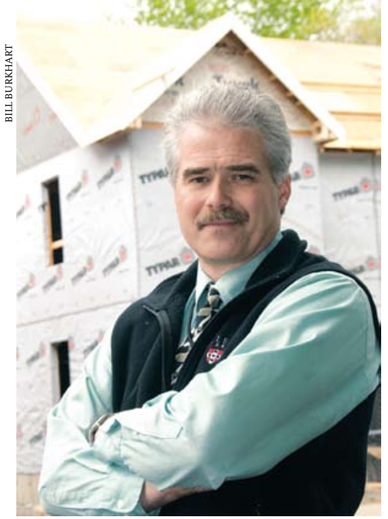
SUSTAINABILITY GROWS ROOTS

The hunt for ways to make Wesleyan more sustainable and energy efficient has yielded significant payoffs with the promise of much more to come.

BY TOM CHRISTOPHER PHOTOGRAPHY BY ANNE MARCOTTY



BILL BURKHART

Sustainability expert Bill Nelligan is framed by energy-efficient senior housing now under construction.

BILL NELLIGAN is assessing Wesleyan's prospects for 2008, strategizing with the intensity of a Belichick. In 2007, says Nelligan (the university's director of environmental health, safety, and sustainability), Wesleyan came in sixth among the NESCAC colleges, recycling 7.06 percent of its solid waste. Just respectable. But Wesleyan did well in its division of the intercollegiate *RecycleMania* competition for Connecticut and it scored sixth in the nation for recycling of corrugated cardboard. He's proud of that, though he points out that *RecycleMania* is a friendly competition and the numbers tend to be soft. "We were up against Arizona State, Miami University, some really, really big schools."

It's paradoxical that such a busy man—this fit, prematurely graying Navy veteran who clearly doesn't squander a minute—should devote so much of his time to the contemplation of waste. That, however, is not only the nature of Nelligan's job, but increasingly a focus for the whole university. There's a new generation of environmentalism emerging. Faced with the prospect of global climate change, we are moving from concern with pollution's impact on our quality of life to more fundamental worries about the survival of our civilization. Wesleyan, as a community and an educational leader, has an essential role to play in this. As Bill Nelligan can testify, students, faculty, and staff are also finding new opportunities in the challenge.

As an environmentalist, Nelligan is self-taught; he joined the Wesleyan staff in 1995 as an assistant facilities manager for the chemistry department. His work included responsibility for the safe disposal of any hazardous waste the department produced, so he was naturally included in the self-audit the university undertook in 2001 to bring itself into compliance with EPA and Connecticut State Department of Environmental Protection regulations concerning not only hazardous waste but also clean air and clean water regulations. Nelligan ended up working closely with the consultants the university hired, developing a uniquely detailed understanding of hazardous waste sources that ranged from the obvious—petroleum-based fuels used by physical plant and grounds maintenance—to the more arcane, such as the acid baths for etching plates used by members of the art department.

His dogged enthusiasm earned him a promotion when the university created a position for a full-time environmental health and safety officer, and made him the natural person to turn to when student activists pushed through the creation of a Sustainability Advisory Group Committee in fall 2007. The goal was to move past the old style of regulation-based environmental activism, in which mere compliance with legal standards is enough. The new aim was to make the university a leader by actively seeking creative ways to minimize any adverse effect it might have on the global environment.

Even if he hadn't been appointed committee chairman, Nelligan clearly would have assumed the role of ringleader. He's erupting with ideas, avid for every detail. He's excited about the five electric cars that the university has purchased for garbage collection, mail service, and other uses. He's working with the Earth and Environmental Science department to install a wind-monitoring station on the former Long Lane School property, in order to explore the feasibility of generating electricity with a wind turbine. He talks of the food service's new commitment to purchase locally produced food, and the composters the university has installed at the students' organic farm to convert the dining halls' food waste into fertile humus.

Depending on how you calculate it, Nelligan says, the university's recycling rate has risen since the last *RecycleMania* in 2007 to the high teens or low 20s (as percentage of solid waste). Just as important, it has become a customer as well as a source, for Nelligan sees the university's purchasing power as a way to foster markets for recyclables. Why, he demands, will recyclers accept only #1 and #2 plastics? Because people don't buy enough recycled goods to create a demand for the lower grades. Carpeting with a 50-60 percent content of PET plastic taken from old plastic soda bottles costs a bit more than the conventional product, but it lasts longer, and it expands the market for reprocessed plastic. Office paper jams the photocopiers when it has a recycled content higher than 30 percent, Nelligan has found, but there's nothing wrong with office furniture made entirely from recycled steel.

John Meerts, vice president for finance and administration, serves with Nelligan on the Sustainability Advisory Group Committee (the membership includes 14 university staff, six faculty, and 12 students). He looks at sustainabil-

A SAMPLING OF SUSTAINABILITY

FAUVER undergraduate housing facility awarded Silver LEED Certification

GEOTHERMAL well system on 24-bed senior prototype house

FIVE electric vehicles

NEW artificial turf made with 20,000 pounds of recycled rubber tires

ENERGY management system monitors energy consumption; able to shed load on command

COMPLETED 29 energy management projects in three years with annual savings of $275,000

COGENERATION facility under construction; will reduce greenhouse gas emissions by the equivalent of 1,290 cars removed from highways

PURCHASED 1 gigawatt hour of Renewable Energy Credits, representing 4.5 percent of annual usage

PARTICIPATING in RecycleMania with 200 colleges

TAKING THE CLIMATE PLEDGE

BY DAVID MCKAY WILSON

When Lee Bodner '91 and a small group of sustainability leaders in higher education launched the American College & University Presidents Climate Commitment in late 2006, they sent letters to 300 top educators across the country, hoping that up to half of them would sign on to the pledge's ambitious goals.

By the time the effort was ready to go public in June of 2007, 240 college and university presidents had signed. Nine months later, there were 500 signatories, including Wesleyan President Michael Roth '78.

By signing the commitment, the college presidents pledged to work to make their campuses climate neutral—to achieve a net result of zero emissions of carbon dioxide, methane or other greenhouse gases on campus. That's the stuff created by the combustion of fossil fuels—be it to heat campus buildings or power vehicles that bring students, staff, and provisions to the university.

"We wanted to set a very aggressive target," says Bodner, 39, who lives in Chevy Chase, Md., with his wife and three children. "By working with the college presidents, we were able to harness their energy to drive long-term change because the presidents can bring together the different parts of a campus."

For Bodner, executive director of ecoAmerica, which helped organize the Presidents Climate Commitment, its success signaled that the nonprofit group he helped found in 2005 would be a player to contend with in the world of environmental advocacy. At a time when a recent Pew Research study showed that global warming had declined in concern among Americans, ecoAmerica has mounted campaigns that seek to restore deep and comprehensive connections between mainstream America and the natural world, which Bodner believes will build support for environmental initiatives.

The group uses the tools of psychographic consumer research and engagement marketing to promote environmental issues. While most environmental groups use what's called "third-person" research, asking whether someone supports or opposes certain policies, consumer research uses a "first-person" approach, which tries to understand motivation. Those were the tools Bodner used in the private sector for a decade at D & R International, which worked with the U.S. Department of Energy to establish and promote the Energy Star brand on energy-efficient appliances. Bodner forged partnerships with corporations such as The Home Depot, GE, and Whirlpool to create the brand.

One of Bodner's college friends, environmental lawyer Jan Hasselman '91 of Earth Justice in Seattle, says ecoAmerica's approach has found an audience.

"Lee is taking the sophisticated tools used to market products and candidates and using them on behalf of the public good," says Hasselman. "He's turning this science around to make the world a better place."

President Roth announced his commitment at his November 2007 inauguration. That followed a campus dialogue on Roth's online blog after a students had scrawled in chalk "Michael Roth—what are you doing about global warming?" on the sidewalk by his office. Thirty students and alumni who responded to Roth's posting urged him to sign the accord.

"We were very gratified that Wesleyan responded, and it did so in a very Wesleyan way," says Bodner.

Bodner says that the environmental spirit on college campuses needs to be encouraged. Earlier this year, ecoAmerica partnered with Monster.com to develop and launch a category called "Green Careers" on its online classified ad site. The group also joined forces with the *Princeton Review* to develop a "Green" rating system for U.S. colleges and universities.

Its next project will target suburban parents to promote the benefits of nature play for children. Studies show that children are playing outside less than ever, losing that important link with the natural world.

"Playing outside has both an educational and a health benefit," says Bodner. "It's a way to connect kids and parents to the environment; we want to convince parents they need a healthy nature to raise healthy kids. "

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ity as both the right thing to do and as a practical matter of dollars and sense. When, in his former incarnation as vice president for information technology, he established the Web-based "Project $AVE" (Sustainable and Viable Efficiencies), student activists in EON (Environmental Organizers Network) supported the program's effort to distribute free compact fluorescent light bulbs to students, but they also came up with their own energy-saving competition among residents of woodframe houses called, "Do It in the Dark."

Even bigger energy savings resulted when Physical Plant swapped all the university incandescent bulbs for fluorescents and installed a computer-controlled energy management system that continually adjusts air handlers throughout most of the campus so that cooling and heating are supplied only as needed. New construction—the Fauver Field residences and the Usdan Center, the $160 million science facility that will replace Hall-Atwater Laboratory—is being built to the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) standards. Usdan, for example, is largely lit by natural light, but computer-controlled shades drop to block solar radiation when the heat inside any room exceeds a preset temperature.

The upshot has been a savings that Meerts touts. At the same time as the university has expanded with new dormitories, a new sports center, and the university center, its electrical usage has steadily dropped since 2005, by as much as 10 percent or more per month during the period of peak consumption in late summer and fall. The power is cleaner than it used to be, too. Wesleyan pays a premium to buy 4 percent of its electricity from "green-power" suppliers that draw on wind, solar, low-impact hydroelectric, and other power sources that don't create greenhouse gases (Wesleyan received an award from the Connecticut Clean Energy Fund for this effort). In the winter of 2008–2009, it will bring on line its own $4.5 million cogeneration unit. Designed to produce 80 to 90 percent of the university's peak electrical demand, this unit will generate electricity more cheaply than it can be purchased from the grid; it will also produce less greenhouse gases and other pollutants per watt than commercial utilities, which use coal and petroleum as well as the cleaner-burning natural gas. And the Wesleyan unit will extract energy from the fuel more efficiently since the heat produced as a by-product of the generation process, which is typically wasted by commercial power producers, will be used to produce steam for heating campus buildings and hot water for domestic use. As a result, co-generation extracts some 60 to 80 percent of potential energy from fuel, compared to the 30 to 40 percent rate achieved by a conventional electric power plant. Though the electricity produced by the cogenerator is not, strictly speaking, green energy since it uses a fossil fuel, still its efficiency and the cleaner burn of natural gas will enable the university to fulfill a commitment it made when it signed on to the "Climate Change Action Plan" established at the 2001 annual meeting of the New England governors and the Eastern Canadian premiers. The goal was to roll back greenhouse gas emissions to a 1990s level by 2010; Wesleyan will be achieving this a year ahead of schedule.

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A father himself, Meerts has a keen sense of the generational divide that characterizes the issue of environmental sustainability. "The other thing I think about is that these students have a much more direct interest in this stuff. You and I may be six feet under by the time this becomes a real problem. These are clever students; they look at this, and they say, 'If we don't do something, it's going to be too late, and it's going to affect us more than this prior generation.' I see the urgency they bring to this."

A new generation of student activists at Wesleyan has been spawned by this issue, one whose sophistication and maturity is, frankly, humbling to a veteran of the 1960s and '70s. The commitment is clearly just as strong, judging by the numbers that attended EON's recent "environmental teach-in," Focus the Nation. There's still the search for an alternative path, though the talk is now of "non-hierarchical" structures rather than non-patriarchical ones, and of "environmental bonding" (doing it in the dark). The tactics, however, are dramatically different, not confrontational (so far, there have been no demonstrations, not a single building occupied) so much as collaborative. The EON membership has been remarkably effective in applying pressure from the bottom up, using research and information as their tools to co-opt the administration.

Jacob Mirsky '08, an EON member since his freshman year, is careful to make clear that he is not a leader of the organization, since it has no hierarchy. According to his colleagues on the Sustainability Advisory Group Committee, which was established at EON's instigation, Mirsky is a *de facto* leader of that group, just by virtue of personal commitment. He's enthusiastic about the growth of the recycling program on campus—that was shaped, he notes, by the surveys EON made of all the residence halls, academic buildings, and the athletic centers. He admits, though, that success has involved accepting the necessity of compromise between the "ambitious and idealistic ideas of students" and the "real-life decisions of the administration, faculty, and staff."

"It's very challenging," Mirsky says, "to have your heart set on a major project or major initiative that you really think the university could benefit from, only to see it's not going to happen." Mirsky is disappointed, for example, that Wesleyan has not pursued solar power more aggressively. He cites all the research that fellow student and fellow member of the Sustainability Advisory Group Committee Nate Kaufman '08 has done on the solar technology and how it could be applied at Wesleyan. Yet to date, the only photovoltaics on campus is a modest one-kilowatt panel that is being installed on the roof of the admission office. The administration, Mirsky says, has preferred to wait, hoping for a decrease in the price of photovoltaic panels as the technology matures. This frustrates Mirsky, who points out that building an industry requires customers.

"On the flip side," Mirsky adds, " there's a lot of gratification. And a lot of satisfaction that I've experienced and a lot of the EON members have experienced because Wesleyan really has been responsive." As an example, he mentions the environmental internships the university has just established. These will create paid, work-study positions for students to provide the kind of support to Bill Nelligan and the Sustainability Advisory Group Committee that EON has to date been providing on a volunteer basis.

Mirsky's majors have been in neuroscience and behavior, and biology, and he foresees a future career most probably in medicine. He says, though, that his four years of experience in environmental activism has been a fundamental part of his Wesleyan education. "You come here as a freshman and you sit down with people who have been working with this [issue] for 10 years, 20 years, 30 years. You sit down with presidents. It's really amazing to know that some of what we do has paid off and hopefully will continue to do so."

For his own part, Mirsky foresees a profound effect not only on how he leads his personal life but also on how he may practice medicine. Eating locally, for example, generally entails a diet richer in fruits and vegetables; as a medical choice, Mirsky points out, that's a diet that stimulates the digestive and immune systems. "It all comes down to the fundamental question, what are you going to do? Every time you take the stairs instead of using the elevator, you're saving energy. Every time you turn off a light bulb, you're saving energy, whether 'green' or fossil fuel."

Bill Nelligan agrees that a lot of personal choices will be the basis of achieving environmental sustainability at Wesleyan. Soon after taking over the reins as university president last year, Michael Roth '78 signed the American College & University Presidents Climate Commitment. This requires the university to develop a plan to become climate neutral. To achieve this goal, Wesleyan must reduce its carbon footprint (the net amount of carbon dioxide, the principal greenhouse gas, the university is responsible for generating) to zero. Because the university cannot eliminate all use of non-renewable energy sources, Nelligan says that reaching this goal will be challenging, but there is much the university can do in the coming years, such as planting more trees, building green roofs, installing solar panels—perhaps even building a windmill. Still, Nelligan insists, if the pursuit of climate neutral is to be more than just a fashionable gesture, it must also involve personal contributions by all members of the Wesleyan community. He has begun to carpool two days a week with another employee, and he hopes students, faculty, and staff will start using the newly established online ride board to share rides. He's trying to keep his highway speed to 60 mph (each 5 mph you drive over 60 mph, Nelligan explains, is like paying an additional $0.20 per gallon for gas). Motion sensors are great, but even better is turning off the lights when you leave the room.

As Jacob Mirsky says, "It's a lot of little changes that gradually accumulate into a bigger shift."

Tom Christopher is a freelance writer who heats his home with a geothermal system.