



# CES Newsletter

Spring 2011



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## CES Hosts Alternative Energy Workshop Series for LPSC

Beginning in fall 2010, CES began hosting a series of alternative energy-themed workshops for the staff of the Louisiana Public Service Commission, as well as representatives from state agencies, including the Department of Environmental Quality, Department of Natural Resources, and Louisiana Economic Development. The October workshop addressed smart grid technologies, their capabilities and functions, and how smart grid fits into broader energy planning for regulated utilities. Instructors were Joydeep Mitra, associate professor of electrical and computer engineering at Michigan State University; Kenneth Rose, an independent consultant and a senior fellow at the Institute of Public Utilities at Michigan State University; and David Dismukes, professor and associate executive director at the Center for Energy Studies.



*Professor Joydeep Mitra of Michigan State University discusses hybrid electric vehicles during one of the Center's recent alternative energy workshops presented to Louisiana Public Service Commission staff.*

Two workshops were held in February: the first on alternative fuel vehicles and the second on environmental regulations. The alternative fuel vehicles session, held February 2, included a presentation by Greater Baton Rouge Clean Cities Coalition coordinator and CES research associate Lauren Stuart on the state of alternative fuel vehicles in our region. Wallace Tyner, James & Lois Ackerman Professor of Agricultural Economics at Purdue University, discussed electric rate design and electric vehicles, and Brad Smith, Jr., director of business development for NRG Energy, spoke about electrical vehicle opportunities. Wrapping up the day

with an update on gas supply and infrastructure planning concerns for natural gas vehicles was Tommy Foltz, director of government relations for Petrohawk.

The February 24 environmental regulations workshops included an overview of climate change science and policies, and a discussion of mitigation technologies by Mike D. McDaniel, retired CES professional-in-residence. David Dismukes delivered presentations on environmental economics, utility regulation and cost recovery, as well as administratively-determined and market-based emissions mitigation mechanisms.

The fourth workshop, to be held April 21, will provide an overview and update on Louisiana renewable technologies, recent trends and new offshore wind projects, financial mechanisms for renewable energy support, tax issues, credits, rebates, and other eligible incentives; ongoing regulatory issues; renewable energy certificates and green energy markets; long-term contracting and renewable asset securitization; understanding green jobs and project development. Presenters will be Stephen Barnes, assistant professor and associate director, Division of Economic Development and Forecasting, LSU E.J. Ourso College of Business, Guenter Conzelmann, director, Center for Energy, Environmental, and Economic Systems Analysis (CEEESA), for Argonne National Laboratory, and David Dismukes.

## Study Presents Mobile Emissions at Port Fourchon

The "Port Fourchon Ozone Day Port-Related Emissions Inventory Study," prepared for ExxonMobil, presents initial estimates of the mobile source emissions associated with operations in and around the port. The inventory was provided to the Louisiana Department of Environmental Quality (DEQ) and the Baton Rouge Ozone Task Force to be used in regional ozone modeling to support the DEQ's Non-attainment State Implementation Plan (SIP) for ozone.



A previous analysis of regional ozone modeling in the Baton Rouge area in 2007-2008 indicated an unaccounted for source of oxides of nitrogen (NOx) emissions thought to be originating along the Gulf Coast of Louisiana. NOx emissions are considered a precursor to ozone. Port Fourchon, which serves approximately 90% of all deepwater and 45% of shallow water rigs and platforms in the Gulf of Mexico and is the only port to serve the Louisiana Offshore Oil Port (LOOP), was considered a likely source of the emissions.

CES and Starcrest developed an initial inventory of NOx emissions using data representing three days in June and August 2009. Other pollutants measured include volatile organic compounds (VOCs), carbon monoxide, sulfur dioxide, particulate matter, and carbon dioxide.

CES professional-in-residence Mike D. McDaniel and research associate Kathryn Perry performed data collection for the inventory. Emissions sources included marine vessels that docked at Port Fourchon berths or passed through the port; cranes and cargo handling equipment; heavy-duty trucks; helicopters; and offshore emissions measured by the Minerals Management Service (now the Bureau of Ocean Energy Management, Regulation and Enforcement).

"The emissions inventory will enhance the accuracy of regional ozone modeling, which will be important for LDEQ in developing an effective ozone attainment plan," McDaniel said.

## Greenhouse Gas Inventory, States' Climate Action Overview Available

The LSU Center for Energy Studies (CES) has released the first two installments of its four-part state-wide greenhouse gas (GHG) inventory report funded by Louisiana Economic Development and led by CES professional-in-residence (retired) Mike D. McDaniel. The overarching purpose of the inventory is to help prepare Louisiana for the possible federal regulation of greenhouse gases (GHG) and to assure that the state will be prepared to respond intelligently to any such regulation in a manner that would mitigate potential adverse impacts on the state's economy and that would recognize any potential economic development opportunities that might be presented.

The inventory cites emissions data for the year 2005 to match that of proposed U.S. climate legislation, which uses that year as the base year against which emission reductions would be compared. According to the inventory, Louisiana greenhouse gas emissions for 2005 totaled 228 million metric tons of carbon dioxide equivalent emissions. Eighty-four percent of GHG emissions were made up of CO2 from fossil fuel combustion, placing Louisiana eleventh among all states in total GHG emissions from fossil fuel combustion. Louisiana's total GHG emissions were comparable to other Gulf Coast states such as Georgia, Florida, and Alabama.

The inventory shows that CO2 (CO2 equivalent basis) represented 86 percent of Louisiana's GHG emissions, followed by methane at 8 percent, nitrous oxide at 3 percent, and hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride at a combined 3 percent.

Projections of total GHG emissions, and each of the major sectors' emissions (e.g. industrial, transportation, electric power, residential, commercial) over the period 2005 – 2020 show a continuation of the relatively flat GHG emission trends seen over the preceding 15-year period (1990 – 2005).

The second report, "Overview of States' Climate Action and/or Alternative Energy Policy Measures," is a review of measures being taken or contemplated by other states to accommodate climate change concerns or expected federal greenhouse gas regulation. The intent of this policy overview is to inform Louisiana stakeholders of what measures the state might consider to implement, or to avoid, to enhance its competitive advantage for economic development relative to other states.

The review considers policies of almost all states, but focuses on Louisiana and its neighbors in the southeastern United States, specifically, Texas, Mississippi, Arkansas, Alabama, Florida, and Georgia. Many state policies are implemented as a result of, or in conjunction with, a regional collaborative, such as the Climate Registry, the Regional Greenhouse Gas Initiative (RGGI), the Western Climate Initiative (WCI), and the Midwestern Regional Greenhouse Gas Reduction Accord (MID). The report shows that all states in the Southeast region, with the exception of Alabama, have completed greenhouse gas inventories. Arkansas and Florida have developed climate action plans as a start toward developing a comprehensive set of policies. Georgia and Mississippi, however, have less institutionalized programs that fulfill similar missions. In these states, as well as in Louisiana, non governmental organizations with goals involving environmental conservation, social equity, and economic development work toward implementing policies aimed at reducing hydrocarbon consumption and greenhouse gases emissions.

David Dismukes is co-principal investigator for the project. The team also includes CES Research associates Jordan Gilmore, Christopher Peters, Kathy Reynolds, and Lauren Stuart.

To view and/or download electronic versions of the full reports, click the "Bibliographies 2010" tab at [www.enrg.lsu.edu/publications](http://www.enrg.lsu.edu/publications).

## Louisiana Geological Survey Director Appointed to DOE Project Board

Professor Chacko John, Louisiana Geological Survey (LGS) director and state geologist, has been appointed to the National Scientific Advisory Board for an alternate energy project funded by the U.S. Department of Energy and managed by the Arizona Geological Survey." The three-year \$21-million project will create a national geothermal database for assessment and development of geothermal energy resources nationwide. Project participants include the 50 U.S. state geological surveys.



*Chacko John, Louisiana Geological Survey director*

The interoperable, seamless, and searchable database, with state-specific information, is expected to encourage renewed industry efforts to exploit geothermal energy resources across the U.S.

The LGS will compile information on the Gulf Coast geopressured-geothermal resources with particular reference to Louisiana. Data will include temperatures, geologic maps, suitable trends and sites for drilling, rock core and cuttings information, deep oil, gas, and water well information, thermal gradient maps, and more, in digital format. A geographic information system (GIS) will be developed with the associated metadata.

John sees the development of Louisiana's geopressured-geothermal resources as having the potential to reshape the state's energy landscape. "Louisiana has tremendous geopressured-geothermal resources," he said. "Their development could lead to an increase in state revenues, new job creation, and a leveraging of alternate energy resources well into the future."

## The Gulf Oil Spill

## Dismukes Testifies before House Committee on Natural Resources

David Dismukes, CES associate executive director and professor, testified June 30 at a congressional hearing before the U.S. House of Representatives Committee on Natural Resources. The hearing was held to discuss proposed amendments to H.R. 3534, the "Consolidated Land, Energy, and Aquatic Resources (CLEAR) Act of 2009." The CLEAR Act, sponsored by Rep. Nick Rahall, II (D-WV.), was designed to consolidate the administration of federal energy minerals management and leasing programs into one entity, the Office of Federal Energy and Minerals Leasing of the Department of the Interior. Amendments to

*continued on p.4*

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Design by Lisa Pond, Louisiana Geological Survey.

## CES Researchers Quoted in Oil-Spill-Related News Stories

Beginning just days after the April 20, 2010, explosion of the Deepwater Horizon structure in the Gulf, CES researchers were sought out by local, national, and international media for their comments on the impacts of the disaster on the oil and gas industry.

Allan Pulsipher

- *National Post*, April 24, 2010
- *The Wall Street Journal*, April 23, 2010

David Dismukes

- *Christian Science Monitor*, May 19, 2010
- *USA Today*, May 18, 2010
- Clean Skies Sunday, Washington, D.C.-area news program, May 16, 2010
- CBS News Online/Associated Press, May 12, 2010
- McClatchy News, May 5, 2010
- Clean Skies Sunday, Washington, D.C.-area news program, June 11, 2010
- CNNMoney.com, June 24, 2010
- *Fortune* (CNNMoney.com) June 24, 2010 (with Iledare)
- *The Miami Herald*, June 27, 2010
- New Orleans *Times-Picayune*, July 4, 2010
- *Los Angeles Times*, July 9, 2010
- *Congressional Quarterly*
- DR (Danish Broadcasting Corporation)
- *Harper's Magazine*
- WNET (NY Public Broadcasting)
- *Engineering News and Mining Weekly*, August 16, 2010
- WBRZ TV, Baton Rouge, evening news, on unemployment related to moratorium, August 19, 2010
- *Infrastructure Solutions* magazine, on Gulf oil spill and U.S. energy policy, Aug. 20.
- *Mobile Press-Register*, September 2, 2010.

Wumi Iledare

- *Fortune* (CNNMoney.com), June 24, 2010 (with Dismukes)

Mark Kaiser (with Allan Pulsipher)

- New Orleans *Times-Picayune*, Sept. 15, 2010

the CLEAR Act would change offshore energy regulatory policies in the aftermath of the Deepwater Horizon incident. The bill passed in the House of Representatives July 30 but did not go on to receive a vote in the Senate.

Dismukes testified that the proposed changes included a number of positive provisions:

- allocation of the planning, leasing, and inspection functions of the former Minerals Management Service, or MMS, into three new bureaus, which would remove the conflicts of interest that were perceived to be inherent within the old MMS regulatory and governance structure;
- a plan for buttressing each of the new regulatory agencies' professional staff, allowing them to recruit and retain the best available talent in the market within specialized skill areas;
- establishment of benchmarks and performance metrics to evaluate operator success at meeting environmental and safety standards.

Dismukes warned that, in developing these provisions, Congress could be missing a unique opportunity to create a performance-based regulatory structure that would establish a symmetrical system of penalties and rewards. Such a reward system could lead to both improved offshore environmental and safety concerns and private sector research in technologies that could lead to profitable and environmentally positive outcomes.

Download Dismukes' written comments at [http://resourcescommittee.house.gov/images/Documents/20100630/testimony\\_dismukes.pdf](http://resourcescommittee.house.gov/images/Documents/20100630/testimony_dismukes.pdf)

To view the hearing in its entirety, visit [http://resources.edgeboss.net/wmedia/resources/10\\_06\\_30\\_full.wvx](http://resources.edgeboss.net/wmedia/resources/10_06_30_full.wvx)

## LSU Graduate Students Present Historical Examination and Analysis of the Greater Baton Rouge Clean Air Coalition

In December, graduate students from the LSU School of the Coast & Environment environmental sciences program members presented results from their service-learning project, "An Historical Examination and Analysis of the Greater Baton Rouge Clean Air Coalition: Lessons Learned from 20 Years of Efforts to Improve Air Quality in Louisiana's Upper Industrial Corridor," to members of the Baton Rouge Clean Air Coalition (BRCAC).

The service-learning project is a required component of Associate Professor of Environmental Sciences Margaret Reams' environmental policy analysis course. Fourteen graduate students were required to survey current and past coalition members, along with members of similar stakeholder groups in Michigan and Texas, about air quality and economic trends data in Michigan, Texas and Louisiana. The students also conducted a review of research concerning similar "collaborative management" environmental groups.

The results are a case history of the BRCAC that will be posted on its website, a report of regional trends in air quality and federal and state air policies over the last 20 years, an annotated bibliography of research concerning these types of groups and a "how-to" guide for industry and other stakeholders who would like to establish a similar local group.

The BRCAC is a coalition of local governments, state environmental agencies, businesses, industries, academic institutions and civic organizations committed to improving air quality in the greater Baton Rouge area through voluntary actions and reasonable, effective regulatory actions. The goals of BRCAC are to improve air quality through voluntary actions; create public awareness and promote individual responsibility through education; and provide credible measures of air quality improvement efforts.



## Clean Cities Activities Promote Alternative Fuels, Advanced Vehicle Technologies

The Greater Baton Rouge Clean Cities Coalition program is part of the U.S. Department of Energy's Efficiency & Renewable Energy national network of public-private partnerships with the mission to build the infrastructure and markets to support a diversified supply of transportation fuel. The program is hosted by CES and sponsored by the Louisiana



Department of Natural Resources. Research associate Lauren Stuart coordinated stakeholder education workshops, facilitated project development, and held several outreach events during the past year, including:

- April – Clean Fuel Symposium “Driving Alternative Transportation,” with panel discussions on fuels, infrastructure and policy, and the Clean Energy Expo, showcasing vehicles fueled by LPG, CNG, electricity, hydrogen fuel-cell, solar photovoltaics, ethanol & biodiesel;
- July – Clean Transportation Education Project: “Biodiesel Workshop,” supported by an American Recovery & Reinvestment Act grant;
- August – Greenride Demo for carpooling, cycling, and transit, in partnership with LSU and the Capitol Region Planning Commission;
- November – “The Compelling Case for Natural Gas Vehicles” public and private fleet workshop, presented by the Clean Vehicle Education Foundation;
- April 2011 – “Louisiana Clean Energy Expo, Clean Fuels Forum and Green Jobs Panel,” the second event in partnership with CES.

The mission of the GBRCCC is to advance the nation’s economic, environmental, and energy security by promoting local practices that contribute to the reduction of petroleum fuels consumption. Strategies include use of alternative fuel vehicles, fuel blends, increased fuel economy, hybrid vehicles, and idle reduction technologies. For more information on Clean Cities activities, visit [www.gbrccc.org](http://www.gbrccc.org)

## LGS Publishes Geologic Quadrangle Map for Monroe Area

Funding for the mapping work is provided on an annual competitive basis by the U.S. Geological Survey under the National Co-operative Mapping Program. The geologic compilation for the Monroe South map was performed by LGS research associates Richard P. McCulloh and Paul V. Heinrich, with cartography by research associate Robert Paulsell and cartographic manager John Snead. The GIS compilation was done by research associate R. Hampton Peele, along with graduate students J. Ramachandran, J. George and Marcus Massom.

Created by the Louisiana Legislature in 1934, LGS is the only geologic mapping research agency in the state. Quadrangle maps published by LGS are critical for the creation of derivative maps used extensively by industry for environmental projects, site location and numerous other industrial and economic development projects.

The Monroe South map and the other quadrangle maps published by LGS are available from LGS publications: 225-578-8590 or <http://www.lgs.lsu.edu/deploy/publications/publicationcatalog.php>

## LGS Researcher Featured in Meteor Crater News Stories

Louisiana Geological Survey research associate Paul V. Heinrich was featured on the front page of the April 3, 2011, *Sunday Advocate*, as well as in a recent TV news segment about a 10,000-year-old meteor strike in St. Helena Parish. The segment is part of New Orleans’ Fox 8 “Heart of Louisiana” series.

Heinrich and his team discovered a circular feature while studying a topographic map of the area off of Hwy. 37, a geologic formation that would not likely have occurred naturally in an area like that of St. Helena Parish, with no volcanoes or salt domes.

Heinrich says the meteor is estimated to have measured about 100 feet in diameter. The crater is about one mile across. While no fragments of the meteor have been discovered—with as much as 90% likely to have vaporized upon impact and the remaining pieces destroyed by weathering—the iron-rich sediments comprising the rim of the crater appear to have been fractured and bleached along these fractures by super-heated water. Microscopic analyses of quartz sand from the rim of the crater found “shock marks” typical of hypervelocity impacts in the form of shocked quartz, which is created only by meteor strikes and nuclear tests, and intensely fractured quartz.

The St. Helena crater is the only known meteor crater in Louisiana and one of only 176 on earth. This type of meteor impact occurs once every 2000-6000 years.



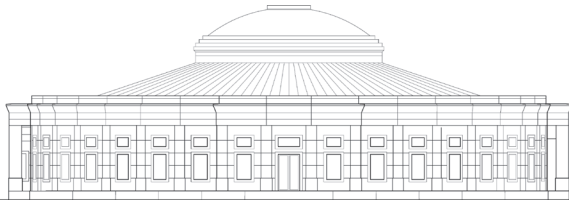
*At the November Green Expo hosted by the LDEQ are (l-r) Clean Cities coordinator Lauren Stuart, Sarie Joubert of Chesapeake Energy, and Gilberto Cuadra and Yasoob Zia of LDEQ.*



*LGS research associate Paul V. Heinrich and his team discovered evidence of a 10,000-year-old meteor strike in St. Helena Parish.*



*Exposure showing fractures that occur within sediments comprising rim of the Brushy Creek Crater near Greensburg, Louisiana.*



## *In the Rotunda*



*Mobile Gen's Mobile Trailer serves as a portable power/water treatment plant in support of first responders, disaster relief and rebuilding operations.*

### **Alternative Energy 2010 Features Louisiana Clean Energy Expo**

Alternative Energy 2010, held April 21-22, included the "Greening an Enterprise Economy" conference, a clean fuels symposium, and the first Louisiana Clean Energy Expo on renewable energy, alternative fuels and vehicles, energy efficiency. For the full program and virtual tour, visit [www.enrg.lsu.edu/Conferences/altenergy2010/index.html](http://www.enrg.lsu.edu/Conferences/altenergy2010/index.html)



*Guy Mannino, president and CEO of Vertek, and Randal O'Toole, a senior fellow at the CATO Institute, take questions from the audience at the Clean Fuels Symposium.*



*CleanFUEL USA promoted its propane-fueled trucks at the Louisiana Clean Energy Expo.*



*Exhibitors at the Expo shared information on the latest products in energy efficiency and renewable energy.*



*Former Shell president John Hofmeister makes a point (or three) during Energy Summit 2010.*

### **Hofmeister Featured Speaker at Energy Summit 2010**

Energy Summit 2010, held October 26, focused on deepwater exploration and the future of the Gulf of Mexico in the aftermath of the Deepwater Horizon incident. John Hofmeister, former president of Shell and author of the recent book *Why We Hate the Oil Companies*, was a featured speaker. For the full program, visit [www.enrg.lsu.edu/Conferences/energysummit2010/index.html](http://www.enrg.lsu.edu/Conferences/energysummit2010/index.html)

### **Hurricane Preparedness Event Showcases Storm Readiness, Response Efforts**

On Monday, May 24, the Center for Energy Studies hosted Entergy Louisiana, LLC, and Entergy Gulf States Louisiana, L.L.C., as the companies held a "storm school" to discuss the companies' preparations and to demonstrate the many factors that go into a major restoration effort. Storm Ready 2010 featured:

- A mini-staging area to show how restoration workers from around the country are housed and fed.
- A safety demonstration to show what happens when everyday objects come into contact with an energized power line.
- A hands-on 3D model to show how power is restored from the power plant to customers' homes after a storm.



*Jerry Heinberg and Jim Davidson of the La. Department of Natural Resources, CES's Christopher Peters, Hunter Coates of Breton Sound Resources, and speaker Andrew Robertson of The Moody Company network at Energy Summit.*



*Entergy's power restoration model was on display at the May 24 "storm school."*

**View conference presentations at [www.enrg.lsu.edu/conferences](http://www.enrg.lsu.edu/conferences)**

- An exhibit showing Entergy's Storm Center [website](#), including the View Outages feature. The exhibit also featured Entergy's outage texting service, which can text information to a cell phone, and My Account Online, the companies' online account management service.

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## McDaniel Retires, Gilmore Departs

In January, CES professional-in-residence Mike McDaniel retired from LSU, and research associate Jordan Gilmore departed for Cambridge, Mass., for graduate work at Harvard. Both were with the Center for three years. Mike now has a gratis appointment with the Center and remains an adjunct professor of environmental sciences in the School of the Coast and Environment. Jordan is a master's candidate in environment and public policy. The faculty and staff wish to express our thanks to both Mike and Jordan for their contributions to CES (including fresh produce from Mike's bountiful harvests) and wish them the best in their post-CES endeavors.

## CES Greets Fans on LSU Day

LSU Day, held Homecoming Day, November 13, was the culmination of a year-long celebration of the LSU sesquicentennial. The celebration was highlighted by performing arts showcases, tours, and exhibitions showing off LSU's history and achievements in athletics, research, the arts, academics, and community engagement. The CES booth, which saw more than 300 visitors, included a display of the award-winning "A Comprehensive History of the Offshore Oil and Gas Industry in Louisiana and its Consequences" project, Louisiana Geological Survey maps, including the popular Atchafalaya Basin map, and particle detectors for hands-on learning, presented by the staff of the Radiation Safety Office.



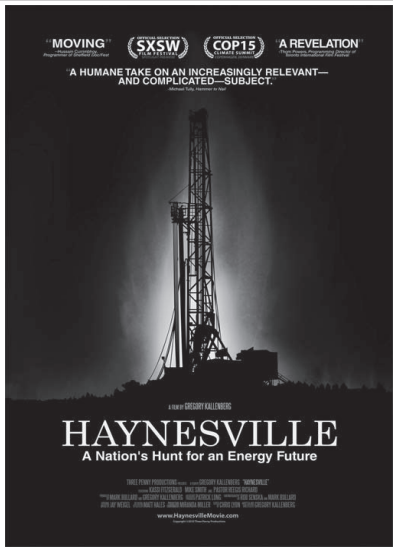
*Charles Wilson of Radiation Safety teaches young Tiger fans about radiation emitted by common household items at LSU Day.*



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Visit [www.enrg.lsu.edu](http://www.enrg.lsu.edu) to read  
 about the latest news and events  
 at the CES.

The **Center for Energy Studies**  
 conducts, encourages, and  
 facilitates research and  
 analysis to address energy-  
 related problems or issues  
 affecting Louisiana's economy,  
 environment, and citizenry.  
 Whether conducted by its  
 staff or by others it supports,  
 the Center's goal is to provide  
 a balanced, objective, and  
 timely treatment of issues  
 with potentially important  
 consequences for Louisiana.



**Cordially invite you to attend a private reception  
 and screening with Director Gregory Kallenberg**

**HAYNESVILLE:**  
**A Nation's Hunt for an Energy Future**

**Tuesday, April 19**  
**Dalton J. Woods Auditorium, LSU Campus**  
 Center for Energy Studies  
 Energy, Coast and Environment Building  
 Nicholson Drive Extension  
 Baton Rouge, LA 70803

**Reception begins at 5:30 pm**  
**Screening begins at 6:15 pm**

Dress: Business casual

**RSVP by April 12**  
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 or call (713) 337-8804

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