unified School District ■ Seaquist Dispensing, A Division of Aptargroup, Inc. ■ Sevier County School District ■ City of Sierra Vista, Arizona ■ Sisters of Christian Charity Holy Family Convent ■ Smith Club Management ■ Special Tees, Inc. ■ Swedish Covenant House ■ Uniformed Services University ■ United Companies Realty and Development, Inc. ■ United States Military Academy, West Point, NY ■ Waterford Mortgage Company ■ Wheaton Park District

Allies (12)

Alkco ■ Barbizon ■ Central Illinois Public Service Company ■ Conservation Alliance ■ Electronic Ballast Systems, Inc. ■ Harco Distributing Services ■ Horizon/Lite Energy Ltd. ■ Indiana Municipal Power Agency ■ PEDCO ■ Power Savers, Inc. ■ ProLight ■ Schaedler Brothers, Inc.

Endorsers (7)

Association of Washington School Principals ■ Mt. Washington Valley Chamber of Commerce ■ Public Technology, Inc. ■ South Carolina Hospital Association ■ Washington Association of School Administrators ■ Washington Association of School Business Officials ■ Washington State School Directors' Association

Compact Halogen Lamps: A Step Up from Standard Incandescents

Compact halogen lamps are more efficient, produce whiter light, and last longer than the standard incandescent lamps that they replace.

On the outside, compact halogen lamps may look identical to standard incandescents,

such as typical parabolic aluminized reflector (PAR) flood lamps or general-service bulbs—but the difference is inside.

Compact halogen lamps are actually two lamps in one: an outer glass encasing with a small tungsten-halogen quartz lamp inside. The result is a clean, neutral-white light that has a

color rendering index of 100 (on a scale of 0 to 100).

Compact halogen lamps offer features that make them an ideal choice over incandescents:

Sharp applications:
Accent and retail display lighting requiring tight control of beam spread.

Improved efficiency. Compact halogen filaments operate at higher temperatures, so they produce up

to 50 percent more lumens per watt. This is possible because the quartz capsules help confine filament heat, and some lamps feature an optional infrared reflective coating that returns heat to the filament, adding to the lamp's efficiency.

Bright applications:
High-ceiling downlighting and "instant-on" power floodlighting.

Beam control.

Compact halogen reflector lamps feature reflector designs and small filament sizes that produce efficient, high-intensity light beam projection. Because their beam diameters can be up to 25 percent narrower than those of the incandescent

reflector lamps they replace, compact halogens are preferred in mounting heights above 12 feet to maintain uniform light levels.

In addition, special wide-beam lamps can be used in downlights mounted in ceilings less than 12 feet high.

Fully dimmable. Consider compact halogens to retrofit incandescent luminaires on dimming circuits, because they can be dimmed using conventional incandescent dimmers. In retrofit situations, compact halogens are a much more economical choice than dimmable compact fluorescent luminaires and controls.

Use low-voltage halogen lamps for maximum beam intensity. Low-voltage halogens use a

smaller filament than standard halogens, permitting greater optical control of the light beam. However,

these low-voltage lamps require a transformer to convert standard line voltage, which may cause size, noise, cost, and/or dimming problems.

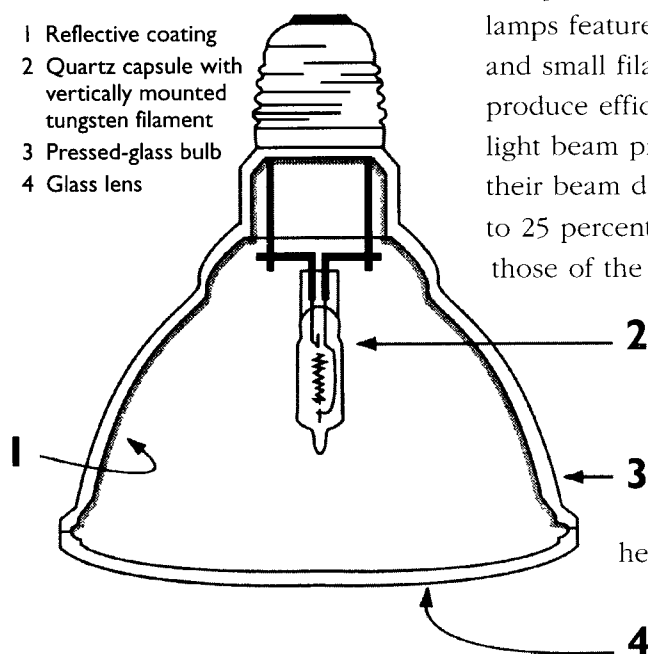
Listed below are compact halogen lamps that can be installed in order to provide lighting effects similar to their standard incandescent counterparts.

New Products

New compact halogen lamps are being introduced at an increasing rate. Due to the impending demise of standard

CROSS-SECTION OF A HALOGEN PAR LAMP

- 1 Reflective coating
- 2 Quartz capsule with vertically mounted tungsten filament
- 3 Pressed-glass bulb
- 4 Glass lens



Standard Incandescent	Halogen Incandescent	Halogen Infrared
150-watt flood or spot	75-watt PAR Halogen	60-watt PAR Halogen IR
120-watt flood or spot	60-watt PAR Halogen	50-watt PAR Halogen IR
75-watt flood or spot	50-watt PAR Halogen	N/A
100-watt A19 general service	90-watt A Halogen	under development
60-watt A19 general service	50-watt A Halogen	under development

incandescent "R" lamps (one piece of glass containing lamp and reflector) and PAR lamps (in October 1995 by the Energy Policy Act of 1992), demand for compact halogens as replacements is expected to rise dramatically. Compact halogen reflector lamps are being produced to serve a wide variety of applications, including beam spreads ranging from very narrow spot (less than 8° beam angle) to very wide flood (greater than 60°)—available in a range of wattages. Manufacturers are experimenting with halogen-infrared capsules for use in general-service A-lamps to provide up to 40 percent energy savings over standard incandescent A-lamps.

Flexible applications:

Dimmable halogens for conference rooms requiring variable light levels.


Alternatives

Compared with compact fluorescent lamps, compact halogen lamps offer relatively low efficacy, so their use should be restricted to applications where their unique characteristics are needed. More efficient alternatives include:

- Compact fluorescents in low-ceiling, nondimming applications such as wall-washing or downlighting
- Low-wattage metal halide or white high pressure sodium

lamps for high-ceiling downlighting or large-area floodlighting

For More Information

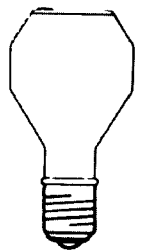
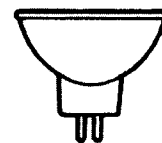
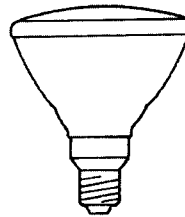
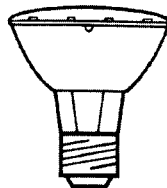
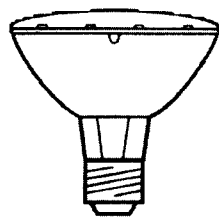
The National Lighting Product Information Program (NLPIP) recently released the latest *Specifier Report* entitled "Reflector Lamps" (Volume 3, No. 1). This document describes many of the incandescent, halogen, and compact fluorescent reflector lamps available and tabulates product performance data from manufacturers and independent testing. Green Lights participants should contact their Implementation Support Specialist to order a copy. Additional copies may be purchased by faxing your request to NLPIP at 518 276-2999. 

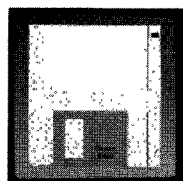
Performance Summary			
Lamp Type	75-Watt R30 Incandescent	50-Watt PAR 30 Halogen	20-Watt Compact Fluorescent (with reflector)
Relative Beam Diameter ¹	100%	91%	146%
Relative Lumen Output ¹	100%	117%	83%
Initial Cost	\$5	\$10	\$33
Rated Life	2,000 hours	4,000 hours	10,000 hours
Energy Savings	base case	33%	73%
IRR (15 yrs) ²	base case	68%	38%

¹Source: Reflector Lamps. Specifier Reports; Vol. 3, No. 1, October 1994.

²Assumptions: 3,500 hr/yr; \$0.075/kWh; no inflation, rebates, or A/C savings.

SAMPLE HALOGEN LAMP SHAPES





Software Corner

With the release of version 2.0, *ProjectKalc* allows users to:

- analyze upgrade options on a fixture-specific basis;
- aggregate desired fixture upgrades into lighting projects; and
- perform, at the user's option, room-specific light level analyses.

The enhancements to *ProjectKalc* version 2.0 enable users to define their own custom fixtures, calculate Life Cycle Costs, and export project information to *ReportKalc* for progress reporting. To order *ProjectKalc* version 2.0, call the Green Lights Hotline at 202 775-6650.

Green Lights has shipped *ReportKalc* to approximately 1,000 users. *ReportKalc*

helps users to:

- track and issue progress reports by validating a variety of project and fixture input data;
- calculate required values, such as lighting savings and internal rate of return;
- maintain a record of all projects; and
- submit electronic copies of the reports to EPA.

ReportKalc is being mailed to participants with their anniversary letters. Green Lights Implementation Directors may also request *ReportKalc* in advance by contacting the Green Lights Hotline at 202 775-6650. ■

Calendar of Lighting-Related Events

Lighting Efficiency Congress

Location: San Francisco, CA

Contact: Debbie Fernandez, Association of Energy Engineers, 404 279-4386

Date: April 19-20, 1995

International Association of Lighting Management Companies' (NALMCO) 42nd Annual Convention

Location: Nashville, TN

Contact: Jennifer Busch, 609 799-5501

Date: April 30-May 2, 1995

Illuminating Engineering Society of North America's (IESNA) 1995 LIGHTFAIR

Location: Chicago, IL

Contact: AMC Tradeshows, 404 220-2215

Date: June 7-9, 1995

NeoCon '95/The Buildings Show

Location: Chicago, IL

Contact: NeoCon, 800 677-6278;

The Buildings Show, 312 527-7598

Date: June 12-14, 1995

1995 Illuminating Engineering Society of North America (IESNA) Annual Conference

Location: New York, NY

Contact: Valerie Landers, 212 248-5000, ext. 117

Date: July 29-August 3, 1995

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



GREEN LIGHTS IMPLEMENTATION REPORT

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

<input style="width: 40px; height: 40px;" type="checkbox"/> SURVEY REPORT <i>(fill in sections 1,2,4,6, and 12 below)</i>	<input style="width: 40px; height: 40px;" type="checkbox"/> COMPLETED PROJECT REPORT <i>(fill in sections 1-12 below)</i>	Date: _____ Page _____ of _____ <i>(attach additional pages as needed)</i>
---	---	--

1. FACILITY INFORMATION

Company Name: _____ Facility Name: _____ Facility address: _____ City/St /ZipCode: _____ Facility type* _____	Facility Manager: _____ Telephone No./FAX No. _____ Total Floorspace for this Facility: _____ sq.ft. Floorspace included in this report: _____ sq.ft. 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

4. LIGHTING CONTROLS BEFORE UPGRADE

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

6. MAINTENANCE METHODS BEFORE 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

GREEN LIGHTS IMPLEMENTATION REPORT CODES

Facility Type		Lamp Type		Upgrade Type	
1000	Office	54	T-8	110	Relamp only
1001	Warehouse	55	T-10	111	Delamp only
1002	Industrial/Manufacturing	56	T-12 Energy Saving	112	Relamp and reballast
1003	Retail sales	57	T-12 Cathode cut-out	113	Specular reflector/delamp
1004	Health Care	58	T-12 High Lumen	114	Reflector/Reballast
1005	Lodging (hotels, dormitories etc)	59	T-12 Standard	115	New Lens/Reflector/Reballast
1006	Assembly (churches, auditoriums, etc.)	60	T-12 High Output (800ma)	116	New lens/louver
1007	Education (classrooms)	61	T-12 VHO (1500ma)	117	New fixture
1008	Food sales and service	62	T-17 VHO (1500ma)	118	Convert Incand. to Fluorescent or HID
1009	Parking Garage	63	T-5 single ended	119	Task Lighting
1010	Laboratory	64	Compact twin-tube		
1011	Outdoor	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		

Upgrade Projects Reported in November and December

The following program participants submitted implementation reports on completed lighting upgrades during November and December.

November

Abbott Laboratories, *Al Musur*
Arlington Public Schools, *Jo Ann Daly*
Atlantic Lighting and Supply Co. (GA),
Dave Erwin
BP Exploration - Alaska, *James Fairbanks*
Boulder Valley Public School District,
Jim Walsh
Butler Supply, Inc., *Stephen Butler*
Chevron, *W.R. Morrison*
Children's World Learning Centers,
Wilson Thibodeaux
City of Houston, Texas, *Dewayne Huckabay*
Club Corporation, International,
Michael Quimbey
Cox Newspapers, *Harold J. Brown*
Darling Store Fixtures, *Danny White*
Davenport Community School District,
Bill Good
Deeter Lighting, *Mark Deeter*
Deluxe Corporation, *Gary Weisbrod*
ESCO International, *Robyn Meyer*
Energy User News (Chilton Co.),
George W. Hutter
Esprit, *Tom Costello*
First Maryland Bancorp, *David W. Richardson*
Hackensack Medical Center, *Andrew J. Ryan*
Hebrew Home & Hospital, *William F. Baal*
Honeywell, Inc., *William P. Sikute*
Howard County, Maryland, *Michael Kelly*
INCON Industries, *Mark Hudson*
Illumelex Corporation, *Harold Chappell*
Inland Lighting Supplies, Inc.,
Sharon Blackburn
Innovative Lighting Services, *Steve Factor*
Intergraph Corporation, *Kevin E. Turan*
International Institute for Energy
Conservation, *Russell Sturm*
JFMC Facilities Corporation,
Richard Gordon Katz
Leon County, Florida, *Jeff Greene*
Louisville Resource Conservation Council,
Walter F. Bell
MGM Grand Hotel, Inc., *Reon R. Onstine*
Macomb Intermediate School District,
Joseph O. Jordan

Mercy Memorial Hospital, *Hugh McFarlane*
MetalOptics, Inc., *Diane Kortis*
Minneapolis Public Schools & Special
District #1, *Allen L. Johnson*
Montgomery County, Maryland,
Homeira Razavi
NYNEX Corporation, *Roy W. Deitchman*
National Service Industries, Inc.,
Walter Buce
Natural Lighting Company, *Connie Bilbrey*
Novitas, Inc., *James Himonas*
Pearl Pressman, *Michael Rosen*
Powell Electrical Manufacturing Company,
Mike Powell
Prescolite - Division of USI Lighting,
John Taylor
Roseville City School District,
Mark J. Schrader
Science Museum of Minnesota,
Patrick Hamilton
St. Charles Medical Center,
Michael B. Severns
State University Of New York At Stony
Brook, *Walter Wilson*
Teradyne Connection Systems, Inc.,
R. Michael Mayo
The City of Denver, Colorado, *Darryl Winer*
The Dexter Corporation, *Sharon Piorun*
The First National Bank of Chicago,
Michael Miles
The State of California, *Doug Grandy*
The State of Idaho, *Rene Arellanes*
Tristate Electrical Supply Company, Inc.,
Thomas D. Kidwell
Two Town Center Associates, *Don Sutton*
ULLICO, *E. Chris Brennan*
USX/US Steel Group, *Roy J. Weiskircher*
Union Camp Corporation, *Ray Scholten*
University of Cincinnati, *James R. Tucker*
WR Grace & Company, *Eric J. Christiansen*
WW Grainger, Inc., *Arshad Ali*
Westinghouse Corporation,
James P. Brennan
Whirlpool, *Michael Bacon*
Yellow Freight Systems, Inc., *Richard Cooper*
Zurn Industries, Inc., *James A. Zurn*

December

ARCO, *Carl A. Janssen*
Alta Bates Medical Center, *Joseph Rieger*
American Lighting & Electric Supply Co.,
William Coyne
Amoco, *Walter R. Quanstrom*
Amtech Lighting Services, *Ron Gilcrease*
Career Track, *Steve Carter*
Carrier Corporation of North America,
Charles Veley
City University of New York, *Jerold Marmer*
Codale Electric Supply, Inc., *Lori Bement*
Connecticut Mutual Life Insurance Home
Office, *John R. LaBelle*
Electric Power Research Institute,
Karl Johnson
GEC Marconi Electronics Systems Corp.,
Howard C. Krauth
Graybar Electric Company, *William Trussel*
ICF International, *Lynn Blasch*
Illumelex Corporation, *Harold Chappell*
John Muir Medical Center, *Vince Scoccia*
Johnson & Johnson, *Harry Kauffman*
Johnson Controls, Inc., *Kim Kiesgen*
Lektron Industrial Supply, Inc., *Leslie Pace*
Lighting Dynamics, Inc., *John Black*
Montgomery County, Maryland,
Homeira Razavi
Pitney Bowes, Inc., *Nancy A. McBride*
Sony Corporation of America, *Mark Small*
Systematix, Inc., *James S. Hogan*
The City of Phoenix, Arizona, *Paul Hudson*
The City of Santa Rosa, California,
Mark Armstrong
The Dexter Corporation, *Sharon Piorun*
The State of California, *Doug Grandy*
USX/Marathon Oil, *Brad Troup*
USX/US Steel Group, *Roy J. Weiskircher*
WW Grainger, Inc., *Arshad Ali*
Warner-Lambert, *Dan Patterson*
Woman's World Shops, Inc.,
Norma Lieberman



U.S. EPA Green Lights

LIGHTING UPGRADE WORKSHOPS



2 1/2-Day Workshops Featuring:

- Lighting Upgrade Technologies
- Lighting Analysis Software
- Financing Analysis
- Green Lights Reporting
- Lighting Maintenance and Disposal
- Surveyor Ally Exam (on third day)

Preregistration Form: Green Lights workshops are free and open to the public. Space is limited, however, and priority will be given to Green Lights Partners. Complete details and instructions will be faxed to preregistrants within 4 weeks of the workshop date.

Register by Phone: Call the Green Lights/Energy Star Hotline at 202 775-6650

Register by Fax: Fax this form to the Lighting Services Group at 202 775-6680

Register by Mail: Mail to EPA Green Lights (6202J), 401 M Street, SW, Washington, DC 20460

Name _____ Title _____

Company/Organization _____

Address _____

City _____ State _____ ZIP Code _____

Phone () _____ Fax _____
area code

Attendee fax number is very important to expedite the processing of this form

Status (Please check one) ☐ Partner ☐ Prospective Partner ☐ Ally ☐ Surveyor Ally Candidate/Other

Please Indicate Preferred Workshop*:

- | | | |
|---|---|---|
| <input type="checkbox"/> Dallas, TX March 15-17 | <input type="checkbox"/> Chicago, IL May 2-4 | <input type="checkbox"/> New Brunswick, NJ August 2-4 |
| <input type="checkbox"/> Seattle, WA March 22-24 | <input type="checkbox"/> Detroit, MI June 29-July 1 | |
| <input type="checkbox"/> Columbus, OH April 17-19 | <input type="checkbox"/> Minneapolis, MN July 19-21 | |

*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.



United States

Environmental Protection Agency

Air and Radiation (6202J)

Washington, DC 20460

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