


Alternative Energy



How many tax dollars is the government missing out on?



Executive Summary

- Problem: Many U.S. States are finding that they are collecting fewer excise tax dollars. Because we are collecting less excise tax, we are not allowed sufficient budgets for necessary road construction.
- Purpose: To identify why fewer excise dollars are being collected and to recommend solutions to the present problem so we can maintain a safe and sufficient highway system.



Introduction

Because of rising fuel prices and the threat of global warming, U.S. consumers are focusing on burning less fossil fuel therefore the government is collecting fewer tax dollars. If this trend continues at a steady rate, will the government be able to collect enough road-tax money to pay for our roads? Is collecting tax at the pump on a per-gallon basis the best method of collection?



Alternatively Fueled Vehicles

- Vehicles Burning Bio-Fuels
 - BioDiesel
 - Refined
 - Home "Brewed"
 - Ethanol
- Other Fuels
 - Natural Gas
 - Propane Gas
 - Hydrogen
- Electric Vehicles
- Hybrids
 - Gas/Electric
 - Gas/CNG
 - Gas/LNG
 - Diesel/Electric

Refined BioDiesel

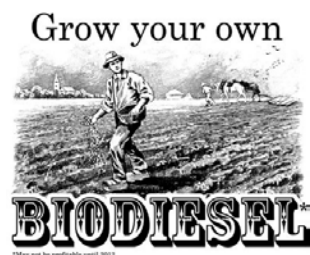


- Refined biodiesel blenders receive \$1/Gallon credit from IRS.
- Over 430 fueling stations in the U.S.
- Over 88 million gallons estimated to have been consumed in 2005.¹
 - 2005 biodiesel consumption rose 503% since 2003.
 - 2005 Diesel consumption only rose 2.5% since 2003.

¹ Energy Information Administration

"Home-Brew" BioDiesel

- Some states do charge motor fuel tax on this product.
 - How well is this enforced?
- Many states do not tax home made biodiesel.
- Not taxed on a Federal level.





Ethanol



Ethanol blenders receive \$.51 credit from IRS for every gallon of ethanol blended with gasoline.
Some states offer incentives for using ethanol.

E85

- Over 38 million gallons consumed in 2005
- 40% increase in consumption since 2003.



Ethanol in Gasohol

- Over 2.7 billion gallons consumed in 2005
- 44% increase in consumption since 2003.

*All figures obtained from the Energy Information Agency

Biofuel Overview

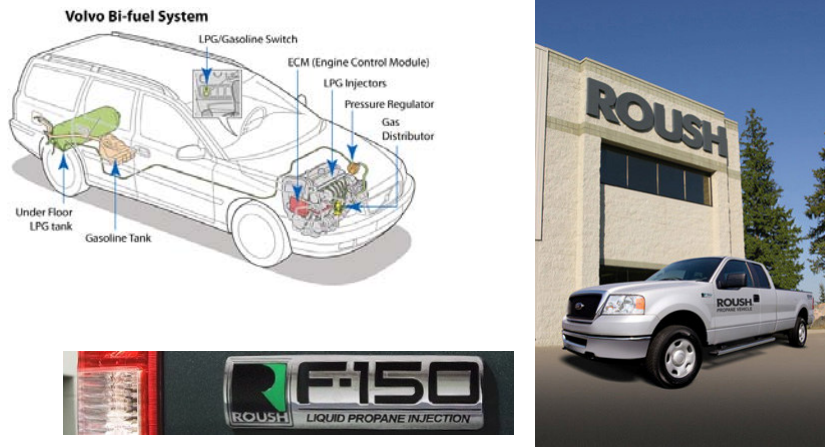
- Every significant carmaker presented a biofuel-based powertrain at the 2008 North American International Auto Show.
- Both ethanol and biodiesel production is projected to increase three to four times their current levels globally by 2020.
- In the US, a bill was passed which gives automakers fuel economy credits if they build biofuel-capable vehicles.
 - By 2015, the bill requires annual production of:
 - 15 billion gallons of corn based ethanol.
 - 1 billion gallons of plant based biodiesel.
 - 4.5 billion gallons of biodiesel based on non-food sources.
- Currently biodiesel costs more than ultra low sulfur diesel, however, because of economies of scale, it is likely that the prices will be the same once biodiesel supply increases.

Natural Gas Powered Vehicles

- Natural gas is one of the cleanest burning fossil fuels.
- 80% of CNG is domestic.
- Some vehicles are designed to run off of natural gas when available and are able to run off of gasoline when natural gas is not available.
- Because of the weak natural gas infrastructure, these vehicles are not produced commercially in large numbers.
- There are over 130,000 CNG vehicles on the road in the US.
- A \$4,000 credit available from the IRS for the Honda Civic GX.
 - In 2001 the EPA called the Civic GX "the cleanest internal combustion engine on Earth."
- Many states do not charge tax on this product.



Propane Powered Vehicles



Electric Vehicles



- There is no federal road-tax on electricity used to power electric vehicles used on our roads.
- According to the EIA, in 2005 the equivalent to 5,219,000 gallons of gasoline was consumed to power electric cars.
 - The equivalent to \$960,296 not paid to the IRS.

Electric Vehicles

- Who uses electric vehicles?
 - Few individuals
 - Public transit systems (i.e. Boston)
- The future:
 - Recent technological improvements in battery life will allow electric vehicles to travel much longer ranges.
 - Government incentives are being offered for the construction of re-charging stations.
 - This may aid in the creation of a re-charging infrastructure.



Hybrid Vehicles

- How do hybrid vehicles work?
 - A gas or diesel engine powers a generator which charges batteries.
 - Both electric motor and engine can turn the transmission, which then turns the wheels.



Hybrid Vehicles

- Federal incentives to buy:
 - On June 5, 2006 the IRS ruled credit amounts on all hybrids.

2008		
Make	Model	Credit Amount
Ford	Escape Hybrid 2WD	\$3,000
Ford	Escape Hybrid 4WD	\$2,220
Mercury	Mariner Hybrid 2WD	\$3,000
Mercury	Mariner Hybrid 4WD	\$2,200

2007		
Make	Model	Credit Amount
Chevrolet	Silverado 2WD Hybrid Pickup Truck	\$ 250
Chevrolet	Silverado 4WD Hybrid Pickup Truck	\$ 650
Ford	Escape Hybrid 2WD	\$2,600
Ford	Escape Hybrid 4WD	\$1,950
GMC	Sierra 2WD Hybrid Pickup Truck	\$ 250
GMC	Sierra 4WD Hybrid Pickup Truck	\$ 650
Honda	Accord AT	\$1,300
Honda	Accord Navi	\$1,300
Honda	Civic CVT	\$2,100
Lexus*	GS450h	Purchase Date
		1-1-06 / 9-30-06
		10-1-06 / 3-31-07
		4-1-07 / 9-30-07
		10/1/2007
		\$ 0
Lexus *	RX 400h 4WD	Purchase Date
		1-1-06 / 9-30-06
		10-1-06 / 3-31-07
		4-1-07 / 9-30-07
		10/1/2007
		\$ 0
Lexus*	RX 400h 2WD	Purchase Date
		1-1-06 / 9-30-06
		10-1-06 / 3-31-07
		4-1-07 / 9-30-07
		10/1/2007
		\$ 0
Mercury	Mariner Hybrid 4WD	\$1,950
Saturn	Vue Green Line	\$ 650
Toyota*	Camry Hybrid	Purchase Date
		1-1-06 / 9-30-06
		10-1-06 / 3-31-07
		4-1-07 / 9-30-07
		10/1/2007
		\$ 0
Toyota*	Prius	Purchase Date
		1-1-06 / 9-30-06
		10-1-06 / 3-31-07
		4-1-07 / 9-30-07
		10/1/2007
		\$ 0
Toyota*	Highlander Hybrid 2WD	Purchase Date
		1-1-06 / 9-30-06
		10-1-06 / 3-31-07
		4-1-07 / 9-30-07
		10/1/2007
		\$ 0
Toyota*	Highlander Hybrid 4WD	Purchase Date

Excise Tax Loss Breakdown

- In order to see how much tax money an individual would save by driving a hybrid, we compared a 2007 Toyota Camry (6 cylinder) with a 2007 Toyota Camry Hybrid (4 cylinder).

	2007 Camry	2007 Camry Hybrid
Engine	3.5L 6 Cylinder	2.4L 4 Cylinder
Fuel Economy*	25 mpg	39 mpg
Annual Gas Consumption**	520 Gallons	333 Gallons

Difference of 187 gallons/year

* Official EPA Window Sticker Combined MPG

** Based on 13,000 Miles/Year

Excise Tax Loss Breakdown

*Based on 13,000 miles/year

*Based on 13,000 miles/year		Road Tax/Gallon		Annual Individual Consumer Tax Savings		
State	New Hybrids Sold	State	Federal	State	Federal	Total
California	74,737	\$0.4440	\$0.1840	\$83.03	\$34.41	\$117.44
Florida	15,265	\$0.3260	\$0.1840	\$60.96	\$34.41	\$95.37
New York	14,580	\$0.4090	\$0.1840	\$76.48	\$34.41	\$110.89
Texas	13,909	\$0.2000	\$0.1840	\$37.40	\$34.41	\$71.81
Illinois	10,865	\$0.4060	\$0.1840	\$75.92	\$34.41	\$110.33

*Based on 13,000 miles/year

*Based on 13,000 miles/year		Road Tax/Gallon		Annual Total Consumer Tax Savings		
State	New Hybrids Sold	State	Federal	State	Federal	Total
California	74,737	\$0.4440	\$0.1840	\$6,205,263.64	\$2,571,550.70	\$8,776,814.33
Florida	15,265	\$0.3260	\$0.1840	\$930,584.93	\$525,238.12	\$1,455,823.05
New York	14,580	\$0.4090	\$0.1840	\$1,115,122.14	\$501,668.64	\$1,616,790.78
Texas	13,909	\$0.2000	\$0.1840	\$520,196.60	\$478,580.87	\$998,777.47
Illinois	10,865	\$0.4060	\$0.1840	\$824,892.53	\$373,842.92	\$1,198,735.45

What can we do to gain new tax revenue?

Things to think about:

- Mileage Tax?
- Registration Tax?
- Road Tolls?
- Emission Taxes?



Brainstorming Breakout Session

