One of the greenest universities practices what it teaches

UNIVERSITY OF CALIFORNIA, SAN DIEGO

Tony Haymet
Vice Chancellor for Marine Sciences and
Director of Scripps Institution of Oceanography

Art Ellis
Vice Chancellor for Research

Q. Is there something in UC San Diego's institutional DNA that would equip it to be one of the greenest universities?

UC San Diego was founded by Roger Revelle, the former Scripps Oceanography director and a visionary ocean and earth science leader. Revelle and the late Scripps Professor Charles David Keeling established a landmark monitoring program more than 50 years ago that has proven that carbon dioxide released from the burning of fossil fuels has been steadily accumulating in the atmosphere. This program and others have provided solid scientific evidence about global warming and helped build a base for UC San Diego's environmental leadership.


Roger Revelle

Q. Have UC San Diego researchers made new findings that increase your sense of urgency?

We don't have to look beyond our own campus in the past few months to find further confirmation that we must address climate change in a systematic way immediately. Scripps' renowned climate researcher V. Ramanathan concluded this summer that the atmospheric increases in greenhouse gas concentrations have most likely already committed the world to enough warming to have dangerous consequences to society. Scripps Professor Ray Weiss led a study finding that a "new" industrial gas 17,000 times more effective at warming than carbon dioxide is present in the atmosphere at higher levels than previously assumed.

Q. Is it important that a university take the lead to reduce its own carbon footprint?

It is vital that we take the lead in combating a problem that we've played a major role in identifying and monitoring. UC San Diego is a community of roughly 50,000 students, faculty, staff and visitors. As we institute new policies and raise awareness of how people can live green, we are helping more than 50,000 ambassadors spread the word and make what is cutting-edge today common practice tomorrow.

Q. Can our society afford to significantly cut its emissions of greenhouse gases?

The more salient question is, 'Can we afford not to?' Scripps scientists participated in the 2007 Intergovernmental Panel on Climate Change report, which helped show that the costs of greenhouse gas emission reductions could cost billions of dollars. Nearly two dozen Scripps scientists helped estimate the multi-billion-dollar cost of reducing global emissions of greenhouse gases, findings that were included in a recent groundbreaking report by the Intergovernmental Panel on Climate Change, the group that shared the 2007 Nobel Peace Prize with former Vice President Al Gore. By contrast, the potential costs of mitigation, of recreating vast chunks of infrastructure damaged as a result of climate change, are incalculable. That specter dwarfs even the prevailing financial crises that are the focus of so much global attention. It demands prudent action now.

Q. How are UC San Diego students preparing themselves academically for making a difference on climate change?

Climate change is intrinsically interdisciplinary, drawing upon disciplines like engineering, chemistry and economics. Many of our undergraduate and graduate students have become accustomed to working across multiple disciplines as part of their education. Our campus also offers interdisciplinary majors and minors that address aspects of climate change, like our environmental systems major and an exciting new marine biology major.

Q. Have the actions of UC San Diego students on their own campus had any impact?

Our students are not only exposed to sustainability concepts in the classroom. More than 80 student organizations are organized around environmental, social justice or sustainability issues. Student research projects have included studies on the use of biodiesel in some of our campus fleet vehicles and the production of biofuels from algae grown in desert ponds.

Q. How is UC San Diego marshaling its world-class research expertise to address climate change?

We are seeing rapid growth in the number of projects that are bringing interdisciplinary teams of researchers and students together to address climate change, including use of nanotechnology to improve the efficiency of photovoltaic devices. Student researchers are also installing the largest-of-its-kind system of micro-weather-monitoring stations that are helping the campus lower heating and cooling costs, and they are working with professors on unmanned aerial vehicles to track atmospheric pollutants across the oceans.

Q. Is there something unique about UC San Diego's academic culture that has enabled it to shift gears so quickly?

Our campus is a magnet for attracting some of the most distinguished faculty in the world with an impressive track record for achieving scientific, medical and technological breakthroughs. UC San Diego provides a terrific infrastructure to help its faculty, staff and students make exciting new discoveries in both disciplinary and interdisciplinary areas.

Steve Relyea
Vice Chancellor for Business Affairs

Q. Most universities have switched to energy-efficient fluorescent lights. Can I walk onto the UC San Diego campus and see more fundamental changes?

UC San Diego has a 12-point strategy that goes beyond today's typical energy conservation efforts. The strategy includes extensive retrofitting of building systems, the use of waste methane gas as a renewable energy source, broad-scale deployment of high-efficiency solar panels, and development of a campus smart energy grid. Faculty leadership in key areas allows us to use the campus as a living laboratory for prototyping new solutions.

Q. You mentioned that you're creating a 'smart energy grid.' What does that involve?

It involves creating an energy infrastructure that goes beyond having timers, thermostats, and manual effort to determine how buildings, equipment and people use energy. It involves a micro-weather station network that feeds real-time data to building HVAC systems and irrigation systems to optimize energy and water use. It involves advanced energy storage so that energy can be acquired and stored at off-peak times and then used at on-peak times. It involves distributed generation of energy from multiple sources on campus and an ability to export energy at a moment's notice as we did during the 2007 wildfires in Southern California.

Q. Budgets are tight. How does UC San Diego make the investments required to be one of the greenest universities?

Our new renewable energy projects require little or no investment from the university by leveraging third-party partners who are eligible for tax incentives and rebates. Where we have invested resources, there is a clear return on the investment that is financed through energy savings in future years.

We also benefit from having brilliant faculty who eagerly volunteer to work on energy projects, enthusiastic students who donate their time on countless projects, and exceptional staff who provide much of the creativity and expertise behind the projects.

Q. How completely 'green' will UC San Diego become in the future?

I really don't know the limit of how green we can become because I continue to be surprised by the ingenuity of our faculty and the resourcefulness of our staff. UC San Diego has always been a leader on climate change issues, and so we have been very aggressive in setting targets for ourselves. For calendar year 2008, we set a target of 50 percent waste diversion from landfills, and instead we achieved 67 percent diversion. We will be a zero waste campus by 2020. We are targeting climate neutrality by 2025 and have set specific targets and dates for procurement, water usage, transportation and other areas over the next decade.

ABOUT US

Tony Haymet is director of Scripps Institution of Oceanography at UC San Diego. He also is UC San Diego's vice chancellor for marine sciences, dean of the graduate school of marine sciences, and a professor of oceanography at Scripps. He is a founder and currently vice chair of CleanTech San Diego, a business development organization dedicated to the practical response to climate change issues, particularly meeting the goals of California Gov. Arnold Schwarzenegger's landmark greenhouse gas legislation. Haymet also launched Scripps Partners for Hazard and Environmental Applied Research, an industry-based partnership for funding higher risk research projects in response to climate change.

Art Ellis joined UC San Diego as vice chancellor for research and professor of chemistry and biochemistry in 2006. From 2002-06, he served as the director of the National Science Foundation's Division of Chemistry. Prior to that, he served as a faculty member in the department of chemistry, University of Wisconsin-Madison.

Steve Relyea is the vice chancellor for business affairs at the UC San Diego, overseeing an annual operating budget of more than $2.4 billion, including financial services, human resources, facilities, information technology, telecommunications, housing, dining services, police, bookstores/retail, purchasing, environmental health and safety, and other campuswide administrative functions. Relyea serves on the boards of several nonprofit organizations and in 2004, he was named the Distinguished Business Officer of the Year by the National Association of College and University Business Officers. Relyea received his bachelor's degree in psychology and master's degree in business administration at the University of California, Irvine.

UC San Diego
Local Impact, National Influence, Global Reach

9500 Gilman Dr. ◆ La Jolla, CA 92093
(858) 534-2230 ◆ www.ucsd.edu