

**Bioenergy Sustainability and Land-Use Change Report  
Oak Ridge National Laboratory (ORNL)  
March 2011**

**ORNL Publications:**

DOE's Biological and Environmental Research (BER) Advisory Committee's Long Term Visions Workshop Report has been made official and public – see [http://www.sc.doe.gov/ober/berac/BER\\_LTVreport.pdf](http://www.sc.doe.gov/ober/berac/BER_LTVreport.pdf). Virginia Dale and Gregg Marland (ORNL) contributed to Chapter 4 on Grand Challenges in Energy Sustainability.

Kline K, E Parish, N Singh, S Wullschleger, B Preston, M Keller, LR Lynd. 2011. Collaborators welcome: Global Sustainable Bioenergy Project (GSB). GLP NEWS No. 7 (7-8). The article reviews recent collaborations among ORNL, PNL and others in research supporting the GSB. See <http://www.globallandproject.org/newsletter.shtml>

Schweizer P, and HI Jager. In press. Modeling regional variation in riverine fish biodiversity in the Arkansas-White-Red River basin. Transactions of the American Fisheries Society.

**ORNL Publications Submitted:**

Langholtz M, Graham RC, Eaton L, Perlack R, Hellwinckel C, De la Torre Ugarte D. In review. Price Projections of Feedstocks for Biofuels and Biopower. U.S. Journal of Energy Policy.

**ORNL Provided Comments:**

March 9: Oral and written comments were provided by Keith Kline to the CSBP staff and Field Testing Task Force related to developing and implementing a two-tiered approach for Integrated Resource Management Plans (IRMP) as a strategy to move forward with an effective and successful voluntary standard. The first tier IRMP, at a fuel-shed scale, would be prepared by the biomass buyer/contractor to clarify and simplify requirements at the individual grower scale. ORNL also recommended more emphasis be placed on incentives for continuous improvement as a core principle in the Standard.

March 14: Kline submitted comments, links and a list of references describing the drivers of global and regional land-use change to Stephen Kaffka for consideration by the California ARB LCFS Sustainability Work Group March 17 meeting in Sacramento.

March 14 and 30th: ORNL provided additional information to CSBP staff and Task Force members on options for handling issues that vary with location such as invasive species and on the changes that likely be required if the CSBP wanted to be recognized as in compliance with the provisions of the RSB.

March 16: ORNL contributed to formal comments on the proposed Roundtable on Sustainable Bioenergy (RSB) calculation of a global average GHG emission value for the fossil fuel baseline to be used in their standard. The comments point out that the analysis omitted several sources of emissions and used U.S. values for venting and flaring which skew results toward a smaller value for fossil fuel emissions.

March 30: Gangsheng Wang and Keith Kline developed comments on the working draft of “Sustainability Criteria for Bioenergy” (ISO 13065) for submission to the ISO PC-248 in preparation for the May Committee meeting.

**ORNL CBES Forum:**

The Center for Bioenergy Sustainability Forum was held on March 17<sup>th</sup>, 2011. Guest speaker was Tom Wilbanks who is a Corporate Research Fellow at Oak Ridge National Laboratory. Tom presented “Perspectives from Sustainability Science on Energy Sustainability” as his topic for discussion. (See [http://www.ornl.gov/sci/ees/cbes/forums/Slides\\_Mar11.pdf](http://www.ornl.gov/sci/ees/cbes/forums/Slides_Mar11.pdf))

**Other Activities:**

A Facebook page and a Twitter account have been set-up for the Center for BioEnergy Sustainability. This will help provide information to a larger group of people who are interested in bioenergy and sustainability.

<http://www.facebook.com/pages/Center-for-BioEnergy-Sustainability/198441580180476>

Follow us on Twitter @ ORNL CBES.

A map of the US showing potential bioenergy feedstocks that was developed by ORNL will appear in the upcoming USDA report “Soil and Water Resources Conservation Act Appraisal Report” (per request of Dan Mullarkey). The map will appear in the paper to be published in June: Dale VH, L Wright, KL Kline, R Perlack, RL Graham, M Downing. In press. Interactions Between Bioenergy Feedstock Choices and Landscape Dynamics and Land Use. *Ecological Applications*.

March 15: Keith Kline, Greg Marland, and Virginia Dale had a conference call with Brian Titus of the Canadian Forest Service, Anne-Marie Chapman and Emil Laurin of Environment Canada. Topics discussed included Life Cycle Assessment (LCA) in forest systems – especially the spatial and temporal boundaries of these analyses and the temporal value of carbon. They also shared information about several ongoing projects in the two countries that focus on environmental indicators and optimization approaches to sustainable landscape designs. The group agreed to share information and to have another conference call in mid April.

March 15: In a conference call, Kline and Dale shared their knowledge, a white paper and ideas about biofuel issues in Brazil with Sheila Moynihan of DOE’s Office of the Biomass Program to assist in developing a briefing package for the US delegation visit to Brazil led by the President.

March 24: Matt Langholtz participated in the conference call of the Climate Change Task Force of the Council on Bioenergy Sustainability (CSBP). During the call the Task Force selected vendors to submit full proposals for the “Development of Bioenergy Greenhouse Gas Sustainability Standards” and discussed field testing results and recommendations.

Yetta Jager provided GIS maps of empirical upland and lowland switchgrass yields to researchers (SongLin Fei and John Lhotka) at the University of Kentucky Department of Forestry for a research project to evaluate the economic feasibility of bioenergy plantations (switchgrass vs. short rotation tree crops) in the Ohio River Valley region. These researchers are planning to use our model to compare switchgrass yields with those of tree groups.

Rebecca Efrogmson was selected as a peer reviewer for the USEPA report "Biofuels and the Environment: First Triennial Report to Congress." The peer review meeting was held in Washington, D.C., in March 2011.

Lynn Wright, Virginia Tolbert, and Allen McBride are organizing and preserving three decades' worth of material related to ORNL research in bioenergy feedstocks. Especially important are field data, institutional records, technical manuscripts, and subcontractor reports related to DOE's Bioenergy Feedstock Development Program between 1978 and 2002.

**Conferences/Workshops/Meetings Attended:**

Robin Graham attended the CCR / DOE High Performance Computing workshop, March 10-11 in Rockville, MD. The workshop focuses on optimizing the role of high performance computing in chemical research, and Robin participated in the Biomass/Bioenergy breakout session dealing with sustainable biomass supply: integration of life cycle assessment, macro-economic models and geospatial data.

**Upcoming ORNL Visits/Events:**

April 6-8: Several ORNL staff will participate in the Platform Review of the DOE Office of the Biomass Program in Annapolis, MD.

April 13-14: Robin Graham will meet with Molly Jahn from the University of Wisconsin and will be part of the 2011 Great Lakes Bioenergy Research Center (GLBRC) Seminar Series. Please see details at <http://www.glbrc.org/2011seminar>.

May 2-5: ORNL will participate in 33rd Symposium on Biotechnology for Fuels and Chemicals, Seattle.

May 17-18: Virginia Dale plans to attend the Great Lakes Bioenergy Research Center (GLBRC) Sustainability Retreat, South Bend, IN.

May 16-20: Keith Kline to serve as an official US delegate for the International Organization for Standardization (ISO) Project Committee working sessions on "Sustainable criteria for bioenergy" in Frankfurt, Germany.

September 2011: Virginia Dale to visit Michigan Technological University as a Distinguished Ecologist lecturer in the School of Forest Resources and Environmental Science.

Several staff from USDA's Rural Development program are planning to visit ORNL: Vernita F. Dore (South Carolina State Director), Walter W. Douglas (Outreach Program Specialist, Southeast Region), Bobby Goode (Tennessee State Director), Will Dodson (Tennessee Energy Program Coordinator) and Bob Connelly (Tennessee Assistant to the State Director). Presentations will be made by Virginia Dale (Director, Center for BioEnergy Sustainability), Paul Gilna (Director, BioEnergy Science Center), Tom King (Program Manager, Energy Efficiency Electricity Technologies) and Jonathan Mielenz ( Group Leader, Bioconversion Science and Technology, Biosciences Division).