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**BOARD COVER MEMO**

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DATE: November 20, 2007

TO: Board of County Commissioners

DEPT.: Public Works

PRESENTED BY: Phillip Guyette, Fleet Services Manager

ITEM TITLE: IN THE MATTER OF IMPLEMENTING A PLAN FOR INCREASED USAGE OF 5% AND 20% BLENDS OF BIODIESEL FOR THE LANE COUNTY VEHICLE AND EQUIPMENT FLEET.

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## I. MOTION

Support the implementation of a plan for increased usage of 5% and 20% blends of biodiesel for the Lane County vehicle and equipment fleet.

## II. AGENDA ITEM SUMMARY

A plan from the Fleet Services Division of the Public Works Department has been developed at Board direction to increase County fleet usage of 5% and 20% blends of biodiesel. The primary County owned diesel fuel depots will begin dispensing biodiesel blends meeting ASTM D6751-07b Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels at the earliest possible opportunity. With the exception of emergency response equipment , seasonal equipment units that are inoperative for more than 180-days in any calendar year, equipment fueled from non-county owned facilities where biodiesel is not available, and equipment fueled from county-owned fuel depots that do not turn over the fuel within 180-days (the shelf life of biodiesel), all diesel powered vehicles and equipment units shall operate on not less than 5% biodiesel blends (B5).. Public Works will begin testing 20% biodiesel blends (B20) in a minimum of 25 equipment units that are fueled and serviced out of the Delta Complex within 60-days.

Public Works will monitor and record service histories, maintenance costs, and fuel economy for the equipment operating on B20, and report back to the BCC in 12-months.

## III. BACKGROUND/IMPLICATIONS OF ACTION

### A. Board Action and Other History

Public Works Fleet staff reported to the Finance & Audit Committee in May, 2007 regarding the potential for expanded use of 5% and/or 20% blends of biodiesel in the County's diesel powered fleet.

Since 1998, Public Works has taken an active role in evaluating the use of both alternative fuels and alternative power sources for use in the county vehicle and equipment fleet. Examples include:

- 2003: In a letter to the Public Works Fleet Manager on September 25, 2003, Lane County Commissioner Peter Sorenson expressed interest in fueling County owned diesel powered vehicles with a blend of 20% biodiesel and 80% petroleum diesel fuel.

- 2004: The underground fuel storage system at the Public Works shop in Eugene was replaced. The new system was engineered to store and dispense not only gasoline and petroleum diesel, but also ethanol and biodiesel blends. Additionally, the fuel dispensers were equipped with the plumbing required for installation of a vapor recovery system at a future date.

- 2005: Public Works began testing B5 biodiesel blend in 40 equipment units operated by the Waste Management Division of Public Works.

On October 31, 2007, the Board of County Commissioners directed staff to develop an implementation plan for transitioning the County vehicle and equipment fleet to B5 and B20 blended biodiesel usage to the greatest extent possible.

### B. Policy Issues

Use of biodiesel blends is a viable, commercially available, and economically reasonable alternative to petroleum diesel. Biodiesel emissions are significantly lower than petroleum diesel emissions in greenhouse gases which contribute to global climate change. Oregon House Bill 3543 and Governor Kulongoski's Renewable Energy Action Plan call for reducing greenhouse gas emissions and specifically support the transition to greater use of biodiesel in public sector fleets. Use of fuel produced primarily from agricultural products lessens the consumption

of nonrenewable hydrocarbon fuel and contributes to a more sustainable energy policy.

C. Board Goals

One of Lane County's goals, as articulated in the County's strategic plan, is to "maintain a healthy environment with regard to air quality. Additionally, strategies B3(a)1 and 2 may be impacted by policy choices related to fuel usage. B3(a)1 addresses immediate and critical life and health safety needs of citizens. B3(a) 2 addresses the County's direct response to the County's broad goals with primary emphasis on services that relate to personal safety, property safety, infrastructure safety, and health safety. Cost effectiveness is always a central concern for the County when exploring change strategies.

D. Financial and/or Resource Considerations

Transition to biodiesel blends of 5% to 20% wherever and whenever practical given safety and operational concerns is predicted to increase County fuel costs up to approximately 5% in the first year, with cost increases predicted to be less in future years. However, petroleum diesel and biodiesel are both commodities that are subject to independent market fluctuations. One or the other could increase or decrease, or both could increase or decrease together.

E. Analysis

While significant environmental and political advantages can be realized through the use of alternative fuels and alternative power sources, these options tend to be more expensive and can negatively impact operations. Public Works is continually evaluating alternative fuels and alternative power sources for its equipment. Currently factors related to biodiesel use are:

1. Biodiesel: Biodiesel is a fuel that can be manufactured from vegetable oils, recycled cooking grease, or animal fats. Currently, only biodiesel manufactured from vegetable oils meet the ASTM D6751 standard and is available for commercial distribution adequate for County use. The term 'biodiesel' refers to 100% biodiesel (B100). Biodiesel blends refer to a fuel that is composed of some percent of biodiesel and some percent of petroleum-based diesel fuel. B20, for example, is 20% biodiesel and 80% petroleum diesel. While biodiesel can be blended in any amount between 1% - 99%, it is typically blended in concentrations of either 5% (B5) or 20% (B20).

   While a more environmentally friendly fuel than petroleum based diesel, biodiesel does have drawbacks:

Cost: B100 has been approximately $0.33/gallon more expensive than petroleum based diesel. Based on current diesel fuel usage, the exclusive use of biodiesel in county operations would increase annual fuel costs approximately:

- B100 +$104,000
- B20 +$22,000
- B5 +$ 6,000

All fuel, including biodiesel blends, is a commodity and prices fluctuate based on a number of market factors. Different market factors affect biodiesel and petroleum diesel and therefore the prices may fluctuate independently.

Shelf-Life: Being an organic substance, biodiesel has a much shorter shelf-life than petroleum-based diesel. Like cooking oil, it becomes rancid and unusable in a much shorter time than petroleum based diesel.

- Petroleum based diesel: 270-day shelf-life
- B99: 75-day shelf-life
- B20: 120-day shelf-life
- B5: 180-day shelf life

Public Works stores diesel fuel in seven storage tanks at six locations throughout the county. Three of these storage tanks are refilled so infrequently that biodiesel in any concentration would become rancid prior to use. Additionally, Public Works operates 41 seasonal equipment units that sit idle up to 9-months each year. Biodiesel, in any concentration, would need to be flushed from the equipment fuel tanks annually prior to equipment usage.

Engine Warranties/Manufacturers Fuel Recommendations: Few engine manufacturers supplying diesel engines used in county owned equipment recommends biodiesel in concentrations greater than 5% (B5). Furthermore, failures that may be attributed to the use of non-approved fuels will void the engine warranty.

2. Biodiesel Blend Implementation Plan: At the October 31, 2007 Board of County Commissioners meeting, the Board directed staff to develop a Board Order for the consent calendar documenting a strategy and plan for the County to implement BCC policy direction to expand County fleet use of biodiesel blends of 5% where applicable and prudent and to begin testing of 20% biodiesel blends.

a. All County owned diesel fuel depots that are refilled at least once every 180-days (the shelf life of biodiesel) shall dispense biodiesel blends meeting ASTM D6751-07b Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels. In order to meet this specification in the quantities consumed by the Lane County fleet, no commitment can be made at this time to purchase bio-blends made from product provided solely by Oregon-based farmers or recycled restaurant industry product. If and when commercial vendors capable of meeting Lane County's supply requirements can provide products from these sources, meeting the ASTM standard, this will be factored into purchasing decisions.

b. With the exception of emergency response equipment , seasonal equipment units that are inoperative for more than 180-days in any calendar year, equipment fueled from non-county owned fueling facilities where biodiesel is not available, and equipment fueled from county-owned fuel depots that do not turn over the fuel within 180-days (the shelf life of biodiesel), all diesel powered vehicles and equipment units shall operate on not less than 5% biodiesel blends (B5).

c. Public Works will begin testing 20% biodiesel blends (B20) in a minimum of 25 equipment units that are fueled and serviced out of the Delta Complex within 60-days.

d. Public Works will maintain and document the service history, maintenance cost, and fuel economy of the equipment operating on B20, and report back to the BCC in 12-months.

e. Public Works will write into equipment specifications for all new or replacement diesel powered vehicles and equipment units with engines designed to operate on B20 where practical.

f. Technical Definition for Biodiesel (ASTM D6751-07b Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels) and Biodiesel Blend:

   *Biodiesel,* a fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the requirements of ASTM D 6751.

   *Biodiesel Blend:* a blend of biodiesel fuel meeting ASTM D 6751 with petroleum-based diesel fuel, designated B%%, where %% represents the volume percentage of biodiesel fuel in the blend. For example, B5 is 5% biodiesel and 95% petroleum diesel.

F. Alternatives/Options – Future Policy Considerations

1. Implement expanded use of B5 blended biodiesel immediately and begin testing 20% blended biodiesel (B20) in a minimum of 25 equipment units that are fueled and serviced out of the Delta Complex within 60-days. Report back to the BCC in 12 months.

## IV. RECOMMENDATION

Staff recommends that the Board support Option 1, that most County owned diesel fuel depots, with the exception of emergency response equipment and seasonal units and tanks, shall dispense biodiesel blends meeting ASTM D6751-07b Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels and begin testing 20% biodiesel blends (B20) in a minimum of 25 equipment units that are fueled and serviced out of the Delta Complex within 60-days with a report back to the BCC in 12 months.

## V. FOLLOW-UP

Implement the BCC decision.

## VI. ATTACHMENTS

None

IN THE BOARD OF COUNTY COMMISSIONERS
OF LANE COUNTY, OREGON

ORDER NO.

) IMPLEMENTING A PLAN FOR
) INCREASED USAGE OF 5% AND
) 20% BLENDS OF BIODIESEL
) FOR THE LANE COUNTY
) VEHICLE AND EQUIPMENT
) FLEET.

**WHEREAS**, Lane County depends on non-renewable petroleum-based diesel fuel for much of its vehicular fleet; and

**WHEREAS**, Lane County government purchases approximately 420,000 gallons of diesel fuel per year; and

**WHEREAS**, nearly all money spent by Lane County government to purchase petroleum diesel leaves the county and goes to foreign or out-of-state oil companies; and

**WHEREAS**, biodiesel is a viable, commercially available, and economically reasonable alternative to petroleum diesel; and

**WHEREAS**, biodiesel meeting ASTM standards can potentially be made from oils produced by Oregon farmers or recycled from the Oregon restaurant industry, thereby boosting the local economy; and

**WHEREAS**, biodiesel can be blended with petroleum diesel in any proportion to meet local conditions; and

**WHEREAS**, biodiesel emissions are up to 80% lower in CO2 and other greenhouse gases, that contribute to global climate change, as compared to petroleum diesel; and

**WHEREAS**, Oregon House Bill 3543 documented Governor Kulongoski's goals to reduce greenhouse gas emissions produced statewide by 2010, decrease emissions 10% below 1990 levels by 2020, and decrease emissions 75% below 1990 levels by 2050; and

**WHEREAS**, Governor Kulongoski's Renewable Energy Action Plan calls for 10% or more of the State government fleet vehicles to use biodiesel by 2025; and

**WHEREAS**, other federal state, and local agencies, including all four branches of the U.S. Armed Forces, the U.S. Postal Service, the Oregon Department of Transportation, the Oregon Department of Administrative Services, the City of Portland, the City of Eugene, and the City of Oakridge currently use varying percent blends of biodiesel for their diesel fleet vehicles; and

**WHEREAS**, the life-cycle costs of biodiesel, from farmland to fuel pump to atmosphere, must be considered in order to ensure that the use of biodiesel fuel is truly sustainable; and

**WHEREAS**, access to petroleum diesel or biodiesel produced afar may be limited in the future due to disruptions to the supply of petroleum diesel or due to natural disasters that limit the transportation of fuel; and

**WHEREAS**, the use of biodiesel blends in concentrations greater than 5% may result in the voiding of manufacturers' engine warranties in certain cases, but that the Lane County Board of Commissioners deems this risk to be acceptable in view of the successful track record of biodiesel usage by other federal, state, and local government entities; and

**NOW THEREFORE, IT IS HEREBY ORDERED** that the Board of County Commissioners directs staff to implement a plan for increased usage of 5% and 20% blends of biodiesel for the Lane County Vehicle and equipment fleet in substantial conformance with the plan presented in the agenda packet material placed before the Board on this date.

DATED this 20th day of November, 2007.

Faye Stewart, Chair,
Lane County Board of Commissioners

APPROVED AS TO FORM

Date 11-9-07 lane county

OFFICE OF LEGAL COUNSEL