

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

ORNL Publications

Efroymson RA, VH Dale, KL Kline, AC McBride, JM Bielicki, RL Smith, ES Parish, PE Schweizer, DM Shaw. (In press) Environmental indicators of biofuel sustainability: What about context? *Environmental Management*.

Johnson TL, J Bielicki, R Dodder, M Hilliard, Ö Kaplan, A Miller. (In press) Advancing sustainable bioenergy: Evolving stakeholder interests and the relevance of research. *Environmental Management*.

Dale VH, KL Kline, D Perla, A Lucier. (Minor revisions requested) Communicating about biofuel sustainability. *Environmental Management*.

ORNL Presentations:

June 10-13 – Matt Langholtz and Laurence Eaton presented a poster titled “Integrating Microalgae Biofuel Production Potential into Biomass Resource Assessment” at the 2nd International Conference on Algal Biomass, Biofuels and Bioproducts in San Diego, CA.

June 20 - Keith Kline presented “Sustainability, Certification and Opportunities to Level the Playing Field” as invited speaker/panelist at the BIO 2012 International Convention. in Boston, MA (<http://convention.bio.org/>). Keith discussed standards and certification issues with panelists Ian Thompson of Canada’s Waterfall Group (bioenergy consulting), Richard Nelson (representing National Biodiesel Board) and Peter Ryus, CEO for the RSB Services Foundation during the Session on “Sustainability-GHG Certification Schemes, Key Industry Actions Towards a Level Playing Field.”

June 20 - Virginia Dale gave a presentation on “Indicators to support assessment of sustainability assessment of energy systems” to more than 200 students who are interns at Oak Ridge National Laboratory under the Oak Ridge Associated University summer program.

June 26 - Virginia Dale gave a presentation on “Indicators to support assessment of environmental and socioeconomic sustainability of bioenergy systems” to scientists from the University of Arizona who are interested in collaboration opportunities. Attendees included Eric Betterton (Department Head, Atmospheric Science), Kim Ogden (Professor, Chemical and Environmental Engineering) and Ardeth Barnhart (Director Renewable Energy, Institute of the Environment).

ORNL CBES Forum:

June 7 – Ariel Rodriguez and Edgar Castillo from the Colombian Petroleum Institute presented the following topics on “Energy Diversification Program at Ecopetrol”, “Advanced Biofuels, Heat and Power Generation from Biomass and Renewables (Proposal)” and Energy Efficiency in upstream operations” at a special CBES forum. This presentation can be accessed at the CBES website under forums: <http://www.ornl.gov/sci/ees/cbes/forums.shtml>

June 21 – Natalie Griffith and Matt Langholtz from ORNL presented “Examining the effects of short-rotation pine for bioenergy on water quality and quantity using a watershed-scale experiment”. This presentation can be accessed at the CBES website under forums: <http://www.ornl.gov/sci/ees/cbes/forums.shtml>

Other ORNL Activities:

June 1-29 – Keith Kline and Maggie Davis participated in nine ISO PC248 webinars associated with six expert task groups and submitted six proposals for text as the various Work Groups continue to negotiate language for the next draft Standard. ORNL also contributed to the first WG-4 meeting under a new mandate and work plan for the June- December, 2012 period.

June 5 - Kline submitted comments on plans for a Global Bioenergy Partnership (GBEP) Workshop tentatively scheduled for Africa in the first quarter FY13.

June 7-8 – Staff met with Molly Jahn, University Wisconsin, to discuss strategic planning for testing bioenergy indicators in pilot projects across diverse landscapes.

June 7-8 – ORNL hosted visitors from the Colombia Petroleum Company (EcoPetrol, Instituto Colombiano del Petróleo), Ariel Uribe Rodriguez and Edgar Fernando Castillo Monroy, and exchanged ideas for collaborative research on indicators of sustainable bioenergy systems, shared information on the Latin America Caribbean and Africa (LACAF) project, and other topics of mutual interest.

June 7- Debo Oladosu stood in for Tim Theiss at the Advanced Biofuels and the Midwest Market in Chicago, IL. Participants highlighted the challenges facing the advanced biofuels industry, as well as many encouraging developments. Many participants agreed on the need to preserve the RFS2, with safeguards that continue to address economic, environmental and social issues. In particular, a continuation of the advanced biofuel tax credit is seen as crucial to the advanced biofuels industry.

June 7 – Laurence Eaton, Esther Parish and Suresh SanthanaVannan met with University of Tennessee colleagues to discuss the ongoing construction of an online Biomass Atlas for the Southeast region, as funded through the Sun Grant Initiative.

June 8 – Staff met with Dr. Henry Neufeldt of Global Climate Change and Food Security (GCAFS) and the World Agroforestry Center in Nairobi, Kenya.

June 20 – Kline discussed LUC issues with Peter Ryus (Roundtable on Sustainable Biofuels Services Foundation).

June 21 – Virginia Dale, Latha Baskaran and Esther Parish met with colleagues from the University of Tennessee on ways to validate water quality models and to collaborate on assessment of energy sustainability.

June 25 - Several ORNL staff completed the survey of the International Energy Agency (IEA) Bioenergy on sustainability certification of biomass, biofuels, and bioenergy

Latha Baskaran and Phil Nugent collaborated to provide spatial data depicting numbers of fish and mussel species with elevated conservation concern in the ORNL Knowledge Discovery Framework, with appropriate attribution. This data can be overlaid with previously provided layers showing areas of high potential switchgrass yield to assess geographic potential for maintaining or improving aquatic biodiversity.

June 24-26—Esther Parish conducted GIS analysis to provide University of Tennessee colleagues with additional potential water sampling locations for sustainability analysis of switchgrass production under the Southeast Partnership for Integrated Biomass Supply Systems (IBSS) project funded by USDA.

June 29—Esther Parish and Beau Wesh assisted University of Tennessee colleagues on a field day around the Vonore switchgrass fields. They helped to collect water quality and quantity data from several farms and nearby channels and investigated a potential new water sampling location for the IBSS project.

Upcoming ORNL Visits/Events:

July 19 - Virginia Dale will speak at the ORNL Committee for Women poster session. Esther Parish will display her poster being prepared for the July 23 meeting (see below).

July 23-24 - Esther Parish will present a poster on “Designing Bioenergy Cropping Systems to Maximize Sustainability Objectives” to the upcoming workshop on “Visualization Technologies to Support Research on Environment Interactions” that will be held in Annapolis, Maryland by the National Socio-Environmental Synthesis Center (SESYNC). Esther’s travel expenses will be paid by SESYNC through a grant from the National Science Foundation.

July 24— ORNL will host Ghobah Rahrooh, Woody Keown, Robert Rohrbaugh, Rainer Cina, Phil Green and Ryan West from Proctor and Gamble to emphasize: Feedstock Assessment and Sustainability Metrics.

July 25-31 – ORNL will host Danny Inman from the National Renewable Energy Laboratory (NREL) in order to foster collaborations between NREL and ORNL on developing and implementing a watershed scale Life Cycle Analysis (LCA) that strives to include a fuller suite of indicators of sustainability.

August 5-10, 2012 – Several ORNL staff will participate in the 2012 Ecological Society of America (ESA) Annual Meeting in Portland, Oregon.

- A Special Session, "A Debate on the Sustainability of Biomass Production for Energy", will focus 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. Efroymson will represent the “for” position.

- Virginia Dale will speak in the Symposium "Bioenergy and Biodiversity: Oxymoron or Opportunity?" on “Environmental and socioeconomic indicators of bioenergy sustainability.”
- Keith Kline will speak on “Models, causal analysis and scientific methods for understanding land-use change (LUC) dynamics.”

Aug 19-23 – Debo Oladosu will present “Evaluating the Economic Benefits of the Advanced Biofuels Targets under the RFS2” paper at the 244th ACS National Meeting in Philadelphia, PA.

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 will meet in Oak Ridge and Knoxville, Tennessee.

November 12-15 – Latha Baskaran will present “Modeling the effects of switchgrass management on aquatic macroinvertebrates” at the 2012 AWRA Annual Water Resources Conference in Jacksonville, FL.