2006
USDA Forest Service Biomass Grant Award

"WOODY BIOMASS UTILIZATION ON NATIONAL FOREST SYSTEM LANDS TO ACHIEVE UNMET MANAGEMENT NEEDS"

Bi-annual Progress Report: July 1, 2006 - December 12, 2006

Objective 1: Improve forest health conditions on NFAL lands through utilization of the more cost-effective method of harvesting biomass to achieve forest management objectives.

Responsible Partner: USFS Oakmulgee Ranger District of the Talladega National Forest

- **Task:** Forest Service will prepare 500 - 1000 acres of over stocked pine stands for biomass removal using a Stewardship Integrated Resource Contract.
- **Timeline:** June, 2006 – February, 2007

The USFS Oakmulgee Ranger District of the Talladega National Forest has focused its efforts in the following areas during this initial 6 month period:

1) Relative to this task, the project timeline has been adjusted targeting Spring – Summer 2007 for the award of the contract. Supporting work completed to date includes canvassing of local landowners to determine knowledge of biomass harvesting opportunities.
2) In March 2006, the Oakmulgee completed a pilot biomass removal project treating 32 acres. The purpose of this pilot was to gain experience with the volume determination and contract administration.
3) Building off these two information gathering events (1 and 2 above), the partners are developing a newsletter targeting local landowners. The newsletter will provide basic information about biomass resources.
4) On January 13, 2007 the partners will host a workshop and field tour for local landowners to provide more information regarding the grant and developments and opportunities in local biomass utilization. This workshop will serve as the basis for designing the 500-1,000 acre biomass removal project for task 1.
5) The Oakmulgee District, along with the other partners, will attempt to incorporate landowner questions and concerns in the project layout and design. (Also supports Task 5)

Objective 2: Explore new uses and determine capacity of woody biomass to augment coal fired power generation.

Responsible Partners:

- USFS Oakmulgee Ranger District of the Talladega National Forest
- The Southern Company
- Auburn Forest Products Development Center @ Auburn University
- Forest-Based Economic Development Services, Inc.

- **Task :** Test firing 1,000 tons of refined biomass, followed by one or more units selected for long term (1 year) co-firing using up to 20,000 tons of biomass.
- **Timeline:** June, 2006 – December 2006

The USFS Oakmulgee Ranger District of the Talladega National Forest has focused its efforts in the following area during this initial 6 month period:

1) Worked to facilitate savings in transportation cost and identify suitable biomass removal sites within the Talladega National Forest - Shoal Creek Ranger District. This should result in a saving of $5,000-$10,000 in haul cost for the partnership. Supporting work is underway by the Shoal Creek District and a negotiated sale of 1,000 tons of biomass is targeted for February 2007.

The Southern Company has focused its efforts in two areas during this initial 6 month period:

1) Attended planning meeting with Forest Service and Auburn University Forestry School personnel on methods to produce small wood chips for use in utility pulverized coal boilers. (Auburn, AL)
2) Made a series of presentations around the Southeast and elsewhere in support of biomass for energy as follows:
    a) Mississippi State University – Biomass Power, gasification and renewables
    b) Georgia Bio-energy Conference – Tifton, Georgia
    c) DOE Biomass Roadmap Advisory meeting – Syracuse, NY
    d) Biomass Co-firing – EPA Headquarters in Washington, DC
    e) Renewable Energy – American Association of Construction Engineers, Birmingham, AL
    f) Bio-refinery Project Review @ Princeton University, Princeton, NJ
    g) Biomass Co-firing presentation to media group @ Plant Gadsden, Gadsden, AL
    h) Biomass Co-firing presentation DOE Opportunity Forum, Washington, DC
    i) Biomass Power – University of Georgia, Athens, GA

Forest-Based Economic Development Services, Inc. has focused its efforts in two areas during this initial 6 month period:

1) Identified and screened loggers with the equipment to harvest biomass for the 1,000 ton test at Plant Gadsden per grant objectives
2) Attended meeting with the USFS to discuss options relative to harvesting biomass as per grant objectives from the Shoal Creek District of the Talladega National Forest

    - **Task:** Determine sustainable sources of woody biomass within a 60 mile radii of selected Alabama Power facilities and the capacity to produce a potential is 800,000 tons per year from private and public lands. When: February, 2007 – October, 2007

The Auburn Forest Products Development Center has focused its efforts in following areas during this initial 6 month period:

1) Relative to this task, the Forest Products Development Center (FPDC) has focused its efforts in identifying databases, methodologies, and previous work products.
2) The FPDC has identified information sources and methodology that will be used to estimate the availability of woody biomass, by source and type, within each of the designated drain areas. The USDA Forest Service's FIA program will serve as the primary data source, but will be supplemented with other public information and private file data.
3) Additionally, a format has been established for mapping wood residue sources that could be utilized for fuel.

Forest-Based Economic Development Services, Inc. has focused its efforts in four areas during this initial 6 month period:

1) Identification of Alabama Power's pulverized coal power plants & their specific locations.
2) Determination of the resources (forest residuals vs. mill residuals) to be evaluated.
3) Determination of the extent of the inventory of each resource (volumes, types of residuals, distance to steam plants, etc.)
4) Sourcing of data.

Objective 3: Increase the efficiencies in biomass removal, processing, and value of removed woody biomass. Early estimates anticipate a $210 savings per acre for habitat management over the alternative of paid TSI with the development of processing technology to deliver ¼ " chips to power generators.

Responsible Partners:

- USFS – Southern Research Station @ Auburn, Alabama
- Auburn Forest Products Development Center @ Auburn University

- **Task:** Field test equipment, techniques, and technologies that will increase efficiencies in harvesting biomass and reducing it to a suitable size for utilization in co-firing energy production plants.
- **Timeline:** October, 2006 – October, 2007

The Auburn Forest Products Development Center (FPDC) has focused its efforts in following areas during this initial 6 month period:

1) The FPDC has focused its initial efforts in this task in investigating potential processing machinery options for producing the desired fuel form by means of a single pass operation. There are a variety of in-woods chipping and grinding systems available in today's market for processing both roundwood and forest residues into biomass fuel. In-woods chipping systems and horizontal grinders can effectively process tree stems and longer pieces of roundwood; while tub grinders are more effective in processing wood waste material of odd shapes and sizes. Our investigation to date, however, suggests that none of these systems, in their current configuration, will be capable of producing fuel wood within the size limitations demanded by the generating plant.
2) The machinery evaluated includes product offerings from Peterson Pacific, Morbark, CBI, Trelan, Bandit, and others. Cooperating in this evaluation was Robert Rummer, of the USDA Forest Service's G.W. Andrews Forestry Sciences Laboratory. Work done to date suggests under the current state of the industry, it will be necessary to utilize a two-pass processing system to achieve the particle size limitations for woody fuel to the generating plant.
3) Immediate efforts are now focused on evaluating secondary processing machinery. Current plans call for the harvested material to be converted to whole tree chips in the forest. These chips will then be delivered to a secondary processing machine for further particle size reduction.
4) Machinery planned for evaluation includes products from Precision Husky, Ribtec, Rader, Jeffrey, and others.

Objective 4: Evaluate the response of fuels and under-story vegetation to biomass removal relative to Condition Class.

Responsible Partner: USFS Oakmulgee Ranger District of the Talladega National Forest

- **Task:** Identify treatment areas, review management history, collect baseline vegetation data, establish and implement a monitoring program.
- **Timeline**: August, 2006 – November, 2007

The USFS Oakmulgee Ranger District of the Talladega National Forest has focused its efforts in the following area during this initial 6 month period:

1) On December 16, 2006 the Oakmulgee District, the Nature Conservancy, and the University of Alabama Natural History Museums will be co-hosting a field day targeting university professors and researchers. Relative to this grant, professors and students will be invited to participate in the establishment of the baseline and evaluation process.

Objective 5: Improve local economies of rural towns and communities by creating new, more stable markets, new enterprises and processing techniques for public and private land managers.

Responsible Partner: The University of Alabama Center for Economic Development

- **Task:** Expand awareness of biomass resource and potential for management in local communities. Conduct public meetings and outreach. Determine direct and indirect effects to local economies. Determine potential for long-term economic growth.
- **Timeline**: September, 2006 – December, 2007

The University Center for Economic Development (UCED) has focused its efforts in three areas during this initial 6 month period:

1) Planning project elements
2) Research of alternatives to create economic sustainability of communities in project area
3) Developing a relationship and communication with elected officials and civic leaders

Planning Project Elements
UCED has participated in various project planning meetings for the purpose of organizing project elements, coordination of resources and information sharing. These meetings resulted in direction and details for programming which will include orientation field trips, community education meetings, community listening sessions and mechanisms for communicating and presenting information to leaders and landowners in the project area.
Meeting dates: 7/17/06, 7/21/06, 7/26/06, 8/14/06, 8/23/06, 9/5/06, 9/11/06, and 10/11/06
Conference calls: 10/13/06, and 11/08/06

Research of Sustainable Economic Development Alternatives
UCED is researching approaches and best practices in comparable settings. Preliminary information suggests that the engagement of the civic and elected leaders and landowners provides the basis of community organization which facilitates long-term planning and the implementation of objectives leading to sustainable economic development. Steps have been taken to initiate this process, see number 3 below.

Developing Relationship with Elected Officials, Civic Leaders and Landowners

a. Updated listing of organizations, elected officials and civic leaders has been developed. This includes membership organizations such as Treasured Forest.
b. Compiled and updated database of landowners contiguous to the US Forest.
c. Efforts are underway to organize a county-wide mechanism for communication and planning for Bibb County. This was a direct result of UCED's support for organizing the process and providing a forum for discussion and planning.
d. An education and information newsletter is in draft form, slated for release in December 2006 or January 2007.

Meeting dates in Bibb County: 8/1/06, 8/23/06, 9/5/06, 9/28/06, 10/10/06, 10/20/06, 11/02/06, 11/17/06, and 12/7/06.

Targets for the next six months will include educational field visits, educational sessions on biomass utilization for power generation and other uses, and facilitated planning sessions with landowners and citizens who utilize US Forest for recreation and tourism.