

On Climate, Symbols Can Overshadow Substance
Lights-Out Event More Showy Than Practical
By Shankar Vedantam
Washington Post Staff Writer
Saturday, May 17, 2008; A01

In March of last year, the World Wildlife Fund in Australia teamed up with Leo Burnett, the multinational advertising agency that created the Marlboro Man, to come up with a new environmental campaign called Earth Hour. The idea was to get 2 million residents in Sydney to turn off all the lights in their homes for one hour. The campaign generated wide publicity, but the energy saved was small -- the equivalent of taking about five cars off the city's roads for a year.

This year, Earth Hour expanded to dozens of cities around the world. The Golden Gate Bridge in San Francisco, the Sears Tower in Chicago and the Empire State Building in New York were among the U.S. landmarks that went dark. Many corporations signed on to burnish their green credentials. A bar in Phoenix served a drink called an ecotini -- organic vodka, green tea and an edible orchid.

But if everyone who participated in Earth Hour had left their lights on and instead switched to mundane, high-efficiency compact fluorescent bulbs, simple calculations show, it might have saved 1,368 times as much energy, because the bulbs would have saved energy all year.

Such tension between substance and symbolism runs through the modern environmental movement. After years of conflict with climate-change deniers and a White House that has resisted mandatory efforts to address global warming, the movement has become a crusade that is partly moral statement and partly fashion statement. Earth Hour, Earth Day and the Miss Earth beauty pageant -- "saving the planet, one pageant at a time" -- generate lots of publicity, but they also tend to prompt people and companies to choose what looks good over what works.

"There is a real problem in teaching people not to do something that appears to work, but that actually works," said Severin Borenstein, director of the University of California's Energy Institute, which studies ways to save energy and address climate change. Borenstein said it is hard to persuade people to do things that yield the biggest energy savings, and not necessarily the biggest returns in self-satisfaction.

"It is very difficult to get people to invest in home insulation and energy efficiency, which are much more effective than putting solar

panels on your roof," he said. "Solar panels are popular because you can see you are doing something -- and your neighbors can see it, too."

Leslie Aun, vice president for public relations at the World Wildlife Fund and the person with overall responsibility for running Earth Hour in the United States, agreed that getting people to turn off their lights for an hour has no discernible effect on the climate. What the event does, she said, is give neighbors an opportunity to share candlelit dinners, encourage churches to hold services about the environment and spur schoolchildren to start family conversations about what they have learned about climate change.

Photos of darkened cities raise the visibility of environmental issues and make people feel empowered, Aun said. Campaigns that raise awareness through symbolic acts of personal sacrifice, she added, are not at odds with programs that produce tangible savings.

"You are not going to get people to change what people do by engaging their heads; you have to engage their hearts," she said. "You need symbols to spur action. You are not going to get people to take action unless you get them to care about the issue. You are not going to do that by pulling out the U.N. report on blah, blah, blah."

Aun stressed that the World Wildlife Fund wants to use the momentum generated by Earth Hour to advance its scientific and policy goals. And the organization handed out 1 million high-efficiency light bulbs during the event.

Some 36 million Americans turned off their lights, according to the group's publicity materials, which said that "Earth Hour inspires people all around the world to show their commitment and concern" and that the campaign is "about simple changes that will collectively make a difference."

While the idea that people who are emotionally committed can change their behavior in ways that help the planet seems appealing, a growing body of research suggests that this is not the way large-scale changes in behavior occur. The behavior of individuals, companies and nations is largely determined by structural factors, not personal choices.

Once a person buys a house in the exurbs, for example (or once officials approve such a subdivision), asking people to think about the environmental costs of commuting isn't very effective, because they are already locked into lengthy commutes. In the same way, installing motion sensors that automatically turn lights off at night produces far larger energy savings than depending on people to switch them off.

"Depending on people to make a hard choice every day -- don't turn on the lights so much -- is a less-promising solution than getting people to make a hard choice once," by paying more for a high-efficiency bulb, "and thereafter having the 'save energy' decision be automatic," said Travis Reynolds, a graduate student at the University of Washington in Seattle who studies how societies save energy.

Reynolds's argument is supported by the numbers: Let's say people participating in Earth Hour have 10 100-watt light bulbs in their houses, on average. If you also assume that high-efficiency compact fluorescent bulbs last three years and use only 25 percent of the energy of conventional bulbs, you would have to persuade more than 400 people to turn off their lights for an hour to get the same energy savings as persuading one person to switch one conventional bulb to a high-efficiency bulb.

Gary Flomenhoft, an economist at the University of Vermont, said his state's decision to set up a public utility whose sole job is to reduce energy consumption produced huge savings in energy use, most of which had little to do with individual acts of virtue. The utility goes into businesses and homes and helps people figure out practical ways to save energy. As a result, Burlington today uses the same amount of energy it did in 1989.

"Some people react to ethical and environmental concerns, but a vast majority of people react to price," Flomenhoft said. "The biggest effect on people's behavior is price. When gas reaches \$4 a gallon, everyone talks about hybrids."

As gasoline prices have soared in recent months, the number of people using public transportation has risen sharply, as has interest in fuel-efficient cars. While the U.S. trends are a result of market-driven prices, many European countries have obtained the same results by raising the price of gas through taxes.

The powerful role of structural factors also explains why some personal sacrifices count more than others. When it comes to turning off lights, for example, Earth Hour would have produced far more energy savings -- although no cool photos of darkened cities -- if it had asked people to save energy during the late afternoon, rather than at 8 p.m.

That is because energy use fluctuates during the day. There are times when power companies bring more plants online, and times when plants are taken offline. In general, said Denny Ellerman, an energy and environmental economist at the Massachusetts Institute of Technology,

large energy savings are produced when energy is generated and used in a steady manner.

"The more a power plant operates steadily, the more efficient it will be," he said. "To the extent you can shift the peaks toward the valleys, you are going to improve the efficiency."

Richard Kafka, manager of transmission policy at Pepco, said usage in the Washington area is highest between 4 p.m. and 8 p.m., and lowest between midnight and 4 a.m.

"Which is smarter -- running on level ground or running up and down a hill?" Kafka asked. "There is a characteristic of heat engines that they are most efficient at some point, and anytime I move off that I am less efficient."

Borenstein, at the University of California, said he recently decided to take his own advice about focusing on measurable outcomes. He bought a device called a Kill-o-watt, which can measure how much energy is used by appliances and electronics, and took it around his house to look for savings.

"It turned out the TV and VCR in our guest room, which is almost never used unless I am exercising, uses 17 watts all the time when it is plugged in, and it does this 24 hours a day, seven days a week," he said. By unplugging the devices when they are not used, Borenstein found he could save nearly 150 times the amount of energy that a household with 10 100-watt light bulbs would save by turning them off for an hour.

"We are not going to solve this problem with voluntary measures -- it is a problem of externalities," he said. "It is true of pollution and the way we use oil. We address tailpipe emission problems by asking people to make sure they meet emission requirements -- we actually check. We have found voluntary approaches don't work when it comes to pollution."