



## Southeast United States Bioenergy Study Tour

Hosted by Oak Ridge National Laboratory (ORNL)  
April 10 – 14, 2016

This meeting highlighted innovations developed by the Bioenergy Technologies Office (BETO) of the US Department of Energy (DOE) in support of deployment of a sustainable bioeconomy focusing on the example of wood-based bioenergy. The meeting began the evening of April 10th with a reception at the Comfort Inn in Oak Ridge. The activities on April 11-14 consisted of a bus excursion with several stops and lectures and well as an afternoon symposium.

### Comfort Inn • 433 S. Rutgers Ave • Oak Ridge, TN, 37830

**Sunday, April 10, 2016:** **2:00 pm – 5:00 pm** Optional guided hike: History of land use and effects on bioenergy opportunities  
**6:00 pm – 8:00 pm** Reception: Landscape approach for sustainable bioeconomy

**Monday, April 11, 2016:** **6:00 am – 7:45 am** Breakfast (provided by hotel)

**Morning Tours:** The morning tours will split into three subgroups that will all visit the sites below in a round robin:

**UT Forest Resources AgResearch and Education Center:** Forestry practices in the absence of an active pellet industry - Kevin Hoyt



**Old growth forest on the Oak Ridge Reservation:** Old-growth low-elevation forests are quite rare in the southeastern United States – Larry Pounds and Jamie Harold

**National Transportation Research Center (NTRC):**

- Visualization of progress toward bioenergy sustainability – Mike Hilliard
- Vehicle emissions testing – Jae-Soon Choi and Sam Lewis

**Afternoon Symposium: Oak Ridge National Laboratory, JICs Lobby and Auditorium**  
**Overview of opportunities and constraints of wood-based bioenergy**

- Welcome to Oak Ridge National Laboratory
- DOE's Bioenergy Technologies Office (BETO's) role in expanding the advanced bioeconomy and the importance of context specific opportunities - Kristen Johnson (BETO)



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- Forest condition, history, and trends in the Southeastern United States (SE US): Dave Wear (US Department of Agriculture Forest Service)
- The wood based pellet industry in the SE US: Seth Ginther (US Industrial Pellet Association)
- Perspectives on the pellet industry in the SE US:
  - Economic perspective - Karen Abt (US Department of Agriculture Forest Service )
  - Environmental concerns -Brian A. Kittler (Pinchot Institute for Conservation)
  - Wetland issues – Bob Emory (Weyerhaeuser Company)
  - Carbon issues - Bob Malmsheimer (State University of New York)

• **Break • Photo •**

- Noncorporate land owner perspective - Scott Jones (Forest Landowners Association)
- Certification programs supporting the pellet industry in the SE US – Paul Trianosky (Sustainable Forestry Initiative)
- European perspective
  - Kristine Van het Erve Grunnet (Danish Energy Association, Demark)
  - Richard Peberdy (Drax Biomass International Inc., United Kingdom)
- Summary of key opportunities and concerns - Tat Smith (University of Toronto, Canada)

• **Reception •**

DOE Innovations to Support a Sustainable Bioeconomy – Alison Goss-Eng (BETO)

• **Return to the Comfort Inn by 8 pm via buses •**

## Tuesday, April 12, 2016:

**7:30 am – 8:30 am** Travel to Vonore, TN - In Route Presentations:

- Overview of day – Virginia Dale (ORNL)
- Surveying landowners regarding supporting the bioeconomy – Don Hodges (University of Tennessee)

**8:30 am – 9:25 am** Genera Inc.

- Overview of Genera – Kelly Tiller (Genera Inc.)
- Participants divide into two groups, and round robin 20 minute tours begin
  - Energy Garden - Kelly Tiller and Mike Odom
  - Processing Facility - Clay Dye and Austin Beddingfield

**9:25 am – 9:40 am** Travel to switchgrass field

**9:40 am – 10:00 am** Switchgrass field

- Grower perspectives – Kelly Tiller and Mike Odom

**10:00 am – 12:30 pm** Travel to Hiawasee, Georgia - In route presentation:

- Assessing multimetric aspects of sustainability: Application to a bioenergy crop production system in East Tennessee - Esther Parish (ORNL)

**12:30 pm – 2:00 pm** Lunch



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- Discussion of non-corporate forest landowner concerns and opportunities – Frank Riley (land owner) and Scott Jones (Forest Landowners Association)
- 2:00 pm – 3:45 pm** Travel to Liberty, South Carolina - In route presentation
- Landscape design and stakeholder engagement in the Midwestern US – Cristina Negri (ANL)
- 3:45 pm – 5:30 pm** Non-corporate private forest operations
- Bioenergy supporter and rock star– Chuck Leavell <http://www.chuckleavell.com/blog2/>
  - Non-corporate forest land owner perspective- Tom O’Hanlan
  - Non-corporate forest operation and biodiversity issues – Derek Dougherty (Dougherty and Dougherty Forestry)
  - An experimental approach to assess the ecological sustainability of woody biomass harvests - Chris Moorman and Steve Grodsky (NCSU) and Ben Wigley (NCASI) (presenter)
- 5:30 pm – 6:45 pm** Travel to Greenwood, SC
- 6:45 pm – 8:00 pm** Dinner: Discussion of (1) Planning for the triennium for IEA Bioenergy Tasks 38 and 43 and (2) Opportunities & constraints in resource management for all others
- 8:00 pm – 9:15 pm** Travel from Greenwood, SC, to Aiken, SC

### Holiday Inn Express • Aiken, SC 29803

#### Wednesday, April 13, 2016:

- 7:30 am – 8:00 am** Travel to Savannah River National Laboratory, register & badging
- 8:00 pm – 12:00 pm** Savannah River Site:
- Field studies of effects on water quality – Rhett Jackson (University of Georgia) & Natalie Griffiths (ORNL)
  - Drive to Cogen Plant / Snack
  - Cogen Plant - Nolan Graf and Barbara Ladd (DOE) and Clinton Sandmel and Ken Chacey -(Ameresco)
    - Overview presentation
    - Tour - divided into two groups
- 12:00 am – 1:00 pm** Lunch and presentations at meeting room at Cogen Plant
- Sustainability-driven integrated landscape management through the application of LEAF in Iowa - Shyam Nair and Jason Hansen (INL)
  - Integrated systems for the bioeconomy - Helena Chum (NREL)
- 1:00 pm – 3:00 pm** Travel to forest with drive by chipping mill – presentation on the bus
- Sustainable bioenergy intercropping in pine plantations - results from research to operational-scale trials - Jami Nettles (Weyerhaeuser Company)
  - Chipping mill operations overview - David James (Drax Biomass)
- 3:00 pm -4:00 pm** Forest near the Weyerhaeuser nursery and seed orchard (Chris Muckenfuss)



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- Forest sustainability from a large land owner perspective – Kyla Cheynet (Weyerhaeuser Company)
  - Master logging program -- Rob Hicks
  - NCASI work on sustainable bioenergy - Ben Wigley (NCASI)
- 4:00 pm - 5:00 pm** Travel to non-corporate private forest
- ASTM standards for bioenergy sustainability – Keith Kline (ORNL)
- 5:00 pm - 6:00 pm** Visit to non-corporate private forest
- Family forest landowner perspectives – Fred Warnell
- 6:00 pm – 7:00 pm** Travel to Comfort Inn, Savannah, GA 31408
- 7:30 pm – 9:30 pm** Dinner and discussion on “Innovations in bioenergy”

### Comfort Inn • Savannah, GA 31408

#### Thursday, April 14, 2016:

- 7:00 am – 8:30 am** Travel to pellet mill with drive by saw mill in route – presentations on bus
- Success stories of US NE wood fuels for local heating markets - Charles Levesque (Innovative Natural Resource Solutions, LLC)
  - Ensuring Sustainability at Enviva– Jen Jenkins and Allison Gratz (Enviva)
- 8:30 am to 10:30** Pellet mill operations
- Pellet mill operations – Danny Faircloth and Lige Moore (LJR mill owner and manager)
- 10:30 to noon** Travel to Savannah airport – presentations on bus
- Interfor-CNS Mill – Kevin Bowman
  - Albedo effects of biomass production - Pierre Bernier (Canadian Forest Service)
  - Opportunities and costs of wood-based bioenergy in the SE US – Virginia Dale (ORNL)
  - Wrap up & exit survey – Virginia Dale (ORNL)
- Noon** Study Tour adjourns

#### Acronyms and Twitter handles

- ANL – Argonne National Laboratory @argonne
- BETO – Bioenergy Technologies Office @BioenergyKDF
- CBES – Center for BioEnergy Sustainability @ORNL CBES
- INL – Idaho National Laboratory @INL
- NCASI – National Council for Air and Stream Improvement
- NCSU – North Carolina State University @NCState
- NREL – National Renewable Energy Laboratory @NREL
- ORNL – Oak Ridge National Laboratory @ORNL
- SRNL – Savannah River National Laboratory @SRSNews



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*The Study Tour was certified for Category 1-CF credit  
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