

## **MOBIL CORPORATION**

### **A Green Lights / ENERGY STAR Case Study**

*For more than a decade, WRI's Sustainable Enterprise Program (SEP) has harnessed the power of business to create profitable solutions to environment and development challenges. BELL, a project of SEP, is focused on working with managers and academics to make companies more competitive by approaching social and environmental challenges as unmet market needs that provide business growth opportunities through entrepreneurship, innovation, and organizational change.*

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In 1992, Mobil Corporation signed a Memorandum of Understanding with the United States Environmental Protection Agency (EPA), agreeing to conduct energy-efficient audits of the lighting at all domestic Mobil facilities. By signing this document, Mobil became a partner in EPA's voluntary Green Lights Program.

Fred Schoeneborn, Mobil's Facilities Management Coordinator, had played a major role in convincing Mobil management to sign up with the EPA program, a difficult task considering Mobil's often adversarial relationship with the agency. Now that Mobil was officially a Green Lights Partner, Fred would have to ensure that Mobil facilities actually went through with the audits and retrofit projects. Many obstacles loomed in his path.

#### **Green Lights**

Lighting accounts for 20-25% of all electricity sold in the U.S. Many organizations account for lighting as overhead, which presents a barrier to investing in more cost-effective and energy efficient lighting. To address this, the EPA launched the Green Lights Program in 1991. It is a voluntary, non-regulatory program aimed at reducing air pollution by promoting energy-efficient lighting.

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*This case was prepared by Robert Day and Mathew Arnold of the Sustainable Enterprise Program (SEP) to stimulate class discussion rather than to document effective or ineffective management strategies. Funding provided through Lisboa Associates from the U.S. Environmental Protection Agency. Copyright © 1996 by SEP. Not for citation, distribution, or duplication without permission of SEP.*

Green Lights participants agree to investigate replacing their current office lighting with newer, more efficient light bulbs and fixtures. If these investments appear financially sound (EPA recommends a minimum internal rate of return of 20%), participants then agree to begin retrofitting within a few years.

The Green Lights Memorandum of Understanding does not require specific lighting technologies – participants may install whatever technologies maximize energy savings while maintaining or improving lighting quality. Going through the Green Lights process requires that personnel trained to recognize opportunities for cost-savings through more efficient lighting technologies survey each facility; EPA provides technical support for Green Lights Partners, and provides links between partners and performance contractors who have the necessary expertise.

As of May 1996 there were over 2100 Partners, Allies, and Endorsers in the Green Lights Program<sup>1</sup>. Partners are public and private organizations of all sizes, including 35% of the Fortune 500, who agree to participate in the program. Allies are members of lighting related industries that also participate in the program and provide support for Green Lights Partners. Endorsers include professional and trade associations, as well as academies, boards, institutes, and societies<sup>2</sup>. The benefits for the environment are significant: if energy-efficient lighting were installed everywhere profitable, the resulting energy savings would prevent carbon dioxide emissions equivalent to removing 15 million cars from the road<sup>3</sup>. Reducing the demand for 1 kilowatt of electricity saves approximately \$1,500 in new power plant construction<sup>4</sup>. These savings reduce environmental impact through phenomena such as acid rain and the Greenhouse Effect.

### **ENERGY STAR Buildings**

Since the launch of Green Lights, EPA has moved beyond lighting to address energy conservation in all aspects of corporate facilities. With the Green Lights Program as its foundation, the ENERGY STAR Buildings Program is a five-stage process in which EPA asks participants to perform comprehensive facility upgrades, ranging from system tune-ups to improving air-handling systems and heating/cooling plants. As with the Green Lights Program, ENERGY STAR participants are only asked to pursue improvements that are profitable. In 1994, twenty-four Green Lights members were selected as ENERGY STAR Showcase Building participants to demonstrate the effectiveness of the program. These Showcase Building participants agreed to dedicate one corporate building each to the pursuit of ENERGY STAR Principles and upgrades<sup>5</sup>.

Organizations that join the Green Lights and ENERGY STAR Programs conserve energy and cut their electricity bills, while reducing the amount of carbon dioxide, sulphur

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<sup>1</sup> US EPA.

<sup>2</sup> 1994. "Green Lights Third Annual Report" March, US EPA (EPA 430-R-94-005).

<sup>3</sup> 1996. "Green Lights Program" February, US EPA (EPA 430-7-96-034).

<sup>4</sup> 1994. "Green Lights Third Annual Report" March, US EPA (EPA 430-R-94-005).

<sup>5</sup> 1995. "Energy Star Buildings: Showcasing Energy Savings" Buildings (March).

dioxide, nitrogen oxide, and heavy metal emissions released into the atmosphere. Green Lights and ENERGY STAR participants also benefit from EPA support, including product information, decision-support, extensive technical support through the program's Allies, and the ability to publicize progress in environmental protection. Improved lighting may even lead to productivity gains in the workplace.

### **Mobil Corporation**

Mobil Corporation is a major oil, gas and petrochemical company with operations in more than 100 countries (companies in original) and 1994 revenues of over \$67 billion dollars, which ranks eighth among the Fortune 500. Other Mobil businesses include plastics, mining, and land development. The Mobil corporate vision describes a company that sets the standard for excellence in every category. This vision leads to a commitment to efficiency. Mobil's corporate mission is:

To be a dynamic company that will continually find and develop opportunities for profitable growth in our core businesses, and that will realize the greatest value from our existing assets while *keeping tight control of our costs*. [Author's emphasis]<sup>6</sup>

Mobil's corporate vision of excellence also fosters a desire to minimize environmental impact. Management believes that protecting the environment makes good business sense, because "it is more efficient to prevent problems than to correct them after they occur."<sup>7</sup> Besides the obvious goal of preventing oil spills and similar environmental disasters, Mobil has also targeted their other impacts on the environment. For instance, from 1998 to 1993, Mobil reduced their Toxics Release Inventory emissions by 40%.<sup>8</sup> This record of environmental excellence helps Mobil demonstrate its commitment to protecting the health and safety of its workers and communities in which it operates.

### **Joining Green Lights**

In 1990, Fred Schoeneborn was named Facilities Management Coordinator for all of Mobil's buildings, including everything from corporate headquarters to oil refineries to research laboratories. When Fred moved into his new position, he had one goal in mind: to significantly lower operating costs at all Mobil facilities. He formed a task force of several facilities managers to investigate where the costs were being incurred, and what could be cut. What they found surprised him: almost always the biggest single cost item was utilities, such as electricity and water. Unfortunately, utilities costs were not seen as controllable, lacking opportunities for significant reductions.

Fred continued to sponsor discussions on the cost problem, though, and in 1991 one of his researchers gave a presentation on energy efficiency. The idea seemed important enough to warrant additional investigation, and Fred decided to have some of the energy efficiency ideas tested at Mobil's Princeton, New Jersey facility. He gave responsibility of the project to the Princeton facility manager, Paul Hevey. They investigated options

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<sup>6</sup> Mobil Annual Report, 1994, p.4.

<sup>7</sup> Mobil Annual Report, 1994, p.16.

<sup>8</sup> Mobil Annual Report, 1994, p. 16.

such as replacing the light bulbs in exit signs with energy efficient bulbs, replacing incandescent bulbs with fluorescent bulbs, and installing more efficient ballasts in lighting fixtures, to name a few projects. These ideas seemed minor at a first glance, but when put together they presented significant opportunities for energy savings. Paul eventually came back to Fred with the results of their research, which suggested that the lighting retrofit projects could pay for themselves in as little as 1.4 years.

Fred decided to attend an EPA seminar on the Green Lights program. For two days he sat at the back of the room and listened. By the end of the seminar, Fred had decided that the Green Lights Program offered a terrific opportunity for Mobil. Through his subsequent efforts, Mobil became an official Green Lights Partner in 1992. Now Fred was responsible for ensuring Mobil kept its promise to the EPA.

### **Mobil Facilities Managers**

Fred faced a difficult challenge: as the Facilities Management Coordinator, he had many responsibilities, but little real authority. The real power at each Mobil facility rested in the hands of each facility manager, who reported not to Fred but to the person responsible for the general management of the product or service created at the facility. Fred did not have the authority to order facilities to undertake the Green Lights audits; he would have to convince the facilities managers that it was in their best interests.

Unfortunately for Fred, facilities managers had little incentive to undertake these projects. The cost of performing an audit and any retrofits would have to come out of their annual operating budget, and if the promised savings did not materialize, it could be a big liability for these managers. Facilities managers already had a low status within the organization. As one of the facilities managers described, “[w]e were the Rodney Dangerfields of the business – we were seen only as a cost center. The best we could hope to get out of doing a Green Lights audit would be an ‘attaboy,’ so it would be a big risk.”<sup>9</sup> As a result of their low status within the organization, facilities managers also had low visibility, generally only getting attention when mistakes had been made.

Even communicating with the various facilities managers was difficult. When Fred had become the coordinator in 1990, he had found that no one seemed to know even how many Mobil facilities there were. No system existed for coordinating their efforts. Fred knew a handful of facilities managers personally, and had asked them to ask the managers they knew to get in touch with him. In this way, a fledgling network of managers had been created which by 1995 included all 98 Mobil facilities.

Many facilities managers also did not have the resources and training to undertake the lighting audits. The expertise existed within Mobil, but it was spread out among the facilities and would be hard to identify and disseminate. EPA would be able to help, by providing expertise and training, but making connections between the EPA experts and the actual on-site implementers would be a challenge for Fred. Another valuable source of information would be facility managers from other companies, and Fred had a number

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<sup>9</sup> Conversation with Don Biachi, Manager, Southwest Facilities, 5/10/96

of knowledgeable contacts outside of Mobil whom he included in his communications network.

### **Other Factors**

Despite these obstacles, Fred Shoeneborn did have several tools for convincing the Mobil facilities managers to undertake the audits and retrofits. He had the financial analysis of the Princeton facility's projects. He could demonstrate that, at least in this case, the lighting retrofits paid off in big savings. See Exhibit A for examples of the savings that could be found through these projects.

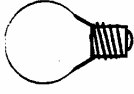
The support of top management would also be an important factor. Mobil's board of directors had made a difficult decision when they signed the memorandum of understanding, and therefore had an interest in seeing it through. Fred had strengthened this commitment by successfully lobbying to have Mobil's Green Lights involvement by the subject of one of its weekly "advertorials" in the New York Times and USA Today. These quarter-page ads appeared regularly in the editorial section of the newspaper and were used to promote Mobil's efforts on important issues (see Exhibit B). By having Mobil declare its support for the Green Lights Program, Fred had ensured that the integrity of the top management personnel themselves was on the line. He could now count on the top management to lend him a hand when needed. Nevertheless, he wanted to appear effective, and therefore could not ask the top management themselves to personally cajole the facilities managers into performing lighting audits – that was his job.

Finally, a strong internal marketing system existed within the Mobil organization. Although internal communications between facilities managers was difficult at best, company newsletters went out monthly to all employees. Often, each facility would also have its own newsletter (see Exhibit C). EPA also provided many tools for internal marketing, such as photo opportunities, press releases, awards ceremonies, workshops, and the use of the Green Lights logo. With these resources, Fred would be able to ensure that all Mobil employees learned about the company's involvement in the Green Lights Program. Whether they would act upon this knowledge was another question altogether.

With this information in mind, Fred Shoeneborn began to design a 2-page plan for implementing Green Lights audits and retrofits at all Mobil facilities...



# Energy Star Buildings



## Energy Cost Saving Opportunities

### Results From the Energy Star Showcase Buildings Program

<u>Measure</u>	<u>Average Cost per Square Foot</u>	<u>Average Savings per Square Foot</u>	<u>Average Payback (Yrs)</u>	<u>Percent Energy Cost Reduction</u>
Lighting Upgrade	\$1.00	\$0.234	4.3	9.8%
EMS Controls	\$0.39	\$0.064	6.1	3.5%
Window Film	\$0.10	\$0.019	5.3	1.0%
VSD/Fan Upgrade	\$0.51	\$0.079	6.5	3.3%
Chiller Upgrade	\$1.40	\$0.104	13.5	4.3%
Boiler Upgrade	\$0.15	\$0.053	2.8	4.8%
Total	\$3.55	\$0.61	5.8	26.7%

### Exhibit A

From: "Mobil's Energy Programs"  
 Paulsboro Energy Management  
 Coordination Meeting 11/2/95

# Exhibit B

VIA SATELLITE THE NATION'S NEWSPAPER 50 CENTS

**CELEBRATE GIRLS AND WOMEN IN SPORTS**  
WILKENS GRABS BOON NBA WIN AS ATLANTA BULLS IC

**MUSICIANS TAKING RAP FOR VIOLENCE**  
GRAPPLING WITH GRIDLOCK ON THE WEST COAST

**USA TODAY**

NO. 1 IN THE USA FIRST IN DAILY READERS

THURSDAY, FEBRUARY 3, 1994

**NEWSLINE**

**WALL STREET:** Dow Jones industrial average fell 11.28 points to 5254.3. NASDAQ rose 2.01 to 207.21. The 10-year Treasury bond yield rose to 6.25. 10-year Treasury bond rose 7.25 points to 827.45.

**KIDS AND OLDS:** Three young boys die in a car crash. A mother of three girls says she never intended for her children to be killed.

**FARRAGHAN TIES CUT:** Congressional Budget Committee says it will cut \$1.5 billion from the federal budget.

**BROWN CLEARLY:** President Bush says he will not sign the Clinton health care bill.

**WACO REVELATION:** The Waco siege is over. The FBI says the Branch Davidians were not armed.

**ALBI OFFERED:** Supreme Court says it will not hear the case of the Branch Davidians.

**NIGHTMARE SCENARIO:** House says it will not pass the Clinton health care bill.

**HOUSING BOOM:** Home sales are up 11.4% in January.

**TODAY'S DEBATE:** Clinton vs. Bush on the health care bill.

**MONEY:** Federal Reserve says it will raise interest rates.

**SPORTS:** Baseball season starts in St. Louis.

**COMING FRIDAY:** USA TODAY covers the Super Bowl.

**USA SNAPSHOTS**

**Interest growing**

For USA TODAY subscribers

**Sweets**


**Hardin**

**Kerrigan and alternate Kwark off to Norway**

By Steve Swenson and Neil Anderson  
USA TODAY

They're the most famous people in the world. They're the most famous people in the world. They're the most famous people in the world.

## 'Some of the brightest lights in American business...'



That's what U.S. Environmental Protection Agency (EPA) Administrator Carol M. Browner called volunteer participants in its Green Lights program, a nationwide initiative to reduce air pollution and improve the environment. It encourages U.S. institutions, businesses, governments, and other organizations to voluntarily switch to energy-efficient lighting, and to save money doing it.

Green Lights observed its third anniversary on January 19, and already nearly 1,250 companies participate. In the best American tradition, it's a program where everybody wins. Here's how it works:

Electric lighting now accounts for about 25 percent of the electricity this country uses. The EPA estimates that if everyone switched to energy-efficient lighting, we could cut our national electric bill by \$16 billion. Says Browner, "We could invest that money in a stronger economic future with the added benefit of less acid rain, less smog, and healthier American families."

Scientists estimate that if everyone switched to energy-efficient lighting, 1.3 million metric tons of sulfur dioxide, 600,000 metric tons of nitrogen oxides, and millions of tons of other emissions such as carbon dioxide could be eliminated every year. To say nothing of the wear and tear the nation's power grid experienced last month, when a third of the nation shivered in a record deep freeze and experienced unprecedented demand that caused rolling brownouts in the mid-Atlantic states.

In addition to all that, energy-efficient lighting saves good money—and lots of it. Mobil can vouch for it: Green Lights works—in spades. We joined Green Lights just two years ago, and in facilities across the country, we've reduced lighting energy consumption by nine million kilowatt hours, or 49 percent. Our investment to achieve those reductions totals \$800,000—a lot of money. But we're seeing savings of about \$600,000 a year and rising, which gives us a payback on our investment in less than one-and-a-half years. We achieved this through a volunteer network of our own facilities managers—who worked closely with EPA support groups, set up implementation teams and undertook their own initiatives, and who believe in the program so fervently that they go out and recruit other businesses and organizations to join.

We're proud to say that the EPA recognized our team's efforts in January by naming Mobil its first "Partner of the Year" nationwide for outstanding achievement in implementing energy-saving lighting.

Mobil's Robert O. Swanson, senior vice president, who accepted the award in Washington, D.C., said, "The EPA's Green Lights program is an outstanding voluntary initiative to save energy and protect the environment based on sound business principles that every investment must have an appropriate return. It also proves that cooperation and consultation work better than adversarial and regulatory approaches."

If your group would like to help the environment and save money doing it—you can call the EPA's Green Lights Hot Line at (202) 775-6650, or write to: EPA Green Lights Program, 401 M Street, S.W. (6202J), Washington, D.C. 20460

Volunteers are some of our nation's brightest lights—and in this case, those lights are green. And that means go for it.

# Mobil

## Exhibit C

Volume 3, February 1993



# FOCUSING ON FACILITIES

From time to time, the Rochester Area Facilities Group will issue this newsletter to bring you up to date on things that may affect you. Some items may be specific to one location, but we hope you find something interesting and/or useful.

## GREEN LIGHTS

### A WIN - WIN PARTNERSHIP BETWEEN GOVERNMENT AND INDUSTRY

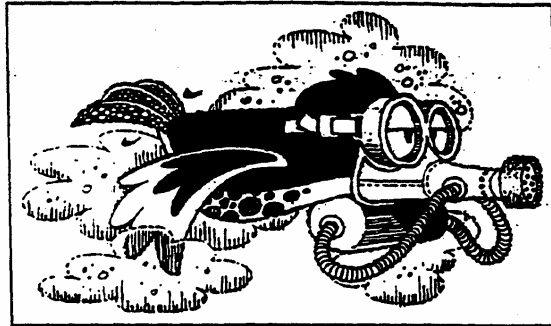
In February of 1992, Mobil signed a "Memorandum of Understanding" and became a partner in the Environmental Protection Agency's Green Lights program. The program's objective is to prevent air pollution through the use of energy efficient lighting equipment and design. The EPA estimates that nearly 1/4 of the electrical energy produced nationwide is used for lighting and about 1/2 of that is wasted due to inefficient equipment or practices.



### WHAT DOES THAT REALLY MEAN?

This voluntary partnership with the EPA is an understanding that Mobil will upgrade the lighting in many of its buildings over a five year period according to the EPA standards. This includes replacing old fluorescent lights with new energy efficient models and reducing light levels in overlit areas.

*Sounds like a great deal for the light fixture manufacturers doesn't it? Well, here's where the win-win comes in.*



**Win #1.** If all appropriate businesses were to participate, the environmental impact on CO<sub>2</sub> levels would be about the same as taking 1/3 of the motor vehicles off the streets forever. On top of that, we would eliminate 1.7 Million Tons of SO<sub>2</sub>, 1 Million Tons of NO<sub>x</sub>, not to mention boiler ash, scrubber waste, mercury, radioactive waste, and acid from coal.

**Win #2.** The program only includes upgrades that are profitable to the company. The benefits include increased lighting quality, lower light bills (up to 50%) and an opportunity to redesign lighting systems to better match occupant needs.

**Win #3.** (This one's for YOU!) Better quality lighting improves ergonomic factors such as color rendition and reduces glare on VDT screens. This results in less eye strain and fewer headaches. Also, since lights are the largest contributors to heat gain in a building, the energy reduction will provide more air conditioning capacity for your comfort.

