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BOARD COVER MEMO

DATE: April 15, 2009

TO: Board of County Commissioners

DEPT.: Public Works

PRESENTED BY: Howard Schussler, Assistant Director of Public Works & Phillip Guyette, Fleet Services Manager

ITEM TITLE: IN THE MATTER OF PROVIDING OPTIONS FOR USAGE OF 5% AND 20% BLENDS OF BIODIESEL FOR THE LANE COUNTY VEHICLE AND EQUIPMENT FLEET.

I. MOTION

Move the implementation of the option selected by the Board of County Commissioners for usage of 5% and 20% blends of biodiesel for the Lane County vehicle and equipment fleet.

II. AGENDA ITEM SUMMARY

On February 18, 2009, the Fleet Services Manager from the Public Works Department presented a status report to the Board of County Commissioners on the County's pilot project on the usage of biodiesel blends in County equipment and vehicles. From that presentation and subsequent communications, the Board requested that staff return to the Board with recommendations regarding the continued usage of biodiesel blends from County fueling facilities.

The key factors for developing recommendations and decision-making have been identified as environmental impact, cost, mechanical failures, local economic interest, shelf life, warranty concerns, reliability, and temperature impacts. Based on these factors, staff has developed four options for Board consideration. The Board may select one of these options or modify any staff-provided option and select the modified option.

III. BACKGROUND/IMPLICATIONS OF ACTION

A. Board Action and Other History

Public Works Fleet staff began reporting to the Board of Commissioners beginning 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.

In October 2007, the Board directed staff to develop an implementation plan for introducing B-5 and B-20 blended biodiesel to the County vehicle and equipment fleet for the greatest usage possible.

The Public Works Fleet implemented changes including the following:

1. Dispensing B-5 (5% biodiesel blend) from all County fuel facilities.
2. Dispensing B-20 from one of the tanks at the fuel facility at the Public Works Delta shop. One tank dispensed B-5 for emergency response vehicles, and equipment not used often enough to ensure fuel shelf-life can be maintained.

B. Policy Issues

Use of biodiesel blends is viable and commercially available. 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.

While the use of biodiesel blends may be economically reasonable, there is still a significant difference based on per gallon commodity costs, inventory carrying costs, and costs from reliability issues. At the heart of the policy choices related to biodiesel usage is the current conflict between decreased emissions of greenhouse gasses and the idea that fuel derived from agricultural products are more sustainable, AND, increased cost of the fuel itself and mechanical failures such as fuel filters, fuel tanks, and product shelf-life.

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

With a per gallon cost differential ranging from \$.22 - \$.63 (biodiesel blends being typically more costly), use of B-20 at Public Works Delta and Short Mountain facilities is forecast to cost the County between an estimated \$25,000 to \$70,000 per year. If B-20 were only dispensed at Short Mountain, the estimated cost differential would be \$15,400, with the maximum range predicted up to a \$44,000 differential.

While carrying costs for tanks and shelf-life issues for B-20 stored in seasonal equipment cannot be precisely calculated, there would be some cost for labor hours for purging equipment, replacing filters, and possibly rotating stock within tanks. Additionally, there are warranty issues for many manufacturers related to B-20 usage.

E. Analysis

While the use of alternative fuels and alternative power sources supports environmental impact and sustainability goals, these options are proving to be more costly. Operational choices in this case are dependent on Board policy choices and current economic conditions make the need for BCC policy direction regarding the continued use of biodiesel blends quite urgent. The current policy choice can be simply summarized as the short term business choice of least cost, or a more long term choice for most positive/least negative impact on the environment and sustainability, but at greater cost.

1. Biodiesel: Biodiesel is manufactured from vegetable oils, recycled cooking grease, or animal fats. Any biodiesel fuel purchased must meet the ASTM D6751 standard and is available for commercial distribution adequate for County use. The term 'biodiesel' refers to 100% biodiesel (B-100). Biodiesel blends refer to a fuel that is

composed of some percent of biodiesel and some percent of petroleum-based diesel fuel. B-20, 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% (B-5) or 20% (B-20).

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

Cost: Over the past 12 months B-20 has averaged \$0.29/gallon more than ultra low sulfur diesel (ULSD) with a differential range of \$0.22 - \$0.63. Based on current diesel fuel usage, the extensive use of B-20 in county operations (from all facilities where this is feasible) would increase annual fuel costs approximately \$32,500 with a predictable range of \$24,600 - \$70,500.

Because biodiesel blends are based on percentages of the full rate for B-100 (99% biodiesel), the B-5 averaged for this period would be approximately \$0.07 with a differential range of \$0.06 - \$0.16 per gallon. Based on current diesel fuel usage, the extensive use of B-5 in county operations (from all facilities where this is feasible) would increase annual fuel costs approximately \$7,800 with a predictable range of \$6,700 - \$17,900.

- B-20 +\$24,600 - \$70,500
- B-5 +\$6,700 - \$17,900

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-based 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
- B-5: 180-day shelf life
- B-20: 120-day shelf-life
- B-100: 75-day shelf-life

Public Works stores diesel fuel in seven storage tanks at six locations throughout the county. Four of these storage tanks are refilled so infrequently that biodiesel blends in any concentration may become rancid prior to use and B-20 or higher almost certainly.

Additionally, Public Works operates 41 seasonal equipment units that sit idle up to 9-months each year. Biodiesel blends, in any concentration, would need to be flushed from the equipment fuel tanks annually prior to equipment usage, requiring significant staff resources/labor hours beyond current allocations. Based on product shelf-life only, it is currently only feasible to distribute 20% or higher biodiesel blends from three storage tanks at the Delta shops, Short Mountain, and the Glenwood Central Receiving Station (CRS). The Delta shop and CRS would each still have one tank for B-5 or ULSD.

Engine Warranties/Manufacturers Fuel Recommendations: Few engine manufacturers supplying diesel engines used in county owned equipment recommend biodiesel in concentrations greater than 5% (B-5). Furthermore, failures that may be attributed to the use of non-approved fuels will void the engine warranty. For example, the County has experienced fuel tank failures related to B-20, and Ford has cited warranty issues. While future equipment and manufacturer trends appear to be favorable to higher percent blends of biodiesel, much of our current fleet is fairly new and will not need replacement with newer B-20 compatible equipment for five years or more.

Mechanical Failures and Reliability: As in the fuel tank example already provided, there are some mechanical failure issues which are fairly common that have costs for the County. The liners of the fuel tanks for some model Ford pick ups (manufactured prior to 2005) were not compatible with B-20. The replacement tanks cost in excess of \$650 for the tanks and with labor costs the total repair is approximately \$1,400. This does not include downtime costs. Fuel filter replacements are a common aspect of B-20 usage nation-wide. There are costs for the parts, labor, and downtime.

An additional mechanical or technical problem with blended biodiesel is cold weather jelling. As a standard or comparator, gasoline is almost unaffected by even the coldest temperatures we typically experience in the Willamette Valley. Jelling is the description of fuel as it approaches its freezing point. ULSD can experience jelling when temperatures dip significantly below freezing. Lane County experienced jelling problems this year with our coldest weather. The City of Eugene and City of Portland Water Bureau, two local governments that also have been using B-20 or higher blends, have also experienced jelling problems with biodiesel. Sequential Fuels, a local biofuels distributor, experienced jelling problems with B-20 this winter. The jelled fuel clogs fuel filters and prevents equipment start up. This problem is not insurmountable for most County operations, but it is an additional and unpredictable cost.

Reliability is a characteristic of shelf-life, mechanical failure risk, and the potential for cold weather jelling as these relate to the need and urgency for putting different vehicles and equipment items into use. For example, when it begins snowing near Westfir, the Dexter Public Works shop deploys snow plows. As an emergency service, we must be able to depend upon the trucks starting and deploying when needed without delays. The same is true for Sheriff's Office diesel emergency response vehicles and Road Maintenance Supervisors who respond to road emergencies.

Environmental Impact and Sustainability: ULSD has the most significant negative impacts on the environment of all of the diesel fuels available to the County. As previously stated, ULSD emissions contribute to overall greenhouse gasses and global climate change which has been identified in the Governor's Renewable Energy Action Plan. Additionally, hydro-carbon fuels exist in finite quantities while agriculturally derived fuels are undeniably more sustainable, though the impacts of agricultural production of fuels may have its own costs, such as increased food costs.

Local Economic Impact: All County owned diesel fuel depots can dispense biodiesel blends meeting ASTM D6751-07b Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels. Failure to use fuel meeting the specifications would clearly violate manufacturer warranties. 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 can be factored into purchasing decisions. All fuel is currently purchased through local vendors.

Relative Merits and Concerns by Evaluation Factor and Product

Factor/ Evaluation Criterion	Product: ULSD	B-5 (5% bio)	B-20 (20% bio)	B-50+ (50%+)
Environmental Impact	-	+	+	++
Cost	+	-	--	--
Mechanical Failures	+	+/-	-	-
Local Econ. impact	+/-	+	+	+
Shelf-Life	++	-	--	--
Warranty Concerns	+	+	-	-
Reliability	++	+	-	-
Temperature Impacts	+	+/-	-	-
Sustainability	--	+/-	+	++

* Not all evaluation factors are equal. As a matter of policy, weight of each factor is a BCC choice. Therefore the information in the table cannot be quantified until after the BCC has assigned weight to each factor.

F. Alternatives/Options – Future Policy Considerations

1. Full-Year Biodiesel Option (greatest benefit and greatest cost)
 - (a) Provide B-5 (5% Bio-Diesel Blend) from all Public Works fuel facilities for the full year with the following exceptions,
 - (b) Provide B-20 at the Short Mountain Landfill fuel facility,
 - (c) Fuel for vehicles and equipment assigned to the Florence and Veneta shops will continue to be purchased from commercial card-lock providers as no County-owned fuel facilities are available, and
 - (d) Authorize the County Administrator to make minor operational adjustments as needed.

2. Seasonal Bio-Diesel Option (significant benefit and high cost)
 - (a) Provide B-5 (5% Bio-Diesel Blend) from all Public Works fuel facilities for the full year with the following exceptions,
 - (b) Provide B-20 at the Short Mountain Landfill fuel facility seasonally from April – August,
 - (c) Fuel for vehicles and equipment assigned to the Florence and Veneta shops will continue to be purchased from commercial card-lock providers as no County-owned fuel facilities are available, and
 - (d) Authorize the County Administrator to make minor operational adjustments as needed.

3. Full-Year B-5 Option (some benefit and slightly higher cost)
 - (a) Provide B-5 (5% Bio-Diesel Blend) from all Public Works fuel facilities for the full year with the following exceptions,
 - (b) Fuel for vehicles and equipment assigned to the Florence and Veneta shops will continue to be purchased from commercial card-lock providers as no County-owned fuel facilities are available, and
 - (c) Authorize the County Administrator to make minor operational adjustments as needed.

4. Economic/Ultra Low Sulfur Diesel Option (least benefit and least cost)
 - (a) Provide Ultra Low Sulfur Diesel (ULSD) from all Public Works fuel facilities, and
 - (b) Reexamine biodiesel usage when cost for ULSD and B-5 or B-20 biodiesel are the same or within some predetermined differential.

IV. RECOMMENDATION

Staff recommends that the Board support either Option 2 or Option 3.

V. FOLLOW-UP

Implement the BCC decision.

VI. ATTACHMENTS

1. Board Order No. 07-11-20-7

PASSED

IN THE BOARD OF COUNTY COMMISSIONERS
OF LANE COUNTY, OREGON

ORDER NO. 07-11-20-7) 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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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

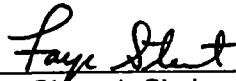
WHEREAS, the life-cycle costs of biodiesel, from farmland to fuel pump to atmosphere, must be considered in order to ensure that the use of biodiesel fuel is truly sustainable; and

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

IN THE BOARD OF COUNTY COMMISSIONERS
OF LANE COUNTY, OREGON

ORDER NO.) IN THE MATTER OF PROVIDING
) OPTIONS FOR USAGE OF 5%
) AND 20% BLENDS OF BIODIESEL
) FOR THE LANE COUNTY
) VEHICLE AND EQUIPMENT
) FLEET.

WHEREAS, Lane County consumes approximately 420,000 gallons of diesel fuel in a typical year; and

WHEREAS, on November 9, 2007, the Lane County Board of Commissioners directed staff to implement a plan for increased usage of 5% and 20% blends of biodiesel for the Lane County vehicle and equipment fleet, Board Order No. 07-11-20-7; and

WHEREAS, blends of 5% biodiesel can be cost-effectively dispensed from most County-owned fuel facilities for the full year; and

WHEREAS, blends of 20% biodiesel can be cost-effectively dispensed from the Short Mountain landfill fuel facility from April 1 through August 31 each year; and

WHEREAS, fuel for vehicles and equipment assigned to the Florence and Veneta Road Maintenance shops will continue to be purchased from commercial card-lock providers as no County-owned fuel facilities are available; and

WHEREAS, the County recognizes the environmental benefits and greater sustainability of biodiesel over petroleum-based diesel fuel, and, the increased costs for purchasing and using biodiesel over petroleum-based diesel; and

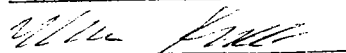
WHEREAS, the use of biodiesel blends in concentrations greater than 5% may result in the voiding of manufacturers' engine warranties, but that the Lane County Board of Commissioners deems this risk to be acceptable in view of the successful track record of biodiesel usage by other federal, state, and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

NOW THEREFORE, IT IS HEREBY ORDERED that the Board of County Commissioners directs staff to implement a plan for usage of 5% blends of biodiesel for the full year from most County-owned fuel facilities and seasonal usage of 20% blends of biodiesel from the Short Mountain landfill fuel facility from April through August each year, and that the County Administrator is authorized to make operational adjustments as needed.

DATED this 15th day of April, 2009.

APPROVED AS TO FORM

Date 4-6-9 lane county


OFFICE OF LEGAL COUNSEL

Peter Sorenson, Chair,
Lane County Board of Commissioners

IN THE BOARD OF COUNTY COMMISSIONERS
OF LANE COUNTY, OREGON

ORDER NO.) IN THE MATTER OF PROVIDING
) OPTIONS FOR USAGE OF A 5%
) BLEND OF BIODIESEL FOR THE
) LANE COUNTY VEHICLE AND
) EQUIPMENT FLEET.
)

WHEREAS, Lane County consumes approximately 420,000 gallons of diesel fuel in a typical year; and

WHEREAS, on November 9, 2007, the Lane County Board of Commissioners directed staff to implement a plan for increased usage of 5% and 20% blends of biodiesel for the Lane County vehicle and equipment fleet, Board Order No. 07-11-20-7; and

WHEREAS, a blend of 5% biodiesel can be cost-effectively dispensed from most County-owned fuel facilities; and

WHEREAS, fuel for vehicles and equipment assigned to the Florence and Veneta Road Maintenance shops will continue to be purchased from commercial card-lock providers as no County-owned fuel facilities are available; and

WHEREAS, the County recognizes the environmental benefits and greater sustainability of biodiesel over petroleum-based diesel fuel, and, the increased costs for purchasing and using biodiesel over petroleum-based diesel; and

NOW THEREFORE, IT IS HEREBY ORDERED that the Board of County Commissioners directs staff to implement a plan for usage of 5% blends of biodiesel for the full year from most County-owned fuel facilities, and that the County Administrator is authorized to make operational adjustments as needed.

DATED this 15th day of April, 2009.

Peter Sorenson, Chair,
Lane County Board of Commissioners

APPROVED AS TO FORM

Date 4-6-9 lane county


OFFICE OF LEGAL COUNSEL