

Clean Energy News



Number 2: Spring 2008

Clean Energy
is
Green Energy

*Big Ideas.
Big Opportunities.*

*University of
South Florida*



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Florida's Vision is Green

After months of intense collaborative negotiation, four Florida universities have banded together to form the Florida Energy Systems Consortium in an effort to secure the state's renewable energy future and security, through increasing university-industry collaboration, widening the energy production infrastructure and broadening the deployment of renewable energy technologies to the public. The four universities include Florida State University, University of Central Florida, University of Florida and the University of South Florida.

This effort seeks to capitalize on Florida Governor Charlie Crist's executive orders 07-126, 07-127, and 07-128 which order the wide-scale of remediation of greenhouse gases and carbon sequestration and implementation of renewable energy technologies to alleviate the strain on the economy by the worldwide increase of fuel costs and the projected fuel shortages engendered by natural or manmade disasters.

On July 13, 2007, Governor Charlie Crist signed three Executive Orders initiating Florida's energy policy. The Governor also signed partnership agreements with Germany and the United Kingdom outlining an agreement that focuses on climate policies and mutual economic benefits.



The Executive Orders demonstrate a commitment to reducing Florida's greenhouse gases and increasing energy efficiency. As a result, Florida will pursue renewable energy sources such as solar and wind energy, as well as alternative energy such as ethanol and hydrogen. Governor Crist signed Executive Order 07-126, titled "Leadership by Example: Immediate Actions to Reduce Greenhouse Gas Emissions from Florida State Government"; Executive Order 07-127, "Immediate Actions to Reduce Greenhouse Gas Emissions within Florida"; and Executive Order 07-128, "Florida Governor's Action Team on Energy and Climate Change." Governor Crist also signed two partnerships agreements, "Partnership on Global Climate Change, Action between the United Kingdom and the State of Florida," and "Partnership on Global Climate Change, Action with the Federal Republic of Germany and the State of Florida."

During May 2007, the CERC facilitated the Florida Energy Summit held at USF/Tampa. Proactively led by industry leaders, the Summit's objective is to continue a forum discussing actions needed to establish Florida's energy supply and security needs in the 21st century; prioritize R&D and policy needs for the physical security of the energy infrastructure; and continuity of clean energy supplies, including solar energy, biofuels, hydrogen, clean technologies and nuclear power.

Who is the Clean Energy Research Center?

Research with a Mission

Holding the vision of creating a clean and resilient energy system for the State of Florida, the CERC is focused on furthering alternative renewable energy technologies to aid in recovering from a disastrous event (terrorist or climate related).

Harnessing
the sun for
our
renewable
energy
solution.

According to recent studies each hurricane causes power interruption losses of \$100M per day in Florida and the total power interruption losses for the country amount to more than \$100B per year. Transforming this disastrous threat into an economic opportunity by developing innovative new technologies will make the energy infrastructure of Florida disaster resilient. This will provide a great opportunity for renewable energy-related businesses to establish their manufacturing and commercialization centers in Florida.



Some companies have already committed their resources to invest in Florida based on the promise of technology transfer of USF thin film photovoltaic technologies, photocatalytic detoxification and disinfection technologies and biodiesel manufacturing technologies.

According to the recommendations of the recently conducted 2007 Florida Energy Security Summit held at USF/Tampa, a resilient energy system for the state would be based on increased use of renewable energy technologies (photovoltaics,

advanced solar, biofuels, biomass), distributed power generation, transportation based on domestic biofuels and electricity, clean domestic fuels for power generation such as coal gasification/liquefaction with carbon sequestration, nuclear power and a robust transmission and distribution system.

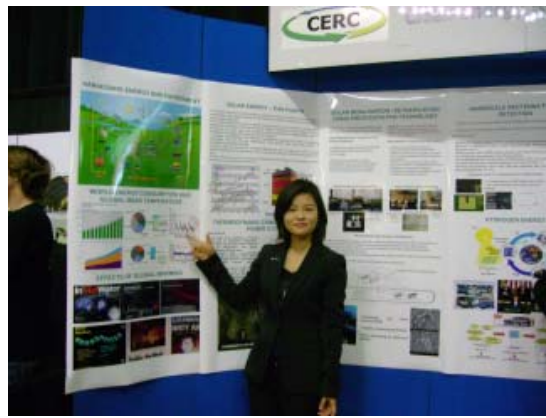
Some of the focal areas and goals of the CERC include:

- ◆ photovoltaics;
- ◆ advanced solar energy technologies;
- ◆ photocatalytic detoxification and disinfection;
- ◆ antenna energy conversion;
- ◆ hydrogen production and storage, fuel cells;
- ◆ biomass and coal gasification and liquefaction;
- ◆ integrated renewable power systems.

There's always more work to do, and CERC is poised to move forward with the mission.

Going Green Tampa Bay: Clean Energy to Save the Planet

Sustain-A-Bull: Energy Expo '08 at USF



"Getting Green by Going Green Tampa Bay" united the business, academic and green communities of Tampa Bay at the one-day exposition of all things sustainable, April 12. Exhibitors showcased their green products, sustainable practices and research endeavors to the growing community of citizens who are actively seeking ways to grow a green economy.

The Expo was part of the USF's Sustain-A-Bull Campaign held the week of April 7-12. The Sustain-A-Bull Campaign was a part of the Going Green Tampa Bay initiative that involved USF, the Hillsborough County Planning Commission and the Urban Charrette which runs from April 7-22, Earth Day. For more information about the many exciting events involved with this initiative see:

<http://www.goinggreentampabay.com> Also at the Expo, USF President Judy Genshaft signed the American College and Univ. President's Climate Commitment on behalf of USF. See <http://www.presidentsclimatecommitment.org/>

The Clean Energy Research Center fielded an informational booth at the Expo, held at the Sun Dome on the USF Tampa campus. Research scientist Sessa Srinivasan was ably aided by CERC graduate students in discussing the multifaceted experimental projects ongoing in our laboratories. Pictured here include: Huijuin Chen, Sessa Srinivasan, Ricardo Vasquez, Gokeman Demirkaya, Kofi Dalrymple, Sam Wiewewardane, and interested bystanders.



Our hydrogen toy car was a big hit!



Be a part of the campus-wide
FOCUS THE NATION
SYMPOSIUM
Global Warming Solutions
for America

January 31, 2008
Marshall Center Ballroom
(MC 294)
Noon - 3:00 pm

Presentations & Panel Discussions on:
Global Warming in Florida
Climate Change: Apocalypse or Opportunity?
Climate Change and Energy Conservation
Our Energy Future
Changing mindsets: Spiritual & Social Dimensions
Carbon Trading: What is
it and how it works?
Global Climate Models: How they work?

Free Screening of
• **Revolution Green: A True Story of Biodiesel in America**
• **Design e²**

FREE Food!   **FREE Food!**

Organized by: Students for the Marketing and Advancement of Renewable Technologies (SMART)
smart.usf@gmail.com 813.974.5634 www.focus.thenation.org

SMART Students Jump to "Focus the Nation"

Being in the right place at the right time, SMART students coordinated the USF's participation in the Focus the Nation movement. Focus the Nation is a national teach-in on global warming solutions for America, the intent being to awaken America to face up to the challenge of our generation. Focus the Nation culminated January 31st, 2008 in simultaneous educational symposia held across the country.

SMART stands for "Students for the Marketing and Advancement of Renewable Technologies," which formed in Fall 2007 as the USF Student Section of the American Solar Energy Society (ASES). SMART is led by president Michael Achambault, vice president Kofi Dalrymple, and faculty advisor Prof. Yogi Goswami. The SMART group aims to organize local and regional events highlighting solar and renewable energies.

The Focus the Nation addressed four focus areas: National Teach-In (workshops and panels brainstorming global warming solutions); Green Democracy and Choose Your Future: Campus to Congress (telling decision-makers in this country about solutions and inviting US senators and congresspersons to engage in person); 2% Solution (A national, interactive webcast, aired live the evening of January 30th,

featuring Stanford climate scientist Stephen Schneider, sustainability expert Hunter Lovins, and green jobs pioneer Van Jones). See the "Focus The Nation" website for more information: <http://focus.thenation.org>

SMART focused on the National Teach-In at USF, urging faculty throughout the broader USF campuses to teach at least one class on global climate warming as it pertained to the subject of the class. SMART also brought together speakers from industry, policy and academia, who made presentations on the efforts of the Tampa Bay to move toward renewable energy and abating global warming. The event drew an audience of USF administrators, students and community activist groups (Earth First, Climate Counts, Engineers Without Borders, and the Unitarian Universalist Earth Ministry). The Q+A sessions were lively and deep.

Focus the Nation's educational initiative also promoted civic engagement. Each Focus team invited local, state and federal political leaders and decision-makers to participate in non-partisan, round-table discussions about global warming solutions. The VIP speakers for the USF event included: Dwayne Smith (Senior Vice-Provost, USF); Chloe Coney (District Director, Congresswoman Kathy Castor's Office); Michael Ohlsen (Project Manager, Florida Energy Office); Chris Bennet (VP Business Strategy, Florida Power & Light); Jon DeVries (Collins Fellow, Gulf Coast Community Foundation & Sustainable Florida); and, John Ramil (President, Tampa Electric Co.).

USF professors also participated in panel discussions on climate change as it pertains to their fields. Professors from the departments of Art, Philosophy, Anthropology, Management, Psychology, Clean Energy Research Center and Geography, included: Alan Moore, Martin Schonfeld, Barbara Lafferty, John Napora, Delcie Durham, Sharon Hanna-West, Joseph Vandello, Yogi Goswami, Philip van Beynen and Lee Stefanakos.

Renewables Spark Media Interest

Scratch the surface of the internet, or tune to many television or radio talk shows and you are bound to find increasing interest in discussing alternative and renewable energy solutions to today's impending energy crisis. Interest in clean-burning fuels and alternative energy seems to be rising almost as fast as fuel prices at the pump. The 2006-2007 hurricanes and other weather catastrophes underscore how reliant we have become on oil. CERC stepped up its public outreach during 2007 through various media coverage. Here is a synopsis of only a few of them:

A Town Hall Meeting panel discussion on "A Conversation on Green Building: Creating a Sustainable Tampa Bay and the USF Campus" was held in Tampa, during October 2007. Dr. Yogi Goswami, CERC co-director, made a presentation about sustainable energy at the event, which also featured Tampa City Council members, building contractors, and faculty from USF's Architecture, Mechanical Engineering, and the Green Builders Council.

During the "Think Green CleanTech" global energy conference held in San Francisco during December 2007, Goswami said, "By 2050, 50% of global energy will have to come from renewable sources. To get there, R&D will have to be accelerated and policy will have to be changed all over the world." The full article can be seen at: <http://earth2tech.com/2007/12/05/global-energy-50-must-be-clean-by-2050/>

In mid-December, the USF conducted a podcast interview of Goswami, discussing the impact of global warming and climate change especially for Floridians. The full interview can be listened to at: <http://usfweb3.usf.edu/absolutenm/templates/?a=467&z=31> And at <http://netcast.usf.edu/public/announce/admin/univrelations/goswamicleanenergy.aspx>

Just before Christmas 2007, Goswami provided his scientific expertise to the US Dept. of State via a web conference on solar desalination and distillation for the island of Cyprus in the Mediterranean Sea. The State Department's Bureau of International Information Programs (IIP) engages international audiences on issues of foreign policy, society and values to help create an environment receptive to U.S. national interests. In January 2008, Goswami gave a talk on "Sustainable Energy for the 21st Century" to The Rotary Club of Zephyrhills, FL, in an effort to spread the word about the importance of renewables to the wider public. This outreach beyond academia and scientific conferences is important in reaching the layperson and mainstream public.

In February 2008 co-directors of the CERC, Professors Lee Stefanakos and Yogi Goswami, were both interviewed by the USF student newspaper The Oracle regarding renewable energy: "USF Professors Push for Alternative Energy Sources" <http://media.www.usforacle.com/media/storage/paper880/news/2008/02/06/News/Usf-Professor.Pushes.For.Alternative.Energy.Sources-3190800.shtml>

Also during February, local media covered the SMART "Focus the Nation" event. Some of their stories can be viewed at their websites: The Oracle: "Global Warming Debate Heats Up at USF" <http://media.www.usforacle.com/media/storage/paper880/news/2008/02/01/News/Global.Warming.Debate.Heats.Up.At.Usf-3183162.shtml>

Tampa Bay News Channel 10: "USF Joins National Symposium on Global Warming" <http://www.tampabay10.com/news/local/article.aspx?storyid=72909>

WMNF Radio 88.5 program "Sustainable Living" featured SMART vice president Kofi Dalrymple talk about Focus the Nation at http://www.wmnf.org/program_strips/show/353

The Tampa Tribune mentioned the Focus the Nation event in their *Across the Region Hillsborough County* section: "USF Part of Giant Teach-In On Global Warming Today" (Jan. 31, pg. 2 Metro section)

USF's University Beat report on the "Focus the Nation" event aired March 2, 2008 on public TV and radio.

mms://www.wusf.usf.edu/UBeat_TV/March_08/UB08-09_Focus_the_Nation_03-02-08.wmv
mms://www.wusf.usf.edu/University_Beat/March_08/UB_Focus_the_Nation_3-2-08.wma

In March 2008 CERC director Dr. Lee Stefanakos was interviewed by Quantum Sphere's "Clean Energy and Power for Advanced Applications" regarding their grant to the CERC for integrating nanomaterials into chemical hydrides for hydrogen storage devices and to evaluate their ability to absorb and release hydrogen. See http://www.qsinano.com/news/newsletters/2008_03/f0.php and click on "Grant to USF".



Climate warming disrupts normal rain patterns globally; from droughts to hurricanes.



Cold Fusion in a Mason Jar?

Pipe dream? Maybe, or at least unproven at the moment. But sustainable energy is not a dream, even if the ultimate energy source of cold fusion in a mason jar hasn't yet been brewed in the lab.



Prices for all forms of fossil fuels will continue to sky-rocket.

Sustainable energy goes hand-in-hand with sustainable living, and Tampa Bay's WMNF 88.5 Community Radio's program "Sustainable Living" is the place to hear interesting and informative conversation and call-ins. The show, hosted by Jon Butts, brings guests to the air waves to talk about their areas of expertise. Assistant Professor John Wolan, a chemical engineer affiliated with the CERC, has twice been interviewed WMNF's "Sustainable Living" bringing a scientific perspective to the popular show. (You can listen at http://www.wmnf.org/program_strips/show/353)

Though some of the called-in questions and comments did not specifically target Wolan's work in catalytic reactions to produce sustainable green sources of energy, he was impressed with the level of concern and interest in sustainability. "Generally folks were very concerned about toxic substances around the house and how they can reduce them," Wolan recalled. But many other folks were asking the big question, "'... since biomass into synthetic fuel is feasible, why aren't we funded to the hilt?' In fact many oil companies are looking into this technology," Wolan reflected.

Provided by Ms. Chloe Coney, District Director, for Congresswoman Kathy Castor

Ten Energy Efficiency Tips for the Home

- 1 Carpool, walk, ride a bike, use mass transit, or work at home to save 5.85 gallons of gas and 143 billion tons of CO² each week.
- 2 Replace your light bulbs with compact fluorescent lights (CFL). If every house used only 1 CFL, it would be equivalent to removing 1 million cars from the road.
- 3 Set your thermostat at 78 degrees in the summer and 68 degrees in the winter. Heating/cooling your home accounts for about 45% of a home's total energy use.
- 4 Seal your doors and windows because the average home causes more pollution than a car, because of the fossil fuels burned to supply the power we need.
- 5 Aim for 5 minute (or less) showers to save energy.
- 6 Recycle and use refillable and reusable containers.
- 7 Look for Energy Star labels on all products when buying new products.
- 8 Wash only full loads when using the clothes washer or the dish washer.
- 9 Only heat or cool the rooms you need - close vents and doors of unused rooms.
- 10 Power your voice by writing your public officials to encourage them to support energy efficient initiatives.



Honors and Awards

◆ Yogi Goswami was honored by the American Society of Mechanical Engineers in 2007 by being awarded the Frank Kreith Award for continued excellence in renewable energy research. The ceremony was held at the ASME IMEC-E conference in Seattle in November. See <http://www.youtube.com/watch?v=mp49jakilcE> Goswami was also honored by the International Solar Energy Society in 2007 by being awarded the Hoyt Clarke Hottel Award for his years of dedicated work devoted to furthering renewable and alternative energies. The ceremony was held at the ISES Solar World Congress 2007 conference in Beijing, China in September.

◆ A Memorandum of Understanding has been established between the CERC and the Universita degli Studi Del'Aquila, in Aquila Italy for research in common on projects in Hydrogen storage materials and international projects including the European Commission Programs.

Publications

◆ A great many research articles, chapters, reviews and books. have been published by CERC faculty, scientists, researchers and graduate students. If you would like a complete list of them, please let us know, and we will send it to you.

What's Happening With Us?

◆ CERC assistant director, Matt Smith accepted a great position as Plant Leader at Florida Power and Light and hit the trail taking off for the warmer climes of Jupiter, Florida in September 2007. May the stars shine on him brightly!

◆ CERC senior research scientist Nikhil Kothurkar joined the Amrita School of Engineering in Coimbatore, India in September 2007. He will be teaching a renewable energy engineering course, which will be a new curriculum for the school.

◆ For the second time CERC graduate student Mohammed Abutayeh became a proud father. Joining his happy family this past autumn is a bouncing baby girl, named Noor.

◆ CERC laboratory coordinator, Charles Garretson finally broke down and bought a new car, though we never thought we'd see it happen in our lifetime. Typical of Chuck's laconic style is his glowing description of the car, "It's not bad."

◆ CERC staff, Ginny Cosmides' cranberry bread stole the show at the College of Engineering holiday potluck luncheon in December. Meanwhile Barbara Graham began a groundswell of grassroots organizing to save the pickles ("The Pickle Platter Protection League") -- to free all varieties of pickles from the fate of holiday banquets.

◆ CERC graduate student Paula Algarin Amaris married Cesar Augusto Morales Silva on January 4, 2008 at the Immaculate Conception Church in Barranquilla, Colombia. Paula is researching photovoltaic detoxification and disinfection of polluted water and air.





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Become a Partner in CERC's Growth!

CERC is already ranked among the nations' elite research centers and with every year we continue to improve. Your financial contributions supplement state and grant funding, and make an enormous difference in our efforts to further renewable energy research and improve our infrastructure. All gifts are tax deductible. If you have any gift/tax questions please contact Edward Kominowski, Director of the USF's College of Engineering Development Office at (813) 974-9896. We hope that you will help the CERC and in so doing, aid the USA's transition to a renewable energy future. Thank you for your generous contribution to the USF CERC!

Lee Stefanakos and Yogi Goswami, Directors, CERC



Yes, I want to donate to the University of South Florida's Clean Energy Research Center.
My donation is:

\$50 \$100 \$250 \$500 \$1000 Other

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