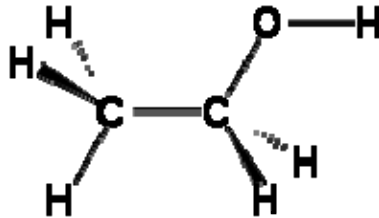


## Solutions for a Sustainable Future

Dear Mr. Comfort. I just heard that there is a new mandate for the percentage of Ethanol in our gasoline. Does this make economic sense?

### The Economics of Ethanol



Ethanol fuel is ethanol (ethyl alcohol), the same type of alcohol found in alcoholic beverages **\*\*remember “The Dukes of Hazard Episode” where Uncle Jessie ran his vehicle and hid his moonshine in the gas tank to get to the energy show\*\***. It is most often used as a motor fuel, mainly as a biofuel additive for gasoline. World ethanol production for transport fuel tripled between 2000 and 2007 from 4.5 billion to more than 13.7 billion gallons from 2007 to 2008, the share of ethanol in global gasoline type fuel use increased from 3.7% to 5.4%. In 2009 worldwide ethanol fuel production reached 19.5 billion gallons.



Ethanol is widely used in Brazil and in the United States, and together these countries were responsible for 86 percent of the world's ethanol fuel production in 2009. Most cars

on the road today in the U.S. can run on blends of up to 10% ethanol, and the use of 10% ethanol gasoline is mandated in some U.S. states and cities.

Bioethanol, unlike petroleum, is claimed by certain advocates to be a form of renewable energy that can be produced from agricultural feedstocks. It can be made from very common crops such as sugar cane, potato, manioc and corn. However, there has been considerable debate about how useful bioethanol will be in replacing gasoline. Concerns about its production and use relate to increased food prices due to the large amount of arable land required for crops, as well as the energy and pollution balance of the whole cycle of ethanol production, especially from corn.

Cellulosic ethanol offers promise because cellulose fibers, a major and universal component in plant cells walls, can be used to produce ethanol. According to the International Energy Agency, cellulosic ethanol could allow ethanol fuels to play a much bigger role in the future than previously thought.



A little-noticed provision of last months tax law extends ethanol tax credits (\$.45 per gallon, plus a bonus for small producers) and tariffs on ethanol imports (\$.54 per gallon), previously set to expire at the end of 2010.

**Factoid: Ethanol and other renewable fuels must account for 7.95 percent of total gasoline sales in 2011 to meet Congress' mandate for 13.95 billion gallons of renewable fuels expected to be produced next year. This equals \$6 billion in subsidies for 2011 (\$10 per extra gallon of ethanol and \$14 million per extra job).**

The importance of energy to our daily lives will continue to stimulate public debate about energy policies, and taxes and subsidies will continue to be hot topics. Therefore, it's important we all have the facts to inform these debates. A number of U.S. government agencies and organizations have recently published studies on these issues, and they contain some very useful facts.

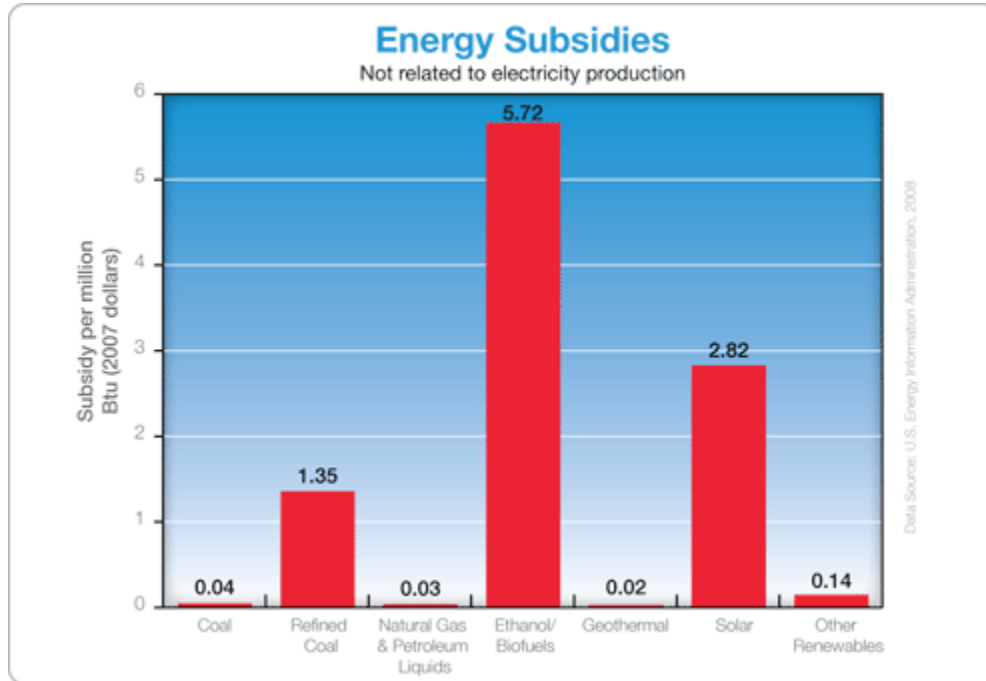
These reports help demonstrate several key points:

- Of the \$16.6 billion spent on U.S. energy subsidies over the course of one year, fuels such as renewables, refined coal, nuclear, and others accounted for more than 85 percent of subsidies.

**Factoid: oil and natural gas received about 13 percent. At the same time, oil and natural gas met well more than 60 percent of U.S. energy needs.**

- U.S. policy interventions, such as the continued taxpayer support of ethanol, come at a high direct cost. U.S. EIA data showed that ethanol/biofuels received \$5.72 per million BTU in energy subsidies. In 2009 alone, biofuels received \$6 billion of federal subsidies via tax credits according to the Congressional Budget Office, and with existing policies, taxpayers' support for corn-based ethanol biofuels will total more than \$30 billion in the next five years.

**Factoid: American taxpayers have already spent \$41.2 billion since 1980 on tax-based subsidies for ethanol, according to the Senate Energy Committee**



The “per million Btu” measure in the graph is important because ethanol is a relatively inefficient source of energy. It takes 1.48 gallons of ethanol to provide as much energy as a gallon of gasoline. Because of ethanol’s lower energy content, cars using blended fuels get fewer miles per gallon – and the higher the ethanol blend, the lower the fuel economy. So if the current average price of “regular” unleaded gasoline was about \$2.80 (sounds good right about now doesn’t it?) a gallon, a consumer using E85 would generally need to fill up more frequently and pay about \$3.15 a gallon for enough E85 to be able to drive the same distance you get from a gallon of gasoline.

I am Jim Steigner (Mr. Comfort), and I just wanted you to know. Thanks to Mike from Avon Lake for his question. As always please feel free to contact me with any questions, concerns or ideas at [www.mrcomforthvac.com](http://www.mrcomforthvac.com), under the “Ask Mr. Comfort” Section.