



January 3, 2011

## Woody and Agricultural Residues Harvested for NABC Research Teams

Catchlight Energy LLC and Iowa State University's Bioeconomy Institute have collected and prepared 17 tons of feedstock for research and for delivery to the National Advanced Biofuels Consortium (NABC) process strategy teams. Catchlight Energy and Iowa State University's (ISU's) Bioeconomy Institute, both recognized leaders in feedstock research for biomass processes, have combined their expertise in sustainable growth, harvest, and processing of lignocellulosic feedstocks to provide consistent, well-quantified feedstock and logistics expertise for the NABC research teams working to develop advanced biofuels from biomass.

Catchlight Energy is a 50/50 joint venture that unites Weyerhaeuser's expertise in innovative land stewardship, resource management, and capacity to deliver sustainable cellulose-based feedstocks at scale with Chevron's advanced fuel manufacturing and fuels distribution experience. ISU's Bioeconomy Institute (BEI) seeks to advance the use of biorenewable resources for the production of chemicals, fuels, materials, and energy. Mike Cooley, Catchlight Energy's Manager of Feedstock Supply, and Dr. Stuart Birrell, an Associate Professor in ISU's Department of Agricultural and Biosystems Engineering, are coordinating the supply of two feedstocks, woody residue and corn stover, for the consortium while also providing information on sustainable growth, harvest, and transportation practices to engineering and environmental assessments.

Catchlight Energy collected approximately 9 tons of final harvest residual chips, at about 50% moisture, in 2 lots (7 and 2 tons, respectively) from a commercial chipping job site. The material, which is predominately loblolly pine, was chipped at the site and then blown into a chip van for delivery to the packaging area where it was packed for shipment in cardboard totes. Variability within a lot is expected to be minimal; between lots there may be some species variability; e.g., one lot could be higher in pine.



Woody harvest and shipment. Images courtesy of Catchlight Energy LLC.

Both lots were shipped to ISU's New Century Research Farm for drying and sizing. The Farm is the first integrated, sustainable biofuel feedstock demonstration farm in the United States. The wood chips were dried in a modified semi-trailer with heated air passing through the material via perforated false bottom. After drying, lot 1 was coarse-ground through a 1/4-inch screen using an Arts-Way Hammermill and then placed in 220-gal bulk containers. After drying and grinding, the average moisture content of the 1/4-inch

material was 8.1%. Material from the bulk containers was further divided into drums for shipping to some partners or further milled to accommodate other partner's needs. The smaller size material, ranging from 0.5–1.5 mm to 200–400 micron material, was fine-ground in a lab-scale mill. ISU has ordered a larger (100 pound per day) mill for the fine formatting work, which is expected in January. The second lot of woody material was dried and is being stored as chips until needed.



Coarse and fine grind equipment. Images courtesy of Virent Energy Systems and ISU.

Corn stover was harvested from ISU test fields at the Century Farm using harvesting equipment designed specifically to collect stover. A first lot of about 4.5 tons was dried to about 10% moisture and ground to ¼-inch and smaller, depending on partner needs. During grinding the stover material generated significantly more dust than the wood chips did, and there was a greater variation in particle size during all grinding operations. The bulk density of the ¼-inch stover material is about 50% of the bulk density of wood chips. A second lot of corn stover (3.5 tons) is being stored at 24% moisture.

After receiving the feedstock, the six strategy teams analyzed the material for composition including impurities that can affect the performance of the catalysts, both biological and chemical, and began testing the materials in various thermochemical, chemical, and biochemical process routes to produce hydrocarbon fuels.

### **About Catchlight Energy**

Catchlight Energy is a 50/50 Chevron/Weyerhaeuser joint venture. Their mission is to commercialize the production of liquid transportation fuels from sustainable forest based resources. Two of Catchlight Energy's key R&D platforms focus on feedstock growth and sustainability science. These build on Weyerhaeuser's ownership of more than 6 million acres of the world's most productive softwood forestlands, their extensive infrastructure, and their strong heritage of science based forest management. This work encompasses (1) large scale field trials to develop basic understanding to support forest management strategies; (2) developing equipment, infrastructure, and expertise for collecting available and underutilized forest resources such as harvest residuals; and (3) regional studies quantifying the cost and availability of forest based biomass for biofuels production in the U.S. South and understanding how competition from other markets such as energy pellets and green power are likely to impact supply and cost over time.

### **About Iowa State University's Bioeconomy Institute**

The Bioeconomy Institute (BEI) at ISU is an outgrowth of the Bioeconomy Initiative – a campus-wide effort, launched in 2002, to investigate the use of biorenewable resources as sustainable feedstocks for producing chemicals, fuels, materials, and energy. The New Century Research Farm at Iowa State University is the first-in-the-nation integrated research and demonstration farm devoted to biomass production and processing. The Farm provides researchers with the opportunity to integrate harvesting, transportation, storage, and processing. The Farm will also offer facilities for outreach programming and industry collaboration.