

# Renewable and Low Cost Energy Systems for Small Farms

July 10, 2014

Madren Conference Center

240 Madren Center Dr.

Clemson, SC

9:00 am – 4:00 pm

Fossil-fuel prices are rising across the country and farmers are feeling the pinch. As increasing energy costs cut into farm profits, adoption of renewable on-farm energy systems gains recognition as a tool for farmers to alleviate the additional expense. Please join our expert guest speakers Steve Moore (Elon University), John Bonitz (Southern Alliance for Clean Energy), and Shawn Jadrnicek (Clemson University) for a full day workshop on low-cost, farm energy systems that minimize the need for fossil fuel-based energy.

## TOPICS:

The morning session will give an overview of energy use in food systems, and participants will learn about specific renewable energy systems and conservation strategies that can be used on the farm, and available funding opportunities. Following a locally-sourced lunch, participants will tour the nearby Clemson University Organic Farm and alternative greenhouse and high tunnel heating systems designed by farm manager Shawn Jadrnicek. Steve Moore will also point out potential areas of the farm operation where energy savings can be made.

## REGISTRATION:

The fee to attend this workshop is \$30 for non-extension personnel and \$12 for Extension Personnel which includes lunch. To register for this workshop please follow this link:

[https://secure.touchnet.net/C20569\\_ustores/web/product\\_detail.jsp?PRODUCTID=551](https://secure.touchnet.net/C20569_ustores/web/product_detail.jsp?PRODUCTID=551)

## ABOUT THE INSTRUCTORS:

**Steve Moore** is currently a Lecturer in AgroEcology in the Environmental Studies Department at Elon University, Elon, NC. Previously he was the Small Farm Unit Manager and Agriculture Energy Specialist at the Center for Environmental Farming Systems, NC State University. Steve is an expert in renewable farm energy systems and he has been a pioneer in development of solar greenhouse and high tunnel production systems. Steve and family have farmed and gardened organically for over 35 years.

**John Bonitz** is Renewable Energy Manager and Biomass Specialist with the Southern Alliance for Clean Energy based in Pittsboro, NC. John works with farmers in southeastern states to provide information on bioenergy, and he promotes sustainable utilization of biomass for electricity, with an emphasis on state and federal policies. The son of a dairy farmer, before coming to SACE John previously worked on bioenergy projects for RAFI USA, Piedmont Biofuels, and the National Renewable Energy Laboratory.

**Shawn Jadrnicek** is manager of the Clemson University Student Organic Farm. Shawn is an expert in organic farming and in the use of permaculture design principles on the farm to maximize energy efficiency. Shawn has designed a novel "Bio-Integrated Season Extension" system for high tunnel vegetable production at the Clemson farm that reduces the amount of fossil fuel-based energy compared to conventional heating systems.

## QUESTIONS?

Please contact Kelly Gilkerson: [kgilker@clemson.edu](mailto:kgilker@clemson.edu)

## AGENDA

- 8:30 – 9:00 Check-In (coffee and refreshments available)
- 9:00 – 9:10 Welcome and overview (Geoff Zehnder, Clemson University)
- 9:10 – 9:45 Overview of the current state of US energy use in food systems; energy conservation and efficiency (Steve Moore)
- 9:45 – 10:30 Renewable energy sources: potentials for wind, solar thermal and solar electric. Funding opportunities under the USDA Value-added Producer Grant (VAPG) and REAP Programs (Steve Moore)
- 10:30 – 10:45 Break
- 10:45 – 12:00 Farm and community scale bioenergy for the Southeast. Carbon sequestration and the soil-carbon imperative, woody biomass, and biochar. (John Bonitz)
- 12:00 – 1:00 Lunch
- 1:00 – 1:30 Basic introduction to an on-farm energy audit
- 1:45 – 3:00 Tour of the Clemson Organic Farm (Shawn Jadrnicek with Steve Moore)
  - Permaculture design components to reduce use of fossil-fuel based energy
  - Greenhouse and high tunnel heating (Use of exterior and interior ponds, Passive solar and hydronic heating, Compost heating)
- 3:00 – 4:00 Farm walk through to identify areas of high energy use, monitoring methods and renewable alternatives (with time for questions and discussion). (Steve Moore with John Bonitz and Shawn Jadrnicek).