# SFCC GREEN

Santa Fe Community College moves the green revolution out of the laboratories and into real life

Kerry Sherck

BY NANCY ZIMMERMAN

Santa Fe may sometimes seem like a quaint outpost where the past is frozen in time. But out along the windswept expanses southwest of downtown, miles from the picturesque huddle of adobe structures that give the city its historic flavor, cutting-edge developments are afoot. At Santa Fe Community College, a greener, more sustainable approach to living and working has taken root, propelling the city to the forefront of 21st-century innovation.

The seeds were planted back in 2000, when Santa Fe County created the Community College Planning District with the goal of incorporating sustainability into all future development in the area surrounding SFCC. The idea was to build respect for the environment while promoting community, connectedness, and economic development. In 2004, SFCC created its Center for Community Sustainability, offering classes in renewable energy, water conservation, and environmental technologies. That same year, the City of Santa Fe adopted an economic development plan with the aim of establishing the city as a leader in renewable energy.

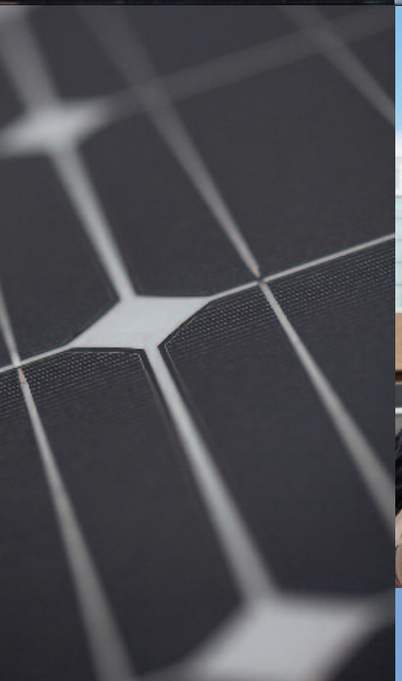
*"I can see the jobs of the future being born right here!"—Nancy Sutley, Chair, White House Council on Environmental Quality*

Community response was enthusiastic, and things progressed quickly. By 2006, the college had created an Associate in Applied Science degree program and a certification program in Environmental Technologies. It also hired a new president, Dr. Sheila Ortego, who built on the existing infrastructure to realize a far-reaching vision of sustainable technologies.

"My plan was to train students for high-skill, high-wage jobs," says Ortego. "Going green wasn't part of my original thinking, although I was certainly interested in attracting clean industry for our workforce. But there was a big push from employees and students for green programs, so we blended our visions."

Ortego embraced the idea of promoting environmentally sound building practices and ramped up efforts to supply the marketplace with skilled workers trained in all aspects of green technology. "The community has been very supportive, passing two bond measure to finance our efforts," she says. "It's really a perfect fit for Santa Fe, a kind of collision of like values and common goals that we can reach by working together."

"Sheila deserves a lot of credit," says Randy Grissom, dean of Economic and Workforce Solutions and director of the college's Sustainable



Students Patrick Ellquist and Angela Arriaga install a solar panel at SFCC.

Top right and bottom left: Kerry Sherck

Top left and bottom right: Jeffrey Atwell

U.S. Senator Jeff Bingaman (left) with Randy Grissom on a tour of the Trades and Technology Center. Santa Fe Community College President Sheila Ortego in front of the biowall, part of the Gold LEED-certified Health and Sciences Center.

Left: Jeffrey Atwell; Right: Insight Photo

Technologies Center. "She had the idea early on to make SFCC a leader, and she set an example. She was one of the original signatories and the first college president in New Mexico to join the American College and University Presidents Climate Commitment, and she led the way in developing a five-year strategic plan that included a commitment that all the college's actions would follow the principles of sustainability."

To that end, a number of initiatives to reduce the institution's carbon footprint are underway, including:

- A campus-wide recycling program
- Installation of campus-wide low-consumption LED lighting
- Installation of a biomass training unit, housed at the Early Childhood Development Center
- Installation of an automated biomass heating system that heats the entire campus
- Recycling of wastewater for campus irrigation
- Installation of a computerized control system to maximize the efficiency of the heating, ventilation, and air conditioning systems
- Installation of solar thermal collectors to heat the campus swimming pool
- Installation of a grid-connected solar photovoltaic system
- Campus-wide use of recycled copy paper
- Free filtered water to reduce the use of plastic bottles
- Food-service utensils made from biodegradable material
- Establishment of a Green Task Force made up of faculty, students, staff, and community members

These initiatives are succeeding in ways both subtle and striking. The LED lighting has reduced electricity consumption by about 54 percent, and since the installation of the biomass heating system, which burns waste wood from area forests in low-emission furnaces, campus heating costs have plunged dramatically. "We actually got a call from PNM asking if our meters were broken because our consumption had dropped to almost nothing," laughs Ortego.

The Sustainable Technologies Center encompasses the School of Trades and Technology, housed in the new state-of-the-art Trades and Advanced Technology Building, which began in 2008 and is continuously undergoing improvement. "The building is intended to be a symbol of sustainability," says Grissom. "We'll be applying for LEED certification when it's completed, but in the meantime we're already at the Gold level, and hope to achieve a Platinum rating by the time we're finished."

LEED (Leadership in Energy and Environmental Design) certification is the process by which the U.S. Green Building Council solicits independent verification that buildings, homes, or communities are designed and built using strategies for achieving high performance in areas such as sustainable site development, efficiency in water and energy use, materials selection, and indoor environmental quality. Ratings are based on a 110-point scale ranging from basic certification to Silver, Gold, and Platinum levels.

The Trades and Advanced Technology Building is already a model of energy frugality: even in a total blackout, its 17,000-gallon solar tank can heat the building for up to three

days. “In fact, during the 2011 outage when the area’s natural gas supply was interrupted during extremely cold weather and public buildings were being shut down, we were designated to become a shelter,” says Grissom. “It turned out that wasn’t needed, fortunately, but we were ready to help if necessary.”

With the entire campus now increasingly walking the walk as well as talking the talk, the curriculum for training students to work in the green economy has taken center stage. Far-reaching in scope, it incorporates both theoretical and practical elements in project-based learning situations. With a major in Environmental Technology, students can be certified to fill such positions as green building project manager, green energy foundation project manager, energy auditor and analyst, environmental planner, public utility regulations analyst, and environmental risk management assistant, among others. Those who obtain a certificate in the Solar Energy Program can seek careers in solar industry sales and technical support, solar photovoltaic systems installation, solar hot water installation, solar software design engineering, and solar construction project management. Another certificate program, Water Treatment Operations, trains students to operate water or wastewater treatment facilities and to obtain certification from the New Mexico Environment Department. Additional programs in Green Building Systems and Green Building Skills train students as home-improvement retrofitters to install energy-efficient appliances and insulation, and to work as green carpenters, plumbers, electricians, and construction managers.

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SFCC is also the base for the New Mexico Energy$mart Academy, where students and industry professionals learn energy-saving techniques for weatherization, HVAC auditing, infrared thermography, and other specialties. Through a grant from the Department of Energy, free green-jobs training is offered throughout the state via a mobile training lab that includes a pressure cabin, combustion training lab, attic demonstration unit, and insulation training wall. Project manager Amanda Evans says that the classes are geared to conform to EPA and OSHA requirements for health and safety, with attention paid to hazardous materials like lead and asbestos.

“It’s a phenomenal opportunity for contractors, architects, appraisers, and government officials to update their skills,” says Evans. “This is important because existing buildings were constructed under whatever codes were in effect at the time, and there are health and safety consequences for homeowners and companies if the contractors they hire to do the retrofitting don’t understand how the new systems work.”

“Most businesses and homeowners are now beginning to see that there are economic reasons to build green and to retrofit existing buildings,” points out



Matt O Photo

Rooftop Classroom with Gathering Space Skylight

Grissom. “It’s gone from being primarily an environmental movement to an economic one. Buildings cost a little more initially, but those costs are recouped in energy savings over time, so it makes economic sense to go green.

“We’re not only training people in specific skills,” he adds, “but also in entrepreneurship and creative thinking. In our community, green businesses are well received, and we encourage our graduates to start businesses of their own.”

Luke Spangenburg, who in 2010 became the first graduate of the Environmental Technology Program in Applied Science/Solar, has done just that. In addition to working at SFCC as an instructor and director of its Biofuels Centers of Excellence Grant, he is CEO of New Solutions Energy Corporation, a Santa Fe–based company creating algae growing systems and providing technical support to promote the use of algae in food production and sustainable energy projects.

“SFCC’s hands-on approach is about applied knowledge in the real world,” he says. “In biofuels we have about 80 years of academic research but only a couple of years of applied research. I chose to work with algae because of its promise as a fuel and also as a nutrient. Algae creates more than 50 percent of the world’s oxygen, and for every ton it produces, it absorbs 1.8 tons of carbon dioxide, so it’s effective in combating global warming. You can use it as a soil remediator, fly airplanes on it, make plastic and even high-grade pharmaceuticals with it.”

Spangenburg’s enthusiasm for his chosen field and the college’s program stems from recognizing the need for real-time skills and products that make use of the knowledge yielded by high-level research. “It’s one thing to make a beautiful Ferrari, and another thing to drive it,” he notes. “SFCC trains people to put their knowledge to work, and

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Jeffrey Atwell

Student Ivan Red in the plumbing lab

## Get Involved

You don't have to be enrolled in credit classes to support and participate in SFCC's green revolution. Here are some ways to join the effort:

• ***Continue supporting bond issues*** to fund the college's building and retrofit initiatives. "The community support for our bond elections has been key to our ability to move these programs forward," says Randy Grissom, director of the School of Trades and Technology. "We're very grateful for it."

• ***Take a class.*** In addition to the credit courses and certification/degree programs, a number of classes are offered to the public through the Continuing Education Program. The Home Building and Design Series includes Introduction to Green Building, Great Southwest Design in an Energy-Efficient Home, Energy-Efficient Remodeling, and Renewable Energy Systems. There are also classes in water harvesting and recycling.

• ***Attend a lecture***. The college hosts a *Let's Talk Green* lecture series and intensive hands-on events covering everything from zero-waste to sustainable agriculture to composting. Included is a series of sustanability educational seminars by nonprofit Carbon Economy Series, an organization that has partnered with the college to feature renowned speakers on topics such as safe food systems and waste-to-revenue streams. **carboneconomyseries.com**



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Luke Spangenburg in the biofuels lab

*"We're not only training people in specific skills but also in entrepreneurship and creative thinking."*

the positive environment is contagious; there's a lot of energy and excitement, and they've got the most impressive lab in the state."

The overall sustainability project remains a work in progress. "We have a sustainability steering community, which works as a centralized repository for ideas—we're constantly looking at new initiatives like composting projects, setting up a community garden that can supply our culinary arts program and our cafeteria, and putting lights on timers to reduce waste," says Grissom.

The committee is seeking to minimize the impact of the college's commuters, working with the county to improve trails so students can hike and bike to campus and encouraging carpooling by designating carpool parking closer to the front door. They're also looking into buying small buses and vans that run on biofuels, supplied in part by the college, to pick up commuters at train stations and bus stops, and hope to provide free or low-cost plug-ins for electric cars.

All of this activity has put the college, and Santa Fe County, on the map as a leader in the movement toward economic and environmental sustainability. Visitors have come from around the country and as far away as North Korea to view the operations, and the National Wildlife Federation brought SFCC officials to a conference in Washington, D.C., to share information about their programs and projects.

The college's work dovetails with federal efforts to stimulate job creation through green initiatives that reduce energy consumption, explore alternative energy sources, and promote environmental health. As the federal government works to accelerate the transition to a sustainable economy through sustainable building and energy policies, the college has emerged as a prime example of how that can be done. In July 2011, when Nancy Sutley, chair of the White House Council on Environmental Quality, toured the facilities, she said, "I can see the jobs of the future being born right here!"

Perhaps the most surprising—and encouraging—aspect of SFCC's green accomplishments is the fact that they've been facilitated by an uncommon collaboration among federal, county, city, business, and nonprofit entities working in cooperation with the college. "Santa Fe is very receptive to green efforts," says Ortego. "We're lucky to live in a place that has that mindset. This kind of cooperation makes so many things possible."

### RESOURCES

**Santa Fe Community College**
sfcc.edu

**School of Trades and Technology**
sfcc.edu/school_of_trades_and_technology

**New Mexico Energy Smart Academy**
sfcc.edu/NM_energySmart_academy