

WTC

AGENDA COVER MEMO

DATE: August 25, 2004
TO: Lane County Board of Commissioners
DEPT: Public Works
PRESENTED BY: Dale Wendt, Public Works Support Services Manager
AGENDA ITEM TITLE: Discussion and Direction: Shall Lane County Purchase Hybrid Vehicles to Replace Vehicles Scheduled for Replacement in FY04/05?

I. MOTION

DISCUSSION ITEM ONLY

II. ISSUE OR PROBLEM

Shall Lane County purchase hybrid vehicles to replace vehicles scheduled for replacement in FY04/05?

III. DISCUSSION

A. Background

It has been reported that known worldwide petroleum reserves are projected to be depleted by 2040. While new discoveries are continuously made and new wells brought into production, developing third world countries are dramatically increasing the demand for oil.

Lane County Department of Public Works Fleet Services has attempted to stay abreast of the constantly changing alternative fuel issues, while not being too quick to embrace the alternates. Current thinking from "experts" is Natural Gas Vehicles (NGV), which 10 years ago were believed to be the future, will not be a significant player. Bio-diesel may have a small segment, but has production limitations to be a major fuel alternative. Hybrid vehicles (electric motor combined with small combustion engine) are the most promising intermediate solution. But the long-term solution is currently thought to be fuel-cell technology –although it is likely to be at least 10 years before we see wide-spread commercial use.

In 1998 Fleet Services converted a 1984 Mazda 4x4 pickup into an electric vehicle. The objective was to gain some experience with, what was then, a projected player in the alternate fueled vehicle arena. However, while electric vehicles are the only zero-emission vehicle currently available (when the source of recharging energy is ignored), technology has not overcome the limited range (typically less than 45 miles), and necessity of overnight recharging.

In 2001, in order to gain experience, Fleet purchased four (4) Toyota Prius hybrid vehicles at a cost of approximately \$20,000 each. To date the overall performance has been excellent with high reliability and a life-to-date 46.7 miles per gallon fuel economy. However, even with increasing fuel costs, Prius ownership is higher than non-hybrid sedans.

Recently the Oregon Department of Energy has introduced a tax incentive program for local government and other non-tax paying entities. The potential is to reduce the purchase price of a new hybrid by approximately 13.1 percent (see Exhibit A).

B. Analysis

The County has received excellent service from the four (4) hybrid sedans purchased in 2001. The life-to-date average mpg is 46.7 versus a non-hybrid sedan average of 24.3 mpg. Reliability of the Toyota Prius has been excellent. Current replacement criteria calls for replacing sedans at approximately 80,000 miles – although in practice most are replaced with mileage approaching 100,000. The battery life of the Prius is projected at 100,000 miles – and battery replacement is expensive – over \$6,000. Fleet plans on replacing the Prius sedans before 100,000 miles.

The additional upfront cost of purchasing a Prius over a Dodge Stratus (similar sized sedan offered under the State bid) is \$5,022, after factoring in the hybrid vehicle tax incentive. Based on operating sedans 100,000 miles, and assuming a fuel cost of \$1.70 per gallon, the additional cost of owning the Prius is \$1,666. The higher the fuel cost the more economically attractive the Prius becomes. The “break-even” point is at a fuel cost of \$2.54 per gallon.

The County’s current cost of unleaded gasoline is \$1.68. However in May and June we were paying \$1.96. It is conceivable that fuel cost could rise above \$2.00 in the near future. The County does not pay Federal tax on fuel.

While owning hybrid vehicles is currently somewhat more expensive, it may still be good public policy. Hybrids are now recognized as low-emission vehicles. Hybrids also use 48 percent less fuel than similarly sized conventional combustion engine sedans now in County service, reducing consumption of petroleum.

C. Alternatives/Options

1. Recommend purchasing some additional hybrid sedans as replacements for vehicles scheduled to be replaced.
2. Recommend that all sedans scheduled for replacement be replaced with hybrid sedans. There may be some applications where a hybrid sedan would not be the best application.
3. Do not purchase any additional hybrid sedans at this time.

D. Recommendation

Looking for direction from the Board.

E. Timing

Vehicles are normally ordered in November or December. Depending on Board direction will determine what sedans will be ordered this year.

IV. IMPLEMENTATION/FOLLOW-UP

None.

V. ATTACHMENTS

Exhibit A

Hybrid Vehicle Analysis

State of Oregon Department of Energy program offers a tax incentive partnering program for local governments in the purchase of hybrid vehicles

Example #1

| | | |
|--------------|---------------|----------------------------------|
| Toyota Prius | \$20,500 | (hybrid vehicle) |
| Toyota Echo | <u>10,000</u> | (same car w/o hybrid technology) |

| | |
|-----------------------|---------|
| Incremental Diff. | 10,500 |
| Tax Incentive (25.5%) | (2,678) |

| | |
|--|-----------------|
| Cost after tax incentive (20,500 - 2,678) | 17,822 |
| State bid sedan (Stratus) | <u>(12,800)</u> |

| | |
|---------------------------|---------|
| Additional cost of hybrid | \$5,022 |
|---------------------------|---------|

Historical mpg on Dodge Stratus is 24.3mpg

Historical mpg on Toyota Prius is 46.7 mpg

At fuel price of \$1.70 per gallon, and based on 100,000 mile life

| | | |
|-------------------------|------|--------------|
| Stratus - 4,115 gallons | cost | \$6,996 |
| Prius - 2,141 gallons | cost | <u>3,640</u> |
| Fuel savings | | \$3,356 |

| | |
|---|---------|
| Additional cost of ownership (5,022 - 3,356) | \$1,666 |
|---|---------|

Example #2

When hybrid is used as a pool vehicle with more than one occupant 75 percent of the time.

| | | |
|--------------|----------|------------------|
| Toyota Prius | \$20,500 | (hybrid vehicle) |
| | 75% | |
| | 15,375 | |

| | |
|-----------------------|-------|
| Tax Incentive (25.5%) | 3,921 |
|-----------------------|-------|

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|--|--------|
| Cost after tax incentive (20,500 - 3,921) | 16,579 |
|--|--------|

| | |
|---------------------------|-----------------|
| State bid sedan (Stratus) | <u>(12,800)</u> |
|---------------------------|-----------------|

| | |
|---------------------------|---------|
| Additional cost of hybrid | \$3,779 |
|---------------------------|---------|

Historical mpg on Dodge Stratus is 24.3mpg

Historical mpg on Toyota Prius is 46.7 mpg

At fuel price of \$1.70 per gallon, and based on 100,000 mile life

| | | |
|-------------------------|------|--------------|
| Stratus - 4,115 gallons | cost | \$6,996 |
| Prius - 2,141 gallons | cost | <u>3,640</u> |
| Fuel savings | | \$3,356 |

| | | |
|---|--|-------|
| Additional cost of ownership (3,779 - 3,356) | | \$423 |
|---|--|-------|