



CMU Participates in Local Climate Initiative Action Day

CMU students and staff participated in the Pittsburgh Climate Initiative 350.org Action Day on October 24, 2009 by helping to plant trees in city neighborhoods. The Higher Education Climate Consortium, a guiding committee within the Pittsburgh Climate Initiative, organized its member schools for a Day of Action to reduce greenhouse gas emissions. To do this, they partnered with Pittsburgh tree-planting organization Friends of the Pittsburgh Urban Forest and TreeVitalize to spend a day planting trees together to reduce emissions. Student representatives from each of the ten Pittsburgh schools, including CMU, attended. Also in attendance were Mary Whitney a faculty member from Chatham University, representatives from Green Building Alliance, and Barbara Kviz, environmental coordinator with CMU Facilities Management Services.

Two volunteer events were held that day and about 35 volunteers turned out in total. On the South Side, they planted 20 trees, and in Downtown they prepared two community gardens for winter. Brief discussions were also held on the 350.org campaign and how their campuses fit into the Pittsburgh Climate Initiative. Volunteers seemed to enjoy themselves and were excited to be involved in off-campus greening projects.

Kviz reported that “It was hard work, as the trees were huge (250-300 lb root balls) and the holes were difficult to dig through the Western PA clay and rock, but a really great experience to meet students from other schools and collaborate on such a great project. We all worked really hard that day!!”

Why the number 350? As stated on the www.350.org web site, “350 is the most important number in the world – it’s what scientists say is the safe upper limit for carbon dioxide in the atmosphere.” 350 parts per million has become the goal for “everyone from Al Gore to the U.N.’s top climate scientist” to stabilize the planet and avert disaster.

Selected Content:

CMU’s Commitment to Sustainable Building.....	2
Alumni Spotlight.....	4
Faculty Recognized.....	7
New Cohon Fellowship.....	10
Deborah Lange Named ESWP President.....	Back Cover



Carnegie Mellon students, and others, plant trees in neighborhoods in support of Pittsburgh Climate Initiative 350.

CMU Committed to Sustainable Building

Following the century-old tradition of learning by doing, Carnegie Mellon University is not only a pioneer in sustainable design and construction practices, but it has become a leader in building sustainable projects on campus. Over the last decade, Carnegie Mellon has developed eight Leadership in Energy and Environmental Design (LEED) certified buildings at the Pittsburgh campus, with four more projects in review. These projects range from residential facilities to world-class research centers to renovated dining centers. They include Stever House (the first LEED-certified university residence hall in the country), Henderson House (the first LEED-certified residence hall renovation in the country), the Posner Center and Kraus Campo, the Collaborative Innovation Center, 300 South Craig, 407 South Craig, the Carnegie Mellon Cafe and the Gregg Hall/Porter 100 renovation project. Considering that the City of Pittsburgh has 39 LEED-certified projects, the eight Carnegie Mellon projects represent 20% of the City certified projects; the City in turn ranks 8th in the country for LEED-certified projects.

The four projects with certification pending - the Doherty Hall Phase 2 renovations, the Tepper West Entry Addition, the Tepper 1st Floor Renovations and the Gates and Hillman Centers - build upon the lesson of the already-certified projects as well as the resources of the University's academic and research core. When these four projects are ultimately certified, Carnegie Mellon's 12 projects will represent the largest concentration of LEED certified building in the Commonwealth. As Pennsylvania ranks 3rd in the nation for total number of LEED-certified projects (behind California and Washington), the University will continue to be a key proponent and facilitator of sustainable development. Carnegie Mellon, long a leader in sustainable design education, has now become a leader in sustainable construction.



Collaborative Innovation Center



Stever House



Kraus Campo



Carnegie Mellon Cafe



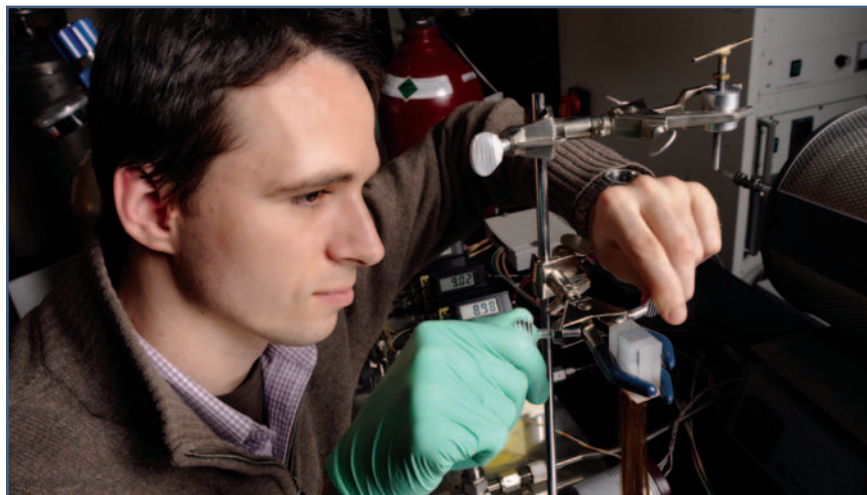
Gates Hillman Centers



Henderson House

Collaborative Institute Fosters R&D on Energy Infrastructure

Energy is the foundation of continued improvement of the standard and quality of human life. The development and management of our energy resources will be critical to human civilization in whatever form it exists, for as long as it exists. In that light, the fossil energy basis on which we now rely is a stepping stone; a resource to enable the development of an energy infrastructure that is sustainable over hundreds of millennia. The Institute for Advanced Energy Solutions (IAES) was established in 2007 to address this issue.



Catalytic processes, such as water-gas shift and Fischer-Tropsch synthesis, play important roles in environmentally-responsible use of fossil energy resources. IAES post-doctoral researcher Petro Kondratyuk examines a multi-channel microreactor that he developed for high-throughput discovery of new, more efficient catalysts

In partnership with Carnegie Mellon University (CMU), the University of Pittsburgh (Pitt), West Virginia University (WVU), Penn State University (PSU) and Virginia Tech (VT), the National Energy Technology Laboratory (NETL) established IAES to foster a research and development program that leads the evolution of the US and global energy infrastructure to a sustainable and secure future.

The initial NETL-IAES research portfolio is one that advocates the safe, efficient and rational use of our fossil energy resources as the stepping stone to the development of an indefinitely sustainable energy infrastructure. The portfolio is organized around technical focus areas in Materials; Process Systems; Catalysis; CO₂ Management; Sensors; Energy Conversion Devices; Energy Resources; Ultra-deep and Unconventional Oil and Gas; Water Management; and Combustion and Gasification.

The NETL-IAES was founded originally as a partnership between NETL, CMU, Pitt and WVU. In 2009, PSU and VT joined the Institute. More recently, the university partners joined URS Corporation as prime contractor to NETL to provide fossil energy research and engineering services. Today, 19 faculty and 36 Ph.D. students representing 8 CMU departments are part of IAES' core staff. Additional faculty members and their students collaborate with NETL-IAES faculty or directly with NETL research scientists based at the NETL sites in Pittsburgh, PA; Morgantown, WV; Albany, OR; and Fairbanks, AK.

NETL is part of the U.S. Department of Energy's (DOE) national laboratory system. NETL conducts research in coal, natural gas and oil technologies, analyzes energy systems and international energy issues for the DOE Office of Fossil Energy, and performs contract and project management for a number of other DOE offices.

For more information, visit the IAES web site at <http://iaes.cheme.cmu.edu/>.

Alumni Spotlight

WAYNE BALTA (BS CIVIL ENGINEERING, 1982)



My CMU training was extraordinarily valuable throughout my career. I often say that I learned how to learn while I was at CMU.

In the College of Engineering, there was always a great focus on defining the problem statement. That's not always a trivial task, and its importance can be overlooked! Coupled with this was an emphasis on the analysis, synthesis and evaluation of potential integrated, cross-disciplinary solutions to societal challenges. In fact, I recall an old CMU engineering course named ASE (Analysis, Synthesis, Evaluation). I recall learning things like how to use finite element analysis for structural engineering or how to discount cash flows to determine net present value or an internal rate of return. But what I got from my education at CMU that was more important than those types of skills was a passion for disciplined work, careful and complete analysis, and intellectual rigor.

In addition, there's another aspect of my CMU training that's been extremely helpful to me: learning how to practice teamwork and be a team leader. I'm far from perfect at that but I constantly focus on it. It's obvious to say that I couldn't have done well as a project manager without it. During my professional career, I have frequently looked back at my CMU experience and realized how early exposure to CMU's practice of genuine interdisciplinary teamwork has helped me.

There were three factors that guided my decision to attend CMU for college. First, having been born and raised in Pittsburgh – and always having been a big fan of the region – I was happy to remain in the area when it came time for college.

Second, like all kids, as I went through high school, I thought about what I wanted to study at college. I had always loved math and science – particularly physics – and I liked to build things. As a kid, I was constantly building tree houses and forts and “shacks” in the woods. So I realized engineering was a good match for me.

Third, I had a great uncle – Walter Talvick – with whom I was close. Whenever he'd visit our family, he would tell me about growing up during the Great Depression and his good fortune to have been able to attend Carnegie Tech. He was a Carnegie Tech alumnus from 1931 and remained a big fan of CMU. CMU was a natural choice for me and I selected Civil

Engineering as my major. I'm grateful I was admitted.

During my undergraduate years at CMU I was fortunate to have been able to secure summer jobs related to my studies. I spent one summer in the late 1970s with GAI Consultants working as a construction inspector on the rehabilitation of the Coraopolis Bridge. I spent two other summers working with the Pennsylvania Department of Transportation as a highway construction inspector on numerous road projects throughout the Pittsburgh area. I enjoyed each of these assignments very much, and they furthered my interest in project management. I realized I liked working with and organizing teams of diverse people from different organizations for the purpose of completing an engineering project.

It was during my junior year at CMU, however, that I knew I wanted to pursue a master's degree in civil engineering with a focus on project management. So following my graduation from CMU in 1982, I went to MIT to pursue this. While retaining my interest in project management at MIT, I also did coursework outside of engineering in finance, law, urban planning and information systems. Between the two years of that degree program, I secured a summer job with IBM in its Real Estate and Construction Division working in Burlington, VT, working on the construction of a new set of buildings for IBM's microelectronics business. I joined IBM full time following my graduation from MIT in 1984.

At IBM, I began as a project manager for Design & Construction in the Real Estate and Construction Division. I worked with IBM business units to plan new facilities, with architects and engineers to design them, and with construction contractors to build them. I was privileged to work on a wide range of facilities including lab space, office buildings, a data center, a waste water treatment plant, and a 69KV electrical substation across Vermont, Maryland, New York and North Carolina. After several years of this type of work, however, the company needed a project manager for a groundwater remediation project in Indiana and I was asked to handle that new responsibility. It was during this assignment that I became fascinated by all things environmental. Not only were there unique technical challenges involving the characterization of a problem, as well as design

Alumni Spotlight *(cont.)*

WAYNE BALTA *(BS CIVIL ENGINEERING, 1982)*

and construction, but there was also a much greater intersection with law and regulation, government agencies, and various third parties with an interest in the work. It was challenging but I enjoyed it very much.

Shortly thereafter, I was appointed as the executive assistant to IBM's corporate vice president in charge of global real estate, a function which included environmental engineering and public policy. It was during this assignment that we carefully studied the rapidly increasing external interest in corporate environmental responsibility and concluded that IBM ought to have a specific corporate staff function dedicated to environmental affairs and energy management. I joined that new function upon its creation, initially defining and leading IBM's global strategy for environmental leadership. Today I serve as IBM's Vice President of Corporate Environmental Affairs & Product Safety.

I'm fortunate to be involved with an extensive and diverse set of subjects in my role with IBM. The staff I lead oversees all of IBM's global intersections with the environment and sustainability along with energy efficiency, toxicology, chemical management, product safety and other regulated I/T hardware compliance matters. Environment or sustainability has obviously been a hot topic, and I believe it will remain that way going forward. The world cannot successfully develop without environmental responsibility. In my role, I'm involved with IBM's global business operations and with the types of integrated solutions we bring to market consistent with what we call "A Smarter Planet."

From an operational perspective, energy and environmental matters intersect horizontally across IBM's work in research, product development, manufacturing, procurement, logistics, fulfillment, services, software, real estate, governmental programs, legal, health & safety, finance, etc. These matters may have originated in the past; they may represent present day challenges; or they may require judgment about future policy, law, regulation, standards or societal expectation. At every moment, we are simultaneously involved with an array of different work streams and focus areas. Among all of the individual projects we address, however, we always maintain constant attention to IBM's Global Environmental Management System. It's the foundation for what we perform and it's the reason why we can sustain environmental leadership from year to year and from topic to topic.

IBM's call for "A Smarter Planet" involves reinventing the way the world works – among industry sectors and by governments – to capitalize on the ability to integrate digital infrastructures with physical infrastructures and to apply software-based business analytics to uncover insights, patterns, and new opportunities for business, societal and environmental efficiency. Smart grids, intelligent transportation systems based on road user charging, advanced water management, smart buildings and smart cities are some current areas ripe for collaborative innovation. So in addition to ensuring IBM performs as an environmental leader, I also work with my colleagues across the company to help inform and facilitate work in these areas. Sustainable development – wherein economic success and environmental protection go hand in hand – is an integral aspect of "A Smarter Planet." We've said that the way the world works simply isn't smart enough to be sustainable.

My advice to current CMU students is this: Enjoy this opportunity in your life to learn. I know it can be a tough and demanding place. It was tough when I was at CMU and I know from my experience on university advisory boards that it still is. That toughness will eventually serve you well. Please try to recognize that you're very fortunate to be a student at Carnegie-Mellon. Cherish it. And when you graduate, commit yourself to doing good work that makes a positive difference in society.

At a broad level, embrace challenges, build partnerships and collaborate with others in your work. Exercise good judgment, take strategic risks, and think with a wide aperture. And be sure to earn the trust of others and help others grow and perform to the best of their God-given abilities. As far as more specific skills are concerned, pay great attention to your oral and written communications. If you need to improve your communication skills, do so. It's very important. Practice being a good listener. Consider learning a little about project management, negotiation, economics, the law, public policy and the role of the news media. You'll probably encounter all of these matters no matter what you choose to do. Finally, point your ethical compass in the proper direction and never, ever allow yourself to get lost in that regard.

Media Panel Discusses G-20 Press Coverage

Carnegie Mellon's College of Engineering and the Steinbrenner Institute for Environmental Research and Education hosted a panel of media experts assigned to discuss how they cover large events like the G-20 summit where world leaders debate the health of global economies. The G-20 leaders came to Pittsburgh on September 24–25 to discuss a range of global economic issues.

M. Granger Morgan, head of the department of Engineering and Public Policy at Carnegie Mellon, moderated the September 21 panel, designed to give journalists a forum to explain the tools they planned to use for covering the summit, and what piqued their interest when it comes to creating tomorrow's headlines.

Panel members included Howard Fineman, *Newsweek's* chief political correspondent, senior editor and deputy Washington bureau chief; James R. (Bob) Hagerty, a *Wall Street Journal* reporter who is a former managing editor of the *Asian Wall Street Journal* in Hong Kong, London, Brussels, Paris and Atlanta; Jonathan Kersting, associate publisher and editor of the Pittsburgh Technology Council's TEQ news magazine; and Dennis Roddy, a *Pittsburgh Post-Gazette* staff reporter assigned to covering the G-20.



Fineman said he was thrilled to be back in his hometown. "This kind of global event only makes the city more visible and appealing for other large conventions and meetings," said Fineman.

In general, panel reporters and editors reported that most large-scale events take a life of their own demanding very specific coverage from top economic and financial reporters.

The journalists also noted that more emphasis is now being placed on getting stories into the electronic media. "We're now armed with digital cameras, digital tape recorders and cellphones to grab our headline stories," said Kersting. "We literally have become mobile newsrooms."

The Steinbrenner Institute sponsors media fellowships and panels designed to help Carnegie Mellon faculty and students better understand how the news media works and adapts in the changing news environment. The next media fellowship, scheduled for June 2-4, 2010, will be held to coincide with the UN World Environment Day "Water Matters" conference in Pittsburgh on June 3 and will focus on water issues.

Civil and Environmental Faculty Recognized for Outstanding Research and Teaching

Faculty from the Civil and Environmental Engineering Department were recognized for the outstanding efforts they are making in the field of environmental research and education. Last summer, the Association of Environmental Engineering and Science Professors (AEESP) recognized Gregory V. Lowry and Jeanne M. VanBriesen for exceptional contributions in research and education.

Lowry, professor of civil and environmental engineering and director of CEINT (Center for Environmental Implications of Nanotechnology), was named the 2009 recipient of the Malcolm Pirnie/AEESP Frontier in Research Award. This award is given annually to recognize an AEESP member who has advanced the environmental engineering and science field through recognized research leadership and pioneering efforts in a new and innovative research area. Professor Lowry was recognized for his innovative work in environmental nanotechnology.



Gregory V. Lowry



Jeanne M. VanBriesen

VanBriesen, professor of civil and environmental engineering and director of WaterQUEST (Water Quality in Urban Environmental Systems), was the 2009 recipient of the McGraw-Hill/AEESP Award for Outstanding Teaching in Environmental Engineering & Science. This award is given annually to honor a faculty member who has made substantive contributions directly through class-oriented teaching, as enhanced through the development of new pedagogic techniques. Professor VanBriesen was recognized for innovations in environmental engineering education at both the undergraduate and graduate levels.

Sustainability and Computer Science Speaker Series

On Friday, March 19, David A. Dzombak, faculty director of the Steinbrenner Institute for Environmental Education and Research, spoke as a part of the Sustainability and Computer Science Speaker Series. He spoke on “Mississippi River Water Quality and the Clean Water Act: Progress, Challenges, Opportunities,” regarding the efforts of the National Research Council of the National Academies to conduct an evaluation of the implementation of the Clean Water Act in protecting and restoring water quality along the entire length of the Mississippi River. He has been involved with this effort since its inception in 2005.

Future events in the series will be on Friday, April 23 and Friday, May 21. Future speakers will include Robert Hampshire, assistant professor of operations and public policy in Heinz College, and David Anderson, assistant professor in the Computer Science Department; topics are TBA. More information can be found on the SCS on-line calendar of events (<http://calendar.cs.cmu.edu/scs/week/>).

The goals of this series are to create a forum for discussion of ways in which computer science can and will contribute to sustainability, energy, and the environment, and to foster greater consciousness, conversation, and collaboration in this area. The hope is to cast a wide net: topics will include both computer science research relevant to sustainability challenges, as well as research areas in sustainability, energy and the environment which may provide fertile ground for novel work involving computational thinking.

While viewed from a computer science perspective, this seminar is deliberately – and necessarily – interdisciplinary, and speakers and participants from all areas are invited. The organizers hope to foster some “meta discussions:” exploring opportunities for collaboration, funding, outreach, and so forth.

Prometheans Promenade to Downtown Pittsburgh Sites



As the annual meeting of the Society for the History of Technology (SHOT) drew to a close on the morning of Sunday, October 18, 2009 a group of engineers and historians, known as the Prometheans, enjoyed a walking tour of the engineering and architectural highlights of downtown Pittsburgh. The Prometheans are a special interest group within the Society engaged in promoting coordination among historians and engineers in developing humanistic curricula in engineering education. Promethean Co-chair Jack Brown, of the Department of Science, Technology, and Society in the University of Virginia's School of Engineering and Applied Science, suggested the tour as an entertaining and informative alternative to the usual brunch business meeting. The morning was cold and damp, but twenty or so hardy souls decided to brave the elements.

Steinbrenner Institute Executive Director Deborah Lange and Vagel Keller, a visiting professor of history at CMU, teamed up to lead the tour and produce a keyed map and sightseeing narrative, which was handed to each participant. The walk began at the Pittsburgh Hilton, from where the group noted the changes over time at The Point before following Ft. Duquesne Boulevard along the Allegheny River to the David L. Lawrence Convention Center, which was the largest "green" building in the U.S. when it was expanded and renovated in 2003. The U. S. Green Building Council awarded it a Gold LEED Certification. Pausing under the convention center's sweeping ultra-modern overhang the group was struck by the contrast with the adjacent Ft. Wayne railroad bridge, a massive, black metal structure built by the Pennsylvania Railroad during the first decade of the 1900s, which still carries the trains of successor Norfolk Southern today.

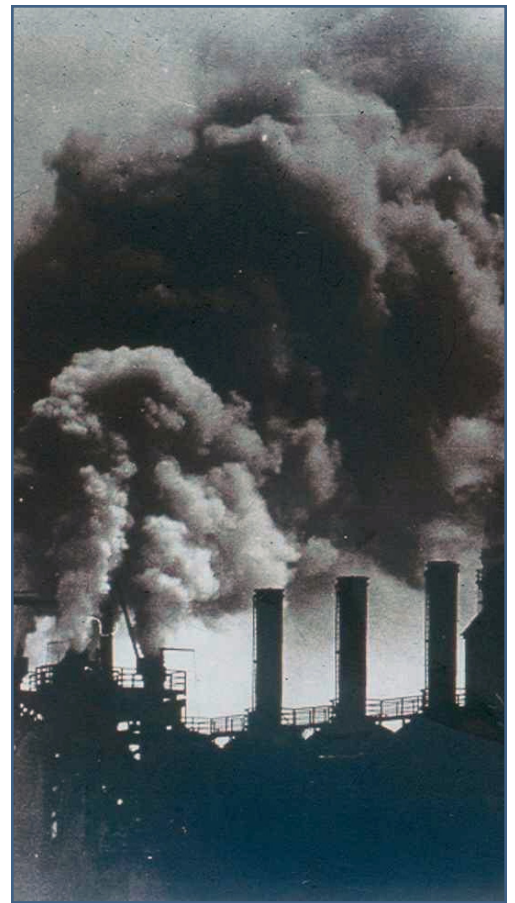
Proceeding to the intersection of Grant Street and Liberty Avenue, the Prometheans inspected the interior of the domed portico of architect Daniel Burnham's Penn Station, now converted to up-scale apartments and housing the AMTRAK station in its basement. Continuing toward the Monongahela River on Grant Street, the tour passed U.S. Steel Tower, noting the unexpected discovery of abandoned railroad and canal tunnels during the excavation for its foundation. They took a side trip to see the stainless steel dome of the Mellon Arena, and stopped briefly to view the Art Deco interior of the Koppers Building before taking a break for warmth and coffee in the elegant lobby of the Omni William Penn Hotel.

The planned tour included nearly three-dozen sites, which proved to be overly ambitious. So, with time running short and planes to catch for some of the Prometheans, the group decided to forgo the planned side trips to sites along the Monongahela River and followed Forbes Avenue through Market Square back to the convention hotel. The group quickly broke up to go their separate ways, but not before the exchange of many handshakes and kind compliments for the tour leaders, who enjoyed the experience as much as the participants. Thanks go also to Professor David Hounshell, Chair of the SHOT Local Arrangements Committee and fellow Promethean, for coordinating the meeting space and A/V equipment for the orientation and to the members of his volunteer staff who helped with the set up and other logistics.

Homecoming Event Offers Environmental Dialogue

At Homecoming each year, the Steinbrenner Institute hosts an environmental dialogue on a topic of interest to alumni that are revisiting Carnegie Mellon and Pittsburgh. On Saturday, October 31, more than 35 alumni gathered in the Tartans Pavilion (the 'green' eatery adjacent to the Gesling Stadium playing field) for a discussion entitled "Pittsburgh Then and Now: An Environmental Transformation." Guest speakers included Jerome Dettore (CivE '69) of Michael Baker Corporation (former director of Pittsburgh's Urban Redevelopment Authority) who spoke about how our environmental challenges of the past have created opportunities for the future: especially in the revitalization of brownfields. Dr. Vagel Keller, visiting professor in History, then spoke about Pittsburgh's urban history and the development of urban technological systems.

We were pleased to be joined by other champions of the environment. Carnegie Mellon President Jared Cohon, who has led regional water quality management efforts, and Carnegie Mellon Alumni Board Chairman Richard Creech, a CIT grad who is tackling some tough environmental issues in South Florida were in attendance. The program was moderated by SEER Faculty Director, Dave Dzombak.

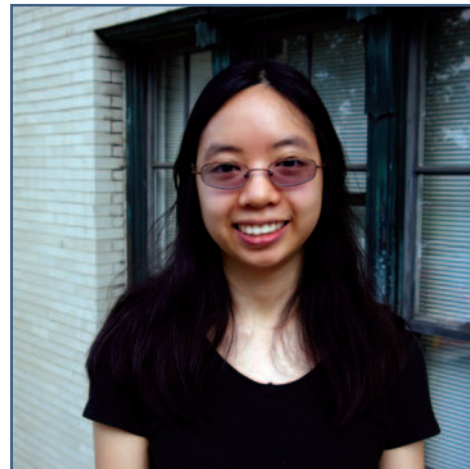


New Cohon Fellowship Committed to Environmental Engineering

Through a generous gift to the Inspire Innovation Campaign for Carnegie Mellon, President Jared Cohon and his wife Maureen Cohon have established the Jared and Maureen Cohon Graduate Fellowship in Civil and Environmental Engineering.

The fund established with their gift will be used to provide fellowships to graduate students in engineering in the Carnegie Institute of Technology, with a preference for civil and environmental engineering (CEE) students specializing in environmental engineering under the aegis of the Steinbrenner Institute for Environmental Education and Research.

The first recipient of the Jared and Maureen Cohon Graduate Fellowship in Civil and Environmental Engineering is Stacey Louie, a first-year graduate student in CEE. Louie did her undergraduate work at the University of Texas at Austin where she majored in chemical engineering and developed her interest in environmental engineering through research. Her graduate research at Carnegie Mellon focuses on environmental implications of nanotechnology and her research supervisor and CEE advisor is Professor Gregory Lowry.



Cohon Fellow Stacey Louie

This personal commitment from the Cohons underscores their extraordinary commitment and dedication to Carnegie Mellon, and their confidence in the Steinbrenner Institute and CEE in generating scientific breakthroughs in environmental issues.

Colcom Creates Opportunity for Carrying Capacity Conversation

On November 9-10, 2009, the Steinbrenner Institute (SEER) hosted an immersion workshop to explore the topic of the environmental carrying capacity of the United States. Various national experts were invited to speak on topics included non-food resource consumption and availability; food consumption and availability; and the impact of populations growth on resources and standards of living. Students moved in and out of the sessions in these focus areas.

This workshop was organized as part of a SEER project sponsored by the Colcom Foundation to explore the dimensions of U.S. environmental carrying capacity. The project, which involved faculty from several CMU colleges, determined that there is a need for research to develop broadly useful aggregate measures and indices of resource consumption and quality of life, to link these measures to population growth, and to make the data and measures widely available for the purpose of informing the distributed decision making that influences population growth. The workshop was organized to examine various kinds of carrying capacity measures and analyses, for major categories of resources.

William Coleman, with Global Footprint Network, was the keynote speaker in a panel discussion on key challenges to measuring resource availability regarding the issue of non-food resource consumption and availability. Other panel leaders included Ken Cassman, from the University of Nebraska, leading a discussion on whether food production is limiting and how to estimate the impact of increased demand, as well as David Pimentel, from Cornell University, leading a discussion on the linkages between resource consumption, quality of life, and related public policy options. Panelists hailed from Carnegie Mellon University, the University of Colorado, Ohio State University, Arizona State University, and the Oak Ridge National Laboratory.

Participant bios and presentations can be found at: <http://www.cmu.edu/steinbrenner/Initiatives/carrying-capacity/>

SEER's David Dzombak Chairs Prestigious National Research Committee

Carnegie Mellon University's David A. Dzombak has been named chair of a new National Research Council (NRC) Committee, which will provide advice to the U.S. Army Corps of Engineers on scientific, engineering and water resource issues.

"I look forward to working with an experienced group of scientists and engineers assembled by the National Research Council and with the leaders of the Corps of Engineers on the complex water resource challenges facing the nation," said Dzombak, the Walter J. Blenko Sr. professor of civil and environmental engineering at Carnegie Mellon and faculty director of the Steinbrenner Institute for Environmental Education and Research.

Dzombak said the committee will develop a series of reports to help the Army Corps of Engineers anticipate and prepare for emerging water resource challenges. In addition to working with the Corps, the committee will work with experts and representatives from other federal agencies, including U.S. congressional staffers, state governments and the private sector.

"We are also charged with serving as a forum for occasional workshops on issues ranging from flood risk management to hydroecosystems restoration and water management implications of climate change," Dzombak said.

Dzombak also has contributed to the expertise and professional service at the local, state and national levels. He currently serves as a member of the Environmental Protection Agency Science Advisory Board and chair of the SAB Environmental Engineering Committee. He chaired the NRC's Committee on the Mississippi River and Clean Water Act, and currently serves on the NRC Committee on Clean Water Act Implementation Across the Mississippi River Basin. He is an associate editor of the journal *Environmental Science and Technology*.

CMU President Chairs NRC Committee on Energy Costs

In other National Research Council (NRC) news, CMU President Jared Cohen has co-authored a paper on the hidden costs of energy, in the March/April edition, of *The Environmental Forum*. The article is based on the NRC report "Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use" released in Fall 2009. Co-authors of the article include Maureen Cropper, professor of economics at the University of Maryland at College Park; Daniel Greenbaum, president and chief executive officer of Health Effects Institute; and Raymond Wassel, senior program officer at the National Research Council. President Cohen chaired the NRC Committee, and Professor Scott Matthews of Civil and Environmental Engineering and Engineering and Public Policy also served on the Committee.

The NRC committee examined the costs of energy production and use on human health and the environment and the monetary value of many energy-related burdens and resulting damages not addressed through existing policies. It points to air pollution caused by fossil fuel-fired electricity generation and the transportation sector as the largest sources of damages and looks at the energy production and use as major sources of greenhouse gas emissions.

The NRC report committee concluded that estimates of damages alone are not sufficient to provide a guide to policy, while acknowledging that the most efficient policies tend to be those that target the damages themselves. Drawing from economic theory, it suggests that the damages associated with pollution emissions should be compared and balanced with the costs of reducing emissions. As well as considering economic efficiency in addressing these damages, it states that other policy goals need to be considered, for example, including considering which members of a population, may be more vulnerable to a particular external effect.

The NRC report is available at the web site of the National Academy Press:
http://www.nap.edu/catalog.php?record_id=12794

Student Delegates Devise Campus Sustainability Strategies

In December, the Steinbrenner Institute sponsored graduate student delegates to represent Carnegie Mellon at the Student COP15 Delegation in Copenhagen, Denmark. The student conference was held in parallel with the council at Parties 15 international negotiations on climate change in Copenhagen. Vanessa Schweizer, Justin Parisi, and Mike Blackhurst participated in the four-day event with fifteen other universities representing four continents. Schweizer is a Ph.D. student in engineering and public policy; Parisi is a master's student in civil and environmental engineering and the Tepper School of Business; and Blackhurst is a Ph.D. student in civil and environmental engineering, and engineering and public policy.

Hosted by the University of Copenhagen and Yale University, the delegation was charged with designing projects that would make their universities more sustainable. The intention was to capture the creativity of students, share existing sustainability programs, and collaborate.

The conference allowed university delegations to work in focus groups, paired with a sustainability expert to openly discuss potential campus sustainability project, as well as allowing individual delegations to prepare and present on their selected projects.

Given the criteria set by the COP15, and through discussions with Associate Professor of Civil and Environmental Engineering Scott Matthews and Environmental Coordinator for Facilities Management Barbara Kviz, the CMU delegation recommended implementing university-wide, near-zero-waste events as its campus sustainability project.

As envisioned by Schweizer, Parisi, and Blackhurst, near-zero-waste events would apply to any events where the provided services may generate a waste output. The most ubiquitous example at Carnegie Mellon is a catered event. As the students reported, most events will generate waste but the two primary goals of near-zero-waste events are to reduce the amount of total waste generated and divert a maximum amount of waste from being deposited in a landfill or incinerated.

The implementation of the CMU project has been under discussion with the Green Practices Committee this year. The proposal includes working closely with CulinArt, the university's catering provider, to generate low-waste options for event coordinators across the university.

As reported by the CMU delegates, it was clear at the conference that CMU is a leading sustainable campus. As Schweizer noted, "other universities don't have anything like Green Practices or the Steinbrenner Institute." Blackhurst also noted that "CMU has a good knowledge base...people understand what the sustainability issues are." The students did find that other universities are measuring and advertising the resources committed to sustainable projects, but, Schweizer added, "it's not clear what the end results of these projects are," Schweizer added.

Schweizer, Parisi, and Blackhurst set forth recommendations for CMU to further its sustainability efforts, including 1) considering the development of a formal accounting system for the resources being committed to sustainability; 2) make explicit the resources available for sustainability projects; 3) develop evaluation criteria for sustainability projects; 4) fully evaluate the potential for cost-savings projects; among others.



Professor Lester Lave to Receive Prestigious Environmental Award

Carnegie Mellon University's Lester B. Lave will receive the 2010 Richard Beatty Mellon Environmental Stewardship Award from the Air and Waste Management Association at the association's annual meeting June 24 in Calgary, Canada.

"This is a wonderful honor, and I am so very pleased to be recognized by my peers for ongoing work in the important areas of air pollution and waste management control," said Lave, the James H. Higgins University Professor of Economics at the Tepper School of Business, a professor of engineering and public policy and co-director of the university's Electricity Industry Center.

The award is given to an individual whose contributions of a civic nature have aided substantially in pollution abatement and for developing increased interest for the cause of air pollution control and waste management for the betterment of the environment.

"This award is a wonderful tribute to the creative and dynamic professional work of Professor Lave. For more than 50 years, he has made substantial contributions to advancing environmental science, policy and regulatory approaches in the U.S. and worldwide," said David A. Dzombak, the Walter J. Blenko Sr. professor of civil and environmental engineering and faculty director of Carnegie Mellon's Steinbrenner Institute of Environmental Education and Research. "In addition to using his powerful intellect, creativity and communication skills to make research contributions, he has used these same gifts to bring research developments and new thinking about environmental stewardships to the public realm."



Water Matters! Global Water Conference - Don't Miss It

June 3, 2010 - \$25
David L. Lawrence Convention Center
Pittsburgh, Pennsylvania

Presented by: Pittsburgh World Environment Day Partnership

Learn more about the future for and protection of our waters. Join citizens, students, business owners, watershed groups, and community leaders from across our region and North America to be part of a remarkable, eye-opening exploration of ways Water Matters! The conference is open to the public and intended for all audiences. Lunch is included with conference registration.

For information about being part of the water innovations, hands-on learning exhibition area, please visit the conference web site by visiting <http://www.pittsburghwed.com/watermatters/>.

Partial list of keynote speakers and panelists:

- * David Ainsworth, UN Convention on Biological Diversity
- * Peter Anin, Institutes for Journalism & Natural Resources
- * Herb Buxton, US Geological Survey Toxic Substances Hydrology Program
- * Marla Cone, Environmental Health News
- * Don Correll, American Water
- * Marc Edwards, Virginia Tech
- * Amy Fraenkel, UNEP Regional Office for North America
- * Greg Koch, Global Water Stewardship Program, The Coca-Cola Company
- * Mike Magee, healthy-waters.org
- * Rich Meeusen, Badger Meter Co and Milwaukee 7 Water Council
- * James Rogers, Duke Energy
- * Carl Safina, Blue Ocean Institute

SEER Sponsors Potential CMU Solar Decathlon Team

This October, the U. S. Department of Energy hosted its biennial Solar Decathlon Competition in Washington DC on the National Mall. With assistance from the Steinbrenner Institute, seventeen Carnegie Mellon students were able to visit the nation's capital over mid-semester break. These students took the opportunity to study the houses in the 2009 competition and make plans for another Carnegie Mellon team to compete again in 2011.

The Solar Decathlon is an international competition in which twenty university-based teams compete in ten categories to determine who can design and build the best solar-powered house. Points are awarded in the competitions for achievements ranging from running ten loads of laundry per week to creating a modern and comfortable living space. This year, for the first time since the establishment of the competition, houses were able to deposit their energy to the electrical grid instead of storing it in large battery banks. Providing electricity back to the grid instead of storing it in batteries allows each



house to sell excess electricity back to the grid, reducing both the economic strain on the home-owner and the need for new power plants. Thus, the houses were judged on their ability to exceed their energy consumption by contributing more energy to the grid than they consumed.

The seventeen students who attended the competition represented a portion of Carnegie Mellon students interested in restarting a Solar Decathlon team. The team consists of students from a diverse group of disciplines who exemplify the interdisciplinary approach needed for success in the Solar Decathlon. The team currently includes a range of fields from architecture and engineering to math and drama.

While attending the Solar Decathlon, the students brought many different perspectives afforded by their educational experiences, and each formed unique insights and opinions which will influence the design for the CMU house. Arthur Notaro, a junior architecture major, noted that “it is important to not overemphasize aesthetics in balancing the formal design of the structure,” while Celia Ludwinski, a sophomore chemical engineer, was “fascinated by the use of water as a means of temperature regulation.” The students also each had their own favorite house - Debbie Gruner, a sophomore cognitive science major enjoyed the combination of form and function presented by the Germany team in their split level layout. Ming Ming Lin a junior architecture major, on the other hand, thought the Germany house had “an absurd amount of solar panels on all four facades” and preferred the Illinois and Minnesota houses for their use of super-insulated walls and integration of reclaimed and recycled materials.

The Carnegie Mellon student team has decided to pursue the 2011 competition. The team submitted a proposal to the Department of Energy in mid-November and was invited to participate in the second round of proposals. A second proposal and model will be submitted in mid-March. Everyone is invited to join to help send a message about our commitment to a greener future.

Profile On:

BILL ELLIS, TRUSTEE ADVISOR TO THE STEINBRENNER INSTITUTE

Dr. William Ellis, a Carnegie Mellon Trustee since 1998, has engaged with the Steinbrenner Institute as an advisor at the invitation of President Cohon and Trustee Lowell Steinbrenner. Bill is an alum of Carnegie Mellon (BS, Chemical Engineering, 1962), and has a long history of service to the university. Through his diverse career, he also has a long history of experience with environmental issues, which he has brought to his interactions with the Steinbrenner Institute leadership and affiliated faculty members.

Bill began his career as a management consultant with McKinsey & Company, where he worked with energy and petrochemical industry companies, regulatory agencies, and other organizations at locations throughout the United States, Europe, and South America. In 1976 he joined Northeast Utilities, New England's largest electric utility, and subsequently held several senior executive positions, including chairman and CEO from 1983-1993, and chairman of the Board from 1993-1995. Since 1995 he has been affiliated with the Yale School of Forestry and Environmental Studies, where today he is Senior Visiting Fellow, Lecturer, and Resident Fellow, with primary focus in the Industrial Environmental Management Program.

At Yale, Bill is an instructor in various graduate courses, including Industrial Ecology, Business Concepts for Environmental Managers, Environmental Aspects of the Technological Society, Greening Business Operations, and Environmental Management and Strategy. He also supervises master's student projects and advises master's students in other matters as well.

Bill has been very active in his service on the Carnegie Mellon Board of Trustees. He serves on several Board committees and has served on Presidential Advisory Boards for six units of the university, including those for the Carnegie Institute of Technology, the Mellon College of Science, the Department of Civil and Environmental Engineering, the Department of Engineering and Public Policy, the Department of Biological



Sciences, and now also the Steinbrenner Institute. He has brought energy and wisdom to his service in these important advisory activities for the university.

In addition to his service at Carnegie Mellon, Bill is a member of the Board of the Pew Center on Global Climate Change, of the MassMutual Financial Group, of Renegy Holdings, Inc. (developer, owner, and operator of biomass-fueled power plants), of the MetroHartford Chamber of Commerce, as well as the Board of Advisors of Soltage, Inc., a developer of solar-power facilities.

In a meeting with Steinbrenner Faculty Director Dave Dzombak and Executive Director Deborah Lange during Homecoming weekend in October 2009, and in a follow-up January 2010 meeting with various affiliated faculty members, Bill learned about the educational and research activities of the Steinbrenner Institute, asked a lot of questions, and put forth a number of good ideas. Bill is already providing valuable advice and assistance to help the Steinbrenner Institute move to the next level in our activities. All faculty members affiliated with the Steinbrenner Institute are grateful for Bill's interest, time, and experience which he has shared so freely and passionately. Thank you Bill!



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SEER's Deborah Lange is Named ESWP President

Carnegie Mellon University's Deborah A. Lange was recently named the 123rd president of the Engineers' Society of Western Pennsylvania (ESWP). One of her first duties as president was to host the society's annual banquet in February, featuring legendary Titanic explorer Robert D. Ballard.

"As the new ESWP president, it is my goal to develop engineering-focused educational programs that will provide mentoring and guidance to K-12 students, teachers and counselors," Lange said. "Dr. Ballard's Jason Project programs for young scientists and his popular children's books, along with his discoveries of lost ocean liners and warships, help us bring attention to the importance of science and engineering in our daily lives," Lange added.

Lange said she also wants to elevate the role of engineers in the local economy and promote engineering as a career path. She is also director of The Western Pennsylvania Brownfields Center, which serves as a vehicle to enhance the growth of brownfields cleanup and development throughout the region.

"The ESWP is very fortunate to have such a talented engineer and researcher to be the 123rd president of the society," said Anthony DiGioia, past president of the ESWP and an adjunct lecturer in the Department of Civil and Environmental Engineering at Carnegie Mellon. "Deb will smoothly execute the society's goals of promoting continuing education for all practicing engineers, and strengthen our drive to entice more school-age children to become interested in engineering as a career."

Lange received a bachelor's degree in civil engineering from the Pennsylvania State University in 1979. She earned a master's degree in 1982 and a Ph.D. in 2001 in civil and environmental engineering from Carnegie Mellon.



Keynote speaker Dr. Robert Ballard, ESWP President Dr. Deborah Lange, and Metcalf Award recipient Dr. "Red" Wjittaker at the 126th Annual Banquet of the Engineers' Society of Western Pennsylvania.

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