

BIO ETHANOL REALITIES – WHICH ONE APPEALS TO YOU?

Compiled in Hawaii – 4 April 2008 – any inaccuracies are copied from their sources

Comparable costs, because its energy (Btu) content is lower than that of gasoline. **It takes approximately 1.5 gallons of ethanol to deliver the same mileage as 1 gallon of gasoline.**

Currently, fuels blended with ethanol cannot be shipped in multi-fuel pipelines, because the moisture in pipelines and storage tanks is absorbed by the ethanol, causing it to separate from gasoline.

Ethanol use results in higher evaporative emissions of smog-forming volatile organic compounds (VOCs), requiring refiners to remove other gasoline components such as pentanes or butanes to meet the Rvp limits set by the U.S. Environmental Protection Agency (EPA).

Rail transit times from **Midwest ethanol plants to California can range from 2 to 3 weeks, with typical costs of 14 to 17 cents per gallon,** depending on the plant of origin and the market destination.

Ethanol relies heavily on Federal and State subsidies to remain economically viable as a gasoline blending component. The current Federal subsidy, at 54 cents per gallon, makes it possible for ethanol to compete as a gasoline additive.

"Then there are environmental costs. We will use heaps of diesel tractor fuel to bring marginal land, either grassland or bush, into a dead mono-culture of cereals or cane. (Professor Ausubel of the Rockefeller University in New York has calculated that each car would need 1-2 hectares of pasture to produce its motor fuel in this inefficient way.) And the excessive cultivation and chemical fertilisers used will reduce the soil organic matter and produce more GH gases.

In terms of energy output compared with energy input for ethanol production, the study found that **corn requires 29 percent more fossil energy than the fuel produced;**

"Ethanol production requires large fossil energy input, and therefore, it is contributing to oil and natural gas imports and U.S. deficits."

How the Ethanol Subsidy works

The "blender" buys gasoline and ethanol at their "rack" (wholesale) prices and blends them. The blender then **gets the 51c credit for each gallon of ethanol purchased.**

Hence, **if** the wholesale price of ethanol is \$3.51 and the blender gets a \$0.51 subsidy, the blender figures the ethanol really costs only \$3.00. So we save \$0.51 because the blender passes on a lower price of ethanol, but **we have to pay the \$0.51 subsidy in our taxes,** so it's just the same as if the ethanol really did cost \$3.51 and there were no subsidy.

The subsidy **for ethanol production is \$0.51/gallon, plus a small-producers credit of \$0.10/gallon** for producers of up to 60 million gallons per year (up from 30 with new energy bill). This is reported in the CRS Issue Brief for Congress, IB10041, Energy Tax Policy, June 17, 2005, page 14. The total subsidy per year is estimated at \$1.49 billion for FY2005 and rising.

What is the Excise-Tax Bias Against Ethanol?

Ethanol is charged the **same tax per gallon** as gas.

It should be the same tax per energy, 1/3 less.

Some states, **like Hawaii, give ethanol the appropriate tax break,** and some, like South Dakota, overdo it. The federal government and most states give no tax break.

To be cautious, I assume no states give ethanol any tax break. The federal tax is 18.4¢ and the states average 21¢/gallon.

The appropriate tax on ethanol, given this rate on gasoline, is:

Fair ethanol tax = $39.4/1.48432 = 26.5¢/gallon$, because gas has 1.48 times more energy.

The bias against ethanol is 12.9¢/gallon, ignoring all state tax breaks for ethanol.

The USDA tells us the **conversion rate of corn to ethanol is 2.5 gallon per bushel.**

So, the Average subsidy = \$0.1786/gallon of ethanol produced.

An acre of corn produces about 300 gallons of ethanol per year. U.S. vehicles burn about 300 billion gallons of gasoline per year. Cars can burn an 85 percent ethanol blend without engine damage, but we'd need to plant 850 million acres of corn. The United States doesn't have that much cropland. U.S. farmers now plant only 330 million acres in crops in total, and **only 73 million acres of corn.**

Corn is just the first step. It's a lousy raw material for fuel because producing 10 gallons of ethanol consumes the energy equivalent of about 7 gallons of gasoline, and greenhouse gas reductions are minuscule.

Direct Subsidies

Direct subsidies are paid out of taxes. Ethanol produced in 2006 received \$2.5 billion in direct subsidies paid to blenders. **The 51¢ per gallon "blender's credit" is paid to those who blend ethanol with gasoline before selling it to gas stations.** Although it's paid to blenders, this is a competitive business and the market prevents them from profiting from it. Instead, it is passed on to producers or consumers depending on the relative price of gasoline and ethanol. Since markets often play tricks on regulators, this is worth a closer look.

Suppose oil prices are high enough that ethanol and gasoline *cost the same* to produce; say that's \$2.00 per gallon. Ethanol producers will take advantage of the fact that blenders want the 51¢ credit, so they will push the wholesale price of ethanol all the way to \$2.51, at which point blenders will still see it as just as costly as gasoline in spite of the subsidy.

The USDA notes that over the past 25 years, the ethanol producers did in fact push the price this high, in fact, they pushed it about 3¢ higher. The result is that producers have captured all of the subsidy paid to blenders. This was probably the intention, but notice that with gasoline costing just as much as ethanol, the producers don't need any subsidy--the subsidy simply provides them with windfall profits.

Now suppose the producers did need the full subsidy because ethanol actually cost \$2.51 to produce. They would still charge \$2.51 and the blenders would still get the 51¢ credit so the ethanol would, in effect, cost blenders \$2.00 just as before. But this time, the benefit goes to the consumer. Without the subsidy, the consumer would have to pay \$2.51 (plus a markup) for the ethanol, the full wholesale price. With the subsidy, the consumer only pays \$2.00 (plus a markup), so the consumer gets the full benefit of the subsidy.

- **If ethanol costs the same as gasoline, the subsidy is not needed, but it goes to producers as windfall profits.**
- **If ethanol costs more to produce than gasoline, and the full subsidy is needed, the ethanol subsidy goes to the consumer.**

When ethanol costs more to produce than gasoline, but the consumer captures the blender's credit, the producers still do just fine. The demand for ethanol, partially the result of state requirements, will assure that the price ethanol producers are paid will be driven up to a level that covers their costs.

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The general excise tax exemption for gas containing ethanol was enacted in 1980, but it expired on Jan. 1, **soon after 85 percent of all gasoline in Hawaii had to be blended with at least 10 percent ethanol.** The dime-a-gallon tax exemption should be reflected in gas prices on July 1 -- all other factors being stable.

Aloha Petroleum has promised to pass on the savings at the pump and expects all other dealers to do the same. If that does not happen, the PUC should be in a position to determine why not.

The gas-pricing controversy became heated when pricing caps began just as Hurricane Katrina devastated oil production and refining along the Gulf Coast. Since the caps were based on mainland prices, Hawaii's prices soared, even though its petroleum comes from Alaska or Asia.

Hawaii's gasoline prices have increased in recent weeks to nearly \$3.20 a gallon for regular, but three Western states have even higher prices. Mainland prices are likely to climb during the summer as driving increases, a seasonal phenomenon nonexistent in Hawaii. Monitoring of prices should reveal whether Hawaii's prices also rise and, if so, why.

Posted on: Tuesday, July 8, 2003

Tax raises Maui gas prices

By Sean Hao

Advertiser Staff Writer

Maui gasoline prices hit an all-time high of \$2.31 a gallon during the holiday weekend and remained there yesterday.

The average is up 5 cents since July 1, when a 5-cent increase in county gasoline taxes took effect — **raising the tax to 18 cents a gallon.** The Maui County Council approved the tax increase as part of the county's budget for fiscal 2004, which started July 1.

Island gas costs include **18.4 cents in federal taxes, 16 cents in state fuel taxes, the 4 percent general excise tax and county taxes,** which vary by island with **Maui's rate of 18 cents** being the highest. Honolulu's taxes are 16.5 cents, Kauai's are 13 cents and the Big Island's, 8.8 cents.

Hawaii 16 cpg State Tax and 0.12 cpg environmental response tax

Assume Gas Cost = \$3.959 Per Gallon

4.16% = \$0.1629 GET

State Tax = \$0.16

Federal \$0.184

Environmental Response Tax = \$0.12

Taxes @ Dollars Per Gallon

0.165

0.16

0.184

0.12

\$0.629/Gallon divided by 3.959 = 15.83% Total Tax