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Memorandum Date: August 26, 2008
Board Date: September 4, 2008

TO: Board of County Commissioners
DEPARTMENT: CAO/Economic Development Standing Committee
PRESENTED BY: Mike McKenzie-Bahr, Community and Economic Development Coordinator

AGENDA ITEM TITLE: UPDATE ON LANE COUNTY ANNUAL RYEGRASS STRAW CONVERSION TO RENEWABLE ENERGY FEASIBILITY STUDY

I. MOTION

No motion needed, this is just an update to the Board on project status

II. AGENDA ITEM SUMMARY

In February 2008, the Oregon Department of Agriculture granted \$250,000 from the Alternatives to Field Burning Research Financial Assistance Program to Lane County to conduct a feasibility study to identify near-term viable options for adding economic value to Annual Ryegrass straw through renewable energy and fuel production, thereby creating an alternative to field burning.

The feasibility study spans multiple research elements, assesses five conversion processes and involves numerous public and private partners.

The team working on the current feasibility study is composed of experts specializing in business development, science, technology development, renewable energy and fuels production, business financing and government. They are examining technology solutions proven to convert organic material into renewable energy.

Interim Phase 1 conclusions, which will be released in a draft report next month, indicate that using grass straw as a renewable energy feedstock in each of the studied conversion technologies is technically feasible.

III. BACKGROUND/IMPLICATIONS OF ACTION

A. Board Action and Other History

The Lane County Board of Commissioners has been looking for ways to decrease the amount of grass straw burned each year. Approximately 66% of the 50,000 acres of grass straw burned each year is from ryegrass.

Grass straw from other types of grass is used in a variety of value added products, which for economic reasons has eliminated that straw being burned. The seed industry has looked at other uses for the annual ryegrass straw, but none have proved to have enough economic value that it makes financial sense for the growers to do anything but plow the straw under for several years and burn it every third year or so to add nutrients to the ground.

Commissioner Peter Sorenson and the County Economic Community and Economic Development Coordinator met with Katy Coba, Director of the Oregon Department of Agriculture, and Dave Nelson, the former Executive Director of the Oregon Seed Council on October 18, 2007 to identify a win-win solution to add value to the ryegrass straw. The opportunity presented by using the grass straw for energy production was the focus of the meeting as was discussion of the Alternatives to Field Burning Research Financial Assistance Program, which provides grant funds for projects to study methods to add value to the grass straw as an alternative to burning it.

County staff prepared Board Order 07-12-12-1, that was adopted by the Board and authorized submission of a grant application. The Oregon Seed Council approved a companion resolution to the Board Order supporting the County's request for funding.

One of the things that earned the County this support is that Lane County, through the Forest Service Partnership Grant, had put together the Willamette Valley Biomass Working Group, which is working with the community to identify renewable energy uses for local biomass. Initially the group was looking at opportunities for woody biomass waste products, like slash, but its efforts have grown to include other waste products, including grass straw.

County staff, with input from the Willamette Valley Biomass Working Group, the Department of Agriculture, the Oregon Department of Energy, researchers at Oregon State University and other experts in renewable energy technologies, wrote and submitted a draft grant proposal for the Alternatives to Field Burning Research fund.

On February 14, Lane County received official notification that the grant was awarded. The grant was accepted by the Board on March 5, 2008.

Since that time, the feasibility study has been underway. An up-to-date status report of the study project elements is attached.

B. Policy Issues

There is no policy issue currently before the Board with regards to this study.

C. Board Goals

This project meets the Board Goal to “Maintain a healthy environment with regard to air quality, water quality, waste management, land use and parks.” In addition, if projects are created from the feasibility study findings, it will also meet the goal to “Work for a strong regional economy to expand the number of family-wage jobs available in Lane County.”

D. Financial and/or Resource Considerations

No County funding was required as match to this grant. The grant contains funds to pay for the time spent by County legal and fiscal staff on processing contracts and invoices for this project. Funding is also included to offset some of the time that Community and Economic Development staff will spend on this project.

E. Analysis

Interim Phase 1 conclusions of the feasibility study indicate that using grass straw as a renewable energy feedstock in each of the studied conversion technologies is technically feasible. There is still additional financial and technical work left to do in the study to determine the financial viability of a developable project. But the project team is hopeful that it can identify alternative solutions to some of the issues that the study has identified.

IV. TIMING/IMPLEMENTATION

A draft report of the study findings to date will be issued by September 26, 2008. The Feasibility Study Final Report will be issued December 2008.

The issuance of the Draft Report coincides with a request from the Oregon Department of Agriculture, based on an invitation from the House Committee on Agriculture and Natural Resources, to secure \$350,000 from the Legislature’s Emergency Board to prepare a Business Plan for a specific renewable energy project based on using Annual Ryegrass straw as a fuel source. The documents proposed in the Business Plan are the final documents needed to secure a

developer and funding for a renewable energy project based on annual ryegrass straw.

V. RECOMMENDATION

No project recommendation is being made at this time. This is just an update for the Board.

VI. FOLLOW-UP

The Lane County Community & Economic Development Coordinator will give the Board an update in early October regarding the draft report.

VII. ATTACHMENTS

A: Grass Straw to Energy: Status of project elements

Grass Straw to Energy: Status of project elements
Updated: August 26, 2008

Research Element 1: Harvesting, Bailing and Transportation Costs and Issues

- Information on all costs from field to facility gathered and cost analysis being finalized
- Information on this seasonal cost for nutrient replenishment, pest control and fertilizer costs gathered (provided by OSU).
- Tonnage of available Annual Ryegrass straw determined
- Other current uses of Annual Ryegrass straw identified
- Cost analysis spreadsheets being finalized

Research Element 2: Anaerobic Digester Energy Conversion Process

- Literature review completed – draft written report being prepared
- Two technologies selected for testing

Research Element 3: Pyrolysis Energy Conversion Process

- Literature review completed – draft written report being prepared
- Two technologies selected for testing

Research Element 4: Cellulosic Ethanol Energy Conversion Process

- Literature review completed – draft written report being prepared
- Two technologies selected for testing

Research Element 5: Pellets for Boilers Energy Conversion Process

- Literature review ongoing
- Two projects indentified as having merit to pursue

Research Element 6: Bench Scale Pilot Project Research on Elements 2-5

- Two AD tests completed that determined biochemical methane production: with a) no pretreatment and b) samples pretreated by thermal preheat processes.
- Two pyrolysis tests to completed at (USDA lab, Wyndmoor, PA). – creating pyrolysis oil and quantifying energy in (biomass and heat) and energy in products (bio-oil, charcoal, and gases) and oil properties (density, viscosity, flash point, pour point, etc.) Test to be analyzed at Wyoming Analytical Laboratories.
- Gasification test is completed and results being sent to project team
- One Cellulosic Ethanol test completed (Trillium fiber Fuels, Corvallis) and 1 sample sent to lab for spec and energy testing;
- 2nd test - Straw sent to lab (USDA lab, Wyndmoor, PA) for conversion into cellulosic ethanol
- Pellet test done outside of project, initial interview completed with that project team, second interview being scheduled. – Results of pellet test provided to team

Research Element 7: Facility Siting Elements Costs and Issues

- Initial siting criteria developed using DOE criteria
- Initial draft maps produced identifying sites in Lane County, Linn County and Benton County
- Map refining underway – final maps will identify sites from Albany to Cottage Grove

- Research on sites underway – data includes:
 - Property size and zoning
 - Owner contact info
 - Real Market Value
 - All contaminant issues on file with DEQ

Research Element 8: Financial Model Comparison and Return on Investment (ROI)

Draft financial spreadsheet prepared for project elements

Harvesting, Bailing and Transportation costs being entered

Facility construction costs being prepared for each technology path

Overview of agricultural co-ops as related to grass straw collection and processing – draft completed

Overview of agricultural LLC model - draft completed

Research Element 9: Recommendations from Finding

Draft report of finding – September 26, 2008

Final Report – December 2008