

**Bioenergy, Sustainability, and Land-Use Change Report
Oak Ridge National Laboratory (ORNL) March 2012**

ORNL Publications

Dale VH, RA Efrogmson, KL Kline, MH Langholtz, PN Leiby, GA Oladosu, MR Davis, ME Downing, LM Eaton, MR Hilliard (in review) "Indicators to support assessment of socioeconomic sustainability of bioenergy system" Ecological Indicators.

Schweitzer P, H.I. Jager, L.M. Eaton and R.A. Efrogmson. "Watershed valuation - understanding spatial variation in value derived from fish diversity" has been submitted for peer review.

Oladosu D. Manuscript on "Global Economic Effects of the USA Advanced Biofuel Targets: A Dynamic General Equilibrium Evaluation" has been submitted for peer review.

ORNL Presentations:

March 13 – Rebecca Efrogmson presented "Measuring environmental effects of biofuel production at the BioEnergy Symposium 2012--Transportation Biofuels. Infrastructure, Design, Environment and Sustainability (IDEAS) center at UNC Charlotte

March 13 – Rebecca Efrogmson served as a panelist in "A Round-Robin Snapshot: Eight Strong Voices Shape our Biofuels Future," a lunchtime panel at BioEnergy Symposium 2012 – Transportation Biofuels. Infrastructure, Design, Environment and Sustainability (IDEAS) Center at UNC Charlotte.

March 28—Esther Parish presented her research on "Projecting Continental U.S. Water Stress Based on Global Datasets" at the American Water Resources Association (AWRA) 2012 Spring Specialty Conference on GIS and Water Resources VII, "Managing Climate Change Impacts on Water Resources: Adaptation Issues, Options and Strategies" in New Orleans, LA.

ORNL CBES Forum:

March 15 – James Szybist from National Transportation Research Center (NTRC) presented "Impacts of Emerging Engine and Fuel Technologies on the Efficiency of Future Engines". This presentation can be accessed at the CBES website under forums:
<http://www.ornl.gov/sci/ees/cbes/forums.shtml>

Other ORNL Activities:

March 1: Anthony Turhollow, Allen McBride, Tim Theiss, and Keith Kline contributed comments and suggestions for inclusion in DOE's review of a draft by the International Energy Agency of their forthcoming Technology Roadmap *Bioenergy for Heat and Power*.

March 5 – Mark Downing, Matt Langholtz and Laurence Eaton participated in the OBP Webinar with environmental NGOs to review and discuss OBP sustainability activities. The presentation focused on the Billion-Ton Update results.

March 6 - ORNL staff met to discuss the research methodology needed to meet the FY12 Joule Milestone related to Sustainability Indicators targets for biomass production. The methodology

will be applied targets two representative production cases: Switchgrass in Georgia and Corn Stover in Iowa. Meetings next quarter will include representatives from other labs also involved in the deliverable.

March 6-28: A series of conference calls and meetings supported ongoing development including calibration and validation of switchgrass for the HPC-EPIC Global Bioenergy Crop Model. This research is conducted in conjunction with the Global Bioenergy Sustainability (GSB) project involving partners in EU and Brazil.

March 14 – Gbadebo (‘Debo) Oladosu was the recipient of the Stanley I. Auerbach Award for sustained excellence using Computable General Equilibrium modeling to understand how economic activity responds to environmental and market shocks and shifts.

March 14 – Matt Langholtz joined a conference call of the Field Testing Task Force of the Council on Sustainable Biomass Production

March 18 – ORNL submitted comments on working draft “ISO 13065- Sustainable Criteria for Bioenergy.” ORNL also participated in technical exchanges to discuss and develop related documents: U.S. comments on WG4 Report on Indirect Effects, U.S. Talking Points for the ISO meeting, and the WG4 Presentation to the Project Committee.

March 20 – ‘Debo Oladosu, Maggie Davis and Keith Kline participated in a conference call with researchers from Brazil’s Bioethanol Science and Technology Laboratory (CTBE) and the Institute for International Trade Negotiations (ICONE) to continue exchanges that support research to improve LUC modeling by considering mechanisms to allow ORNL’s GTAP-DEPS global model and the Brazilian Land-Use Model (BLUM) to interact when simulating effects of biofuel policies.

March 26--At the request of EERE, Rebecca Efroymsen reviewed a bioenergy sustainability proposal for the U.S.-Egypt Joint Science and Technology Fund, a bilateral program that pairs U.S. and Egyptian researchers.

March 28- Erin Webb has accepted an appointment as an adjunct faculty member with UT Biosystems Engineering and Soil Science Department. Erin will participate in their first annual research symposium on April 17.

March 29 – Based on comments from Paul Leiby, Tim Theiss, Debo Oladosu and Keith Kline, Virginia Dale and Aaron Crowell discussed the April 24 workshop on “Social aspects of bioenergy sustainability” that DOE is planning.

March 29 – Keith Kline and Virginia Dale joined a conference call of the task force of the Council on Sustainable Biomass Production’s Climate Change/Green House Gas

March 30 – ORNL and partners in Latin America contributed to the development of a proposal for "A Pan American Biofuels and Bioenergy Sustainability Research Network (SRN)." The

proposal, led by Michigan Technological University, was submitted to the National Science Foundation Sustainable Research Network Program.

March 5-30: Technical exchanges continued this month with Latin America Caribbean and Africa (LACAF) project leaders from The São Paulo Research Foundation (FAPESP) and with LACAF subproject leaders from the Brazilian Reference Center on Biomass (CENBIO), The State University of Campinas (UNICAMP), and the São Paulo State Environmental Agency (CETESB) to develop a joint LACAF research proposal to FAPESP on bioenergy sustainability water quality issues.

Upcoming ORNL Visits/Events:

April 8-12, 2012 – Peter Schweizer will present “Monetizing fish richness at spatial scales relevant to ecology and resource management” at the 2012 US-IALE Annual meeting to be held in Newport, RI. Co-authors are Laurence Eaton, Yetta Jager and Rebecca Efrogmson.

April 10 – Matt Langholtz has been invited to speak at the 2012 Oklahoma Experimental Program to Stimulate Competitive Research (EPSCoR) Annual State Conference on Bioenergy in Stillwater, Oklahoma. <http://www.okepscor.org/public-outreach/news/save-date-2012-oklahoma-epscor-annual-state-conference>

April 12-13: Keith Kline will contribute to the IEA Task 38 meeting at Argonne National Lab to discuss accounting methods for the timing of emissions associated with bioenergy in Life-Cycle Assessments.

April 16-20, 2012 - Keith Kline and Maggie Davis will participate in the second plenary meeting of the ISO Project Committee (PC248) developing a standard on “Sustainability Criteria for Bioenergy” hosted by the U.S. Technical Advisory Group at Argonne National Lab.

April 25, 2012 – Matt Langholtz will be presenting “Billion-ton update: An Overview” at the 4th Annual EBI Biofuels Conference in Illinois.

April 24—Virginia Dale, Keith Kline, Paul Leiby, Gbadebo Oladosu, Rocio Uria-Martinez, and Rebecca Efrogmson will attend the Bioenergy Social Sustainability Workshop, hosted by DOE-OBP. Virginia Dale will present “Indicators to support assessment of socioeconomic sustainability of bioenergy systems.”

April 30-May 3: ORNL contributions to the 34th Annual SIM conference in New Orleans are listed below. The presentations will be part of a session chaired by Kelly Tiller entitled “Biomass Supply & Sustainability” on the opening day.

<http://sim.confex.com/sim/34th/webprogrampreliminary/Session2137.html>

- **Posters:**

- “Scientific Approaches for Assessing Land-Use Change” - Keith Kline, Gbadebo Oladosu, Virginia Dale, Allen McBride.
- “Estimating the Benefits and Costs of Sustainable Corn Stover Production” – Laurence Eaton, Virginia Dale, Mark Downing, Matthew Langholtz, David Muth, Bob Perlack.

- “Beyond the Billion Ton: Expanding and refining National Feedstock Resource Analysis. Matthew Langholtz, Laurence Eaton, Robert Perlack et al.
- **Presentations:**
 - “Indicators to Support Environmental and socioeconomic Sustainability of Bioenergy Systems” – Virginia Dale, Latha Baskaran, Maggie Davis et al.
 - “The U.S. Billion Ton Update: Biomass Supply for a Bioenergy and Bioproducts Industry” – Laurence Eaton, Bob Perlack, Bryce Stokes et al.

May 1-2: Keith Kline will make two presentations and facilitate discussions as an invited speaker in the “Sustainable Energy Symposium” hosted by Kansas State University.

May, 2012 – ORNL will host Marcello Moreira, a representative from ICONE, to compare parameters of GTAP-DPS and BLUM models, a first step in linking these two models for improved LUC modeling and analysis.

May 29-31 – Virginia Dale and Keith Kline are invited to attend the first workshop of the Research Coordination Network on Pan American Biofuels and Bioenergy Sustainability hosted by Dr. Mario Ruz at UNAM-CEPHCIS in Merida, Yucatan, Mexico.

June 20- Keith Kline has been invited to participate in a panel at the Bio International Convention (BIO 2012) on “Sustainability & GHG Certification Schemes – Key Industry Actions Towards a Level Playing Field” in Boston, MA. <http://convention.bio.org/>

August 5-10, 2012 - A Special Session proposal, "A Debate on the Sustainability of Biomass Production for Energy", has been selected for presentation at the 2012 Ecological Society of America (ESA) Annual Meeting in Portland, Oregon. Focused on the proposition, “Producing bioenergy can be sustainable for habitat availability and biodiversity, and can eschew the risk of new invaders”, this formal debate will allow opening statements by each of six experts, followed by rebuttals, with audience questions entertained during the final 30 minutes. The audience will be polled before and after to determine the winners. H. Jager is an organizer and R. Efrogmson will represent the “for” position.

August 5-10, 2012 – Virginia Dale will speak in the Symposium "Bioenergy and Biodiversity: Oxymoron or Opportunity?" to be held at the 2012 ESA Annual Meeting in Portland, OR. Her presentation is titled “Environmental and socioeconomic indicators of bioenergy sustainability.”

October 2012 - Virginia Dale is serving as a member of the Conference Programming Committee for the "Science for Biomass Feedstock Production and Utilization National Conference" to be held in October 2012 in New Orleans and sponsored by the Sun Grant Initiative. <http://www.sungrant.org/News+and+Events/2012+National+Conference.htm>

November 5-8 – The 9th Biennial Short Rotation Woody Crops Operations Working Group announces a “Save the Date” in Oak Ridge and Knoxville, Tennessee.