The most important element of on-campus sustainability, though, is the Lyndon P. Lorusso Applied Technology center, which opened in 2006 as the first public Leadership in Energy and Environmental Design (LEED)-certified building in Massachusetts. The U.S. Green Building Council awarded it a gold LEED level, the highest ranking, because of its environmentally friendly conservation and renewability measures. These measures result in the building using 35 percent less energy than a conventional building, and include making use of natural light and passive solar energy, automatic sensors to turn off the building's light fixtures when a room is naturally lit or unoccupied, and 122 photovoltaic panels on the roof to help meet the building's electricity needs.

All of these on-campus greening efforts have been spearheaded by President Kathleen Schatzberg, who signed the American College & University Presidents Climate Commitment (ACUPCC), which commits signatory institutions to develop plans to reach climate neutrality as quickly as possible through emissions reductions and renewable energy use. Since signing the Commitment, CCCC has become a leader in regional and national efforts to improve sustainability on campuses.

At the encouragement of CCCC, all Massachusetts state colleges and universities became involved in a statewide Sustainability Task Force, and all of the presidents of those schools have now signed the ACUPCC. This made Massachusetts the first state in the nation to achieve a sustainability commitment from each of its state colleges and universities. This success sparked the "Schatzberg Challenge," in which the CCCC President urged every member school of ACUPCC to reach out to other colleges and universities and encourage sustainability commitments.

About Clean Air-Cool Planet

Established in 1999, Clean Air-Cool Planet (CA-CP) is in the business of solving the global warming problem, engaging and mobilizing Americans to take action on climate change. A science-based, non-partisan 501c3 organization, CA-CP has succeeded in energizing universities, businesses, communities, citizen's groups, and institutions to reduce their own greenhouse gas emissions and to bring concern about climate change directly to their elected officials and the presidential candidates to demand action.

In December 2007, CA-CP merged with the Washington-based Climate Policy Center (CPC). The new CA-CP combines strategic civic engagement and constituency-building at the local and regional levels with cutting edge national policy design and analysis. CA-CP's local, institutional and grassroots networks help move on-the-ground action and effective policy, while CPC adds its in-depth national policy insight and expert advocacy to CA-CP's climate solutions programs.

CA-CP is headquartered in Portsmouth, New Hampshire, with offices in New Canaan, CT, and Washington, DC.

MASSACHUSETTS TECHNOLOGY COLLABORATIVE

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CLEAN AIR COOL PLANET

100 Market Street, Suite 204, Portsmouth, NH 03801
603-422-6464
161 Cherry Street, New Canaan, CT 06840
203-966-5429
1730 Rhode Island Ave., Suite 707, Washington, D.C. 20036
202-775-5190

Case Study

CLEAN AIR COOL PLANET

Cape Cod Community College

Teaming up with local high schools to prepare students for a cool future

INTRODUCTION

The Environmental Technology program at Cape Cod Community College (CCCC) emerged in 1994 in response to Cape Cod's significant environmental degradation. Since then, this state-funded, green-workforce training program has improved and expanded to include training in new technologies such as renewable energy sources and energy efficiency measures used to combat climate change. Along with two nearby technical vocational high schools, CCCC is preparing students with the knowledge and technical skills needed to join the growing environmental workforce. The program also provides students with valuable real-world learning experience through internships designed to help the student and the organization where they intern.

At the same time, the college has become a leader in sustainability by greening its own campus and encouraging other schools to do the same. As a result, CCCC has become a leading voice in the environmental movement among institutes of higher education both regionally and nationally.

Cape Cod Community College

HIGHLIGHTS

- The newly developed Environmental Technology program gives students the knowledge and technical skills in science, engineering, communiciations, and economics needed for successful environmental careers. The degree program allows students to earn certificates in five different areas: Coastal Zone Management, Environmental Site Assessment, Geographic Information Systems, Wastewater Management, and Water Supply.
- The Environmental Technology program includes hands-on training in energy efficiency and renewable energy technologies, such as solar PV, solar thermal, and small wind. Certification in these areas provides an additional qualification for CCCC graduates entering the job market.
- CCCC partners with to nearby Regional Technical High Schools, which have integrated renewable energy into their vocational training in fields such as carpentry and plumbing. Students from the technical high schools can earn college credits from CCCC.
- CCCC is a leader in campus sustainability, cutting down on water and energy use across the campus. The new Lyndon P. Lorusso Applied Technology Building is LEED Gold-certified building.

ENVIRONMENTAL TECHNOLOGY PROGRAM

The Department of Labor predicts that the number of job openings for environmental technicians will increase by 9 to 17 percent by 2014. Through its Environmental Technology academic program, CCCC provides its students with skills and knowledge that will make them immediately marketable and well prepared for these jobs as they join the workforce. Students gain the technical skills to pursue environmental careers through a combination of science, engineering, communications, and economics coursework. Developed in partnership with the Mass Maritime Academy and UMass Dartmouth, the program often requires students to take courses at all three schools.

Students choose among five different certification programs in the curriculum - Coastal Zone Management, Environmental Site Assessment, Geographic Information Systems, Wastewater Management, and Water Supply - and then gain the specific technical skills needed to attain jobs in

their elected discipline. For instance, those certified in Geographic Information Systems (GIS) learn concepts of geography, cartography, database management, spatial mapping, and how to analyze systems and processes using GIS. GIS technicians can find jobs with a number of employers, ranging from environmental consulting companies to municipal governments to offices of facilities management.

Since 1994, more than 300 Environmental Technology students have held internships in their chosen field with a vast number of institutions, including colleges, Massachusetts government agencies, municipal governments, non-profits, and research laboratories. Students also gain 40 hours of OSHA training in Hazardous Waste Operations and Emergency Response (HAZWOPER).

A weekend solar thermal workshop is popular with homeowners.

CCCC also offers practical courses in renewable energy as part of the environmental technology curriculum. *Renewable Energy Sources* provides an overview of solar, wind, hydropower, biomass, hydrogen and fuel cells, among other renewable technologies, while *Energy Efficiency and Conservation* teaches students to identify and assess different energy efficiency methods in terms of both financial savings and environmental impact. More advanced courses focus on the installation of specific renewable energy technologies, such as photovoltaic, solar thermal, and small wind. Students can earn certificates in each type of installation, allowing them to better pursue renewable energy jobs. Photovoltaic and solar thermal installations located on-site at CCCC double as energy sources and teaching tools for these programs. A wind turbine is planned for the college as well.

CCCC has received support for the Environmental Technology program from two National Science Foundation Advanced Technology Education Grants, totaling about $600,000 in funding. The latest grant is dedicated to supporting the renewable energy curriculum as well as the CCCC partnerships with the two vocational technical high schools and other educational institutions.

PARTNERSHIPS WITH VOCATIONAL TECHNICAL HIGH SCHOOLS

The college partners with two nearby technical high schools, Upper Cape Cod Regional Technical High School in Bourne and Cape Cod Regional Technical High School in Harwich. The high schools combine vocational training with a conventional academic high school curriculum. Each trade program must place 70 percent of its students in a trade-related job, post-secondary education, or the armed services following graduation and prepare students to pass statewide standardized tests.

Upper Cape Tech offers 14 different trades. One of its progressive new trade programs, Environmental Technology, teaches both practical skills – such as analyzing air, water, and soil samples or sampling hazardous waste – and background knowledge, such as state and federal environmental regulations. Like every trade program at Upper Cape Tech, Environmental Technology prepares students to obtain jobs immediately after high school while also allowing them the option to continue building their skill set in college. Students who wish to continue their educations at CCCC benefit from the close partnership between the schools. Articulation agreements allow the technical high school graduates to earn college credit at CCCC for the courses they've already taken. Upper-level students at Upper Cape Tech can also enroll directly in coursework at CCCC while still in high school.

Real-world experience: CCCC students learn from actual installations, including this one on campus.

"We all want small wind, but CCCC students are among the select few who know how to fix them."

Environmental Technology is not the only program at Upper Cape Tech that prepares its students to join the green workforce. Traditional trades such as plumbing and carpentry have also evolved to include renewable technologies. Plumbing students learn about solar thermal technologies, electrical students learn about wind energy and photovoltaics, and carpentry students learn about energy efficiency measures in buildings.

Grants supporting Environmental Technology programs at CCCC and the high schools have allowed Cape Cod Tech and Upper Cape Tech to finance PV, wind, and solar thermal installations on-site. Upper Cape Tech also has a biodiesel processor that is used in the Environmental Technology shop. Key funders of curriculum development and technology at the high schools include the National Science Foundation and Cape Wind, the company on track to build a commercial-scale, off-shore wind farm at Horseshoe Shoals off the southern coast of the Cape..

In sum, the partnership between the college and the two technical schools has allowed all three institutions to develop their educational programs that involve hands-on experience with renewable energy. Students who graduate the technical high schools can choose either to enter the workforce or to continue their education at the college, where they can receive college credit for some of their advanced technical high-school courses. The new technology installations at the high schools also allow for the future possibility that the college could hold classes in the high school facilities in the evenings, increasing community access.

GREENING THE CAMPUS

By making energy and resource conservation priorities in the college's purchasing and management decisions, Cape Cod Community College is leading by example. It has, for instance, expanded its recycling program and is working to conserve water use in college buildings with low flow technologies. Its "low mow/no mow" initiative replaced resource-intensive lawns with natural meadows where native plants and wildlife can flourish without excessive watering or caretaking and garnered the college a "Leading by Example Innovation Award" from the Massachusetts Executive Office of Energy and Environmental Affairs. A CCCC faculty sustainability committee has been established to discuss environmentally friendly actions that each academic department can put into place.

Cutting the ribbon? No - cutting the cord! President Kathleen Schatzberg cuts ties to the electricity grid at a ceremony in 2007.