



# News from cSEND



October, 2011

<http://energy.nd.edu>

## Welcome to the Inaugural Issue

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Dear Friends and Colleagues,

Welcome to the inaugural issue of the online newsletter from the Center for Sustainable Energy at Notre Dame (cSEND). This monthly communiqué will bring you the latest news in energy related research, education, and outreach at Notre Dame. Faculty will share their insights and expertise on current research programs, technological advancements, and critical topics of global interest that have far-reaching impact on our energy usage, consumption, and long-term sustainability. We hope you will enjoy reading the highlights and success stories related to our faculty, students, programs, facilities, and major events. I would welcome your feedback and any comments you might have for improvements in content, distribution, and frequency.

I seem to always say this in closing, but I truly do appreciate your support of our re-



search and energy related education programs at Notre Dame. I look forward with great pride and spirit to our continued association and in strengthening our relationships

through the sharing of common interests. Together, we are sure to create a more sustainable energy future. 

Joan F. Brennecke,  
cSEND Director  
Keating-Crawford Professor of  
Chemical and Biomolecular Engineering

## Student Advisory Board: Energy Week in Review

Showing Irish pride with neon green T-shirts saying "Go Irish! Go Planet!," Notre Dame students, faculty, and staff celebrated the 5th Annual Notre Dame Energy Week from September 11th - 17th.


This year's Energy Week, sponsored by cSEND's Student Advisory Board and GreeND, featured an energy informative Quad Display, Energy Trivia Night at Legends, a screening of the movie "Houston, We Have a Problem," and tours of our eco-friendly cam-

pus, the Power Plant, and Stinson-Remick Hall.

Energy Week also included student-networking opportunities at two formal career dinners and a networking breakfast.



Peter Burns' lecture on Nuclear Energy and the forum on the "Future of Renewable Energy", featuring panelists Joan Brennecke, Prashant Kamat, Jenny Mish, and Kenneth Sayre, sparked significant dialogue about today's most pressing national and global energy issues.

Every year, Energy Week strives to enlighten the Notre Dame community about energy research, consumption, and efforts toward creating a more sustainable energy future. 

## cSEND RET: Engineering a More Sustainable Energy Future



At the end of August, the Center for Sustainable Energy at Notre Dame was informed that its Research Experiences for Teachers (RET) proposal to the National Science Foundation was funded!

*Engineering a More Sustainable Energy Future* is a 3-year project that aims to improve science education for a new generation of students by providing its teachers meaningful lab-based experiences on energy-related topics. These topics

will focus on the issues and current approaches surrounding energy use and sustainability.

This project will build research communities consisting of participating Center faculty and teachers, including those from around the U.S. who have been educated by Notre Dame's Alliance for Catholic Education (ACE) programs.

The addition of ACE teachers to this project expands its impact to schools with large minority populations,

including many under-resourced Catholic schools across the U.S.

Recruitment of local and ACE teachers for *Engineering a More Sustainable Energy Future* will commence in January 2012 for research projects to begin during the summer. 🌱



### Faculty Spotlight:

### Galyna Krylova

Although she has only been with the Center for Sustainable Energy at Notre Dame for four months, Galyna Krylova has made great strides at getting the Materials Characterization Facility (MCF) up and running.

Galyna expects that the TGA, DSC, Raman, UV-VIS and FTIR instruments will be ready to use at the beginning of October and encourages faculty and grad students at Notre Dame, and researchers in our local or regional communities to contact her to schedule using these instruments.

Born and educated in the Ukraine, Galyna's interest in nanomaterials was sparked in graduate school where her research in analytical synthesis and photo catalysis of

nanomaterials began. She completed her post doc studies in France and then immigrated to America to work at Argonne for three years prior to arriving at Notre Dame. Galyna feels invigorated by her work here as she finds American researchers to be enthusiastic and collaborative – particularly younger faculty.

While tasked to get the MCF up and running, Galyna still enjoys being active outside of the lab, citing swimming and yoga as favorite things to do. She is an enthusiastic soccer fan and particularly enjoys watching women's soccer! Galyna shared that girls in the Ukraine were not encouraged to participate in the sport, so she never had the opportunity to play. But she

is excited that the European Championships will be held in the Ukraine in 2012, and she hopes to be able to see some of the matches in person.



Until that time, Galyna is eager to get more instruments installed and running at the MCF to keep cSEND at pace with its peers. In the near future, she is looking forward to getting the XPS installed, as she feels it is one of the most useful instruments in materials science research. To visit the MCF, or schedule an appointment for instrument training or use, contact Galyna Krylova at [gakrylova@nd.edu](mailto:gakrylova@nd.edu). 🌱

**"Galyna feels invigorated by her work here as she finds American researchers to be enthusiastic and collaborative ..."**

More information about the MCF can be found here. CTRL+click to access:

<http://energy.nd.edu/facilities/materials-synthesis-and-characterization/>

## cSEND Faculty Grants Received: May - September 2011

Principal Investigator	Primary Department	Awarded Amount	Award Date	Sponsor Name
Huang, Yih-Fang	Electrical Engineering	\$199,800	5/1/2011	GE Energy
<i>Project Title:</i> Coupling Low-Voltage Microgrids into Mid-Voltage Distribution Systems				
Hartland, Gregory	Chemistry and Biochemistry	\$758,068	6/7/2011	National Science Foundation
<i>Project Title:</i> Charge Carrier Relaxation and Energy Dissipation in One-Dimensional Nanostructures				
Brown, Seth	Chemistry and Biochemistry	\$411,000	7/14/2011	National Science Foundation
<i>Project Title:</i> Nonclassical Oxygenation Reactions				
Hicks, Jason	Chemical and Biomolecular Engr	\$174,944	8/1/2011	National Science Foundation
<i>Project Title:</i> BRIGE: Novel Bimetallic Catalysts for Advanced Biofuels Production				
Brown, Seth	Chemistry and Biochemistry	\$435,000	7/1/2011	AFOSR-AFRL-DOD-US
<i>Project Title:</i> Catalytic activation of nitrogen dioxide for selective synthesis of nitroorganics				
Brennecke, Joan	Chemical and Biomolecular Engr	\$494,948	9/1/2011	National Science Foundation
<i>Project Title:</i> RET in Engineering and Computer Science Site on Engineering a More Sustainable Energy Future				
Kuno, Masaru	Chemistry and Biochemistry	\$100,000	9/27/2011	American Chemical Society
<i>Project Title:</i> Towards spatially resolved, ultrafast imaging of individual reduced graphene oxide sheets				

### cSEND Invited Lecturer:

### Bob Inglis

On Thursday, Sept. 29 at Notre Dame's McKenna Hall, cSEND invited lecturer Mr. Bob Inglis presented an engaging talk on energy and public policy: *Bringing America Together on Energy & Climate: A Conservative Republican with an Idea*.

Formerly a U.S. Rep. for South Carolina, Mr. Inglis served on the Science & Technology Committee and was the Ranking Republican Member on the Energy & Environment Subcommittee. He chaired the Research Subcommittee of the Science Committee in the 109th Congress and co-chaired the House Hydrogen and Fuel Cell Caucus.

For his talk, Mr. Inglis shared his

thoughts on the reasons for the populist rejection of the science of climate change, the path back to cooperative action and a solution that could work for conservatives and liberals alike.

Mr. Inglis agrees with the 97% of climate scientists who have concluded that increased atmospheric CO<sub>2</sub> levels from the burning of fossil fuels is contributing to global climate change. He argued to an engaged audience that embracing and addressing climate change is consistent with conservative republican values and appealed to both liberals and conservatives to come together to make real progress on this issue. 🌱



Video of Mr. Bob Inglis' lecture will be available at the cSEND website soon!

### Upcoming Talks of Interest

**Alejandro Dominguez-Garcia**  
University of Illinois—Urbana/Champaign

Nov. 2, 2011  
258 Fitzpatrick Hall  
1:30 pm

*Distributed Control and Power Dispatch in Microgrids*

*Co-sponsored by Electrical Engineering and cSEND*

**Bruce Koel**

Princeton University

Nov. 17, 2011  
Radiation Laboratory Auditorium  
12:30 pm—1:30 pm

Title: TBA

*Co-sponsored by the Dept. of Chemistry & Biochemistry and cSEND*

## cSEND: General Information

### Location

115 Stinson-Remick Hall  
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### Mission

The Center for Sustainable Energy at Notre Dame (cSEND) is a university-wide research center focused on expanding the sustainable energy activities at Notre Dame through increased inter-college participation, accelerated research and educational productivity, enhanced visibility, and ensured long-term financial viability.

Research efforts associated with cSEND will include the three thrust areas of the Sustainable Energy Initiative as well as other energy related research areas:

1. the design of cleaner fossil fuel processes – focusing on materials for gas separations, like CO<sub>2</sub> capture;
2. the development of safer nuclear energy – focusing on actinide materials stabilization for better use of nuclear fuels and safer storage of waste materials;
3. the creation of transformative solar energy technologies – focusing on materials for conversion of solar to chemical energy, creating liquid fuels from the sun; and
4. other research areas focusing on topics such as energy efficiencies, biofuels, fuel cells, batteries, geothermal, and solar photovoltaics.

cSEND provides technical and scientific opportunities for scientists, engineers, social scientists and citizens to become leaders in their disciplines and literate in the systems of energy production and use. This will enable the creation of new energy technologies, stimulate the discussion of constructive energy options, influence effective energy policies, and inform individual choices for economically and environmentally sustainable energy consumption. 🌱



**2011 Annual Report is Available**  
(CTRL+click on image to download)

What story would you like to see in the next newsletter?  
Send an e-mail to Newsletter Editor, Karen Morris, at [morris.3@nd.edu](mailto:morris.3@nd.edu) and let us know!

We're on the web!

<http://energy.nd.edu>