

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

**ORNL Publications:**

Dale, VH, RA Efrogmson, and KL Kline. In press. The land use–climate change–energy nexus. *Landscape Ecology*.

Dale, VH, KL Kline, L Wright, R Perlack, M Downing, RL Graham. 2011. Interactions Between Bioenergy Feedstock Choices and Landscape Dynamics and Land Use. *Ecological Applications* 21(4):1039-1054.

McBride, A, VH Dale, L Baskaran, M Downing, L Eaton, RA Efrogmson, C Garten, KL Kline, H Jager, P Mulholland, E Parish, P Schweizer, and J Storey. 2011. Indicators to support environmental sustainability of bioenergy systems. *Ecological Indicators* 11(5) 1277-1289.

**Proposals submitted to ORNL’s Laboratory Directions Research and Development program:**

Efrogmson RA, Jager HI, Ganguly A, in collaboration with USDA Forest Service Eastern Environmental Threat Assessment Center. Causal Analysis for Climate Change: A Focus on Forests.

Post WM, Kline KL, et al. Global Agro-ecosystem Model System for Analysis of Sustainable Biofuel Production Under Climate Change.

**ORNL Publications Submitted:**

Parish ES, MR Hilliard, LM Baskaran, VH Dale, NA Griffiths, PJ Mulholland, A Sorokine, ME Downing, RS Middleton, NA Thomas. In review. Multimetric spatial optimization of bioenergy crops across a watershed. *Journal of Environmental Quality*.

**ORNL Provided Comments:**

Keith Kline coordinated with the Council on Sustainable Biomass Production (CSBP) Field Testing Task Force and Sam Jackson (UT/Genera) to develop recommendations on moving forward in a manner emphasizing continual improvement while reducing transaction costs for producers. ORNL also participated in the April 14th Climate Change Task Force discussions and drafted a memo describing a two-tiered approach for Integrated Resource Management Plans and steps to incorporate input from growers. The final Memo was submitted to Council members on April 21, and discussed in the April 27-28 meetings.

April 5: Comments, capabilities and ORNL contact information were submitted to the National Renewable Energy Laboratory (NREL) and the United States Agency for International Development (USAID) to support the USAID workshop and the State Department initiative for Low-Emission Development Strategies (LEDS). A program to support multi-disciplinary assessments and planning (integrating energy, agriculture, land-use and other goals), LEDS combines development goals with climate change mitigation and adaptation strategies. The initiative focuses on developing nations and others (e.g. Brazil, Mexico and Colombia). On April 7, Keith Kline met with Dan Bilello (NREL) and USAID staff regarding collaborations and

capacities to support specific needs in LEDS countries where ORNL has relevant contacts and experience.

April 25: ORNL (Keith Kline) submitted comments to the State Department, the Office of the Biomass Program (OBP) and the United States Department of Agriculture (USDA) on proposed Global Bioenergy Partnership (GBEP) Indicator #8 on Land Use and Land Use Change (LUC), noting that the metrics proposed will need further revision to be practical, science-based, relevant and implementable with consistency.

Throughout the month, ORNL provided contributions and guidance for the development of a draft Vision and Action Plan document for the Global Sustainable Bioenergy Project (GSB) Stage 2, which was presented to the GSB Board April 29th.

### **ORNL CBES Forum:**

The Center for Bioenergy Sustainability Forum was held on April 21st, 2011. The guest speaker was Elena Berger, a postdoctoral fellow at the Georgia Tech School of Public Policy, doing research at the Technology Policy Assessment Center (TPAC). Elena presented “Dynamics of Innovation of Biofuel Ethanol: Three decades of experience in the U.S. and in Brazil” as her topic for discussion. (See [http://www.ornl.gov/sci/ees/cbes/forums/Slides\\_.pdf](http://www.ornl.gov/sci/ees/cbes/forums/Slides_.pdf))

### **Other Activities:**

April 6-8: Several ORNL staff participated in the Platform Review of DOE OBP in Annapolis, MD.

April 13-14: Robin Graham met 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>.

April 15: Allen McBride, Meghan Drake, and Virginia Dale provided an innovation story to DOE on ORNL’s sustainability activities. Alison Goss Eng requested this information for the Communications and Outreach (C&O) office at DOE Energy Efficiency and Renewable Energy (EERE) in order to gain exposure for its programs and their successes. The stories are given a high priority by DOE’s Office of Public Affairs.

Virginia Dale participated in a survey on merging issues for the United Nations Environment Programme (UNEP) Foresight Process at the invitation of UNEP's Chief Scientist: Prof. Joseph Alcamo.

April 18: Several members of CBES took part in a presentation for the State of Kentucky Division of Renewable Energy and the Department for the Energy Development and Independence. Robin Graham, Bob Perlack, Laurence Eaton, and Virginia Dale presented on various topics pertaining to bioenergy and sustainability.

April 28-29: Laurence Eaton attended the Council on Sustainable Bioenergy Production work group and Task Force meeting, followed by an open board meeting in Washington, DC.

April 28-30 - Mark Downing attended the Woody Biomass Energy Research Symposium for the Northern Forest at the University of Vermont that brought together researchers, community members, policy-makers, agency representatives, funders, non-profits and interested businesses to present current research, identify information needs, and build relationships among those working on woody biomass energy issues in the Northern Forest Region. Mark presented the results of the EERE DOE Biopower Technical Strategy Workshop Summary Report from a Meeting held in Denver, CO in December 2009. The report is available online at the OBP Website: <http://www.eere.energy.gov/biomass>.

Center for BioEnergy Sustainability					
Website "Hits" Statistics Report					
Site	Average Monthly 10/2009 - 9/2010	2010		2011	
		Oct	Nov	Feb	Mar
Monthly & Annual Report	133	136	238	310	1,065
Symposia	400	410	1,020	1,420	1,800
Factsheets	357	295	511	631	1,564
Forums	962	1,191	2,309	3,372	4,502
Collaborations	New!	117	202	384	892
Images	1,881	827	1,416	1,333	3,266
Scientists				New!	950
Workshops					
Land-Use	982	965	1,546	1,593	2,354
EPA	185	149	242	290	766
Watershed	145	104	182	259	567

### Upcoming ORNL Visits/Events:

May 2: Esther Parish will judge the Dyllis Elementary School Science Fair alongside Ken Tobin, Director for the Measurement Science and Systems Engineering Division (MSSSED), and Shaun Gleason, Leader of the MSSSED Imaging, Signals and Machine Learning Group.

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

May 12-13: Luis A.B. Cortez, of University of Campinas, Brazil, plans to visit ORNL and make a special CBES presentation on potential for bioenergy expansion in Latin America and Africa (the LACAF Project). Luis also serves as a Special Projects Coordinator at the Foundation for Research of Sao Paulo (FAPESP - <http://www.fapesp.br/en/>), and on the Executive Committee of the Global Sustainable Bioenergy Project (GSB).

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.

May 17-18: Latha Baskaran will attend the Frontiers in Bioenergy conference at Purdue University and give a presentation on "Evaluating bioenergy sustainability using indicators and a watershed-scale optimization model."

May 24<sup>th</sup>: Kline will present in a Food-Fuel and Land Use Issues educational webinar (65 people had pre-registered as of April 29) organized by the National Biodiesel Board.

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