

**Testimony before U.S. House of Representatives Committee on Energy and Commerce  
Subcommittee on Energy and Power  
May 5, 2011**

*The American Energy Initiative: Challenges and Opportunities for Alternative Transportation  
Fuels and Vehicles Summary of Key Points*

Summary of Key Points in Testimony of Lucian Pugliaresi

- One of the major obstacles to rapid increases of corn ethanol into the gasoline pool is the rising cost of ethanol's principal feedstock, corn.
- U.S. policy requiring ever larger volumes of ethanol blended into the gasoline pool is now running into two distinct and important cost realities, both of which are likely to contribute to price increases in gasoline above the rising acquisition cost for crude now faced by domestic refineries
- The RFS mandate not only increases prices at the pump as it requires blending larger volumes of a relatively expensive fuel, but it also creates market distortions and regulatory uncertainty throughout the transportation fuels supply chain.
- In a market free of volumetric mandates, costs would be the prime determinant in evaluating the appropriate mix of ethanol and gasoline sold at the pump. EPRINC's analysis shows that the volumetric ethanol mandate for the gasoline pool is bringing a more costly product to the market.
- The Congressional debate over the deficit has highlighted concerns over the cost of ethanol subsidies, now estimated at nearly \$6 billion per year. The true cost is much higher. Absent volumetric mandates and blending tax credits, the U.S. would consume approximately 400,000 barrels/day of ethanol, half the amount of ethanol consumed today.
- As long as both of these commodities are locked into a regulatory environment that strictly prohibits adjustments to changes in market conditions, opportunities to temper the costs of market volatility through adjustments in the domestic fuel mix will remain limited, with corresponding and unnecessary cost increases for transportation fuels. The loss of tax payer revenue alone far exceeds the benefits from the program by nearly 3 to 1 when we factor in the lower mileage performance of ethanol.
- Congress should consider holding the mandate at 10 percent until we can get a full understanding the risks and costs of the full range of strategies to increase the volume of domestic fuels in the transportation fuels sector.

**Testimony**

**before**

**U.S. House of Representatives Committee on Energy and Commerce  
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*The American Energy Initiative: Challenges and Opportunities for  
Alternative Transportation Fuels and Vehicles*

**May 5, 2011**

**9:30 am**

**Rayburn House Office Building  
Washington, DC**

**Submitted by:**

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## Implementation Issues for the Renewable Fuel Standard

### Summary

The Federal government provides a range of subsidies, tax incentives, and regulatory mandates to promote the use of ethanol and other renewable fuels into the national gasoline pool.<sup>1</sup> Until recently, ethanol use was limited by law to a maximum of 10% of the gasoline pool, or as a specialty fuel at high levels of concentration (a 70-85% blend called E85) for use only in "flex-fuel" vehicles.

Under the Renewable Fuel Standard (RFS), volumetric requirements for ethanol increase annually regardless of the growth in gasoline use. For 2011 the RFS requires the gasoline pool to reach approximately 10% of the national pool which has historically been viewed as the limit for safe use in conventional vehicles. So called "obligated parties," such as refiners and importers, can only market additional volumes through greater sales of E85, but E85 has met considerable consumer resistance because of its poor mileage performance. E85 also requires large investments in new pumps and tanks at retail outlets. In response to concerns over the market limitations of E85, EPA has authorized the use of a new fuel, with 15% ethanol (E15), for model year (MY) 2001 and newer cars, with certain exceptions. These initiatives to increase the blending volumes for gasoline have been sought as a means to create additional market access for the mandated volumes of ethanol as the 10% volumetric level, or "blendwall" is reached.

One of the major obstacles to rapid increases of corn ethanol into the gasoline pool is the rising cost of ethanol's principal feedstock, corn. Domestically produced ethanol should have provided some modest constraint on the rising cost of gasoline as turmoil in the Middle East and North Africa has sent crude oil prices well above \$100 per barrel (bbl). Instead, ethanol has seen its feedstock costs more than double over the past 10 months, an increase considerably greater than the rise in crude prices over the same period (Slide 1 attached)

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<sup>1</sup> The federal program promotes several categories of renewable fuels, not just ethanol. The Energy Independence and Security Act of 2007 ("EISA") proposed four renewable fuel mandates, instead of the single mandate as was the case under earlier legislation. Under EISA 2007, the Renewable Fuel Standard (RFS) program was expanded as follows:

- \* RFS program includes diesel, in addition to gasoline;
- \* The volume of renewable fuel required to be blended into transportation fuel increased from 9 billion gallons in 2008 to 36 billion gallons by 2022;
- \* It established new categories of renewable fuel, and set separate volume requirements for each one, among other requirements. See EPRINC report, ***A Primer on Requirements for the Use of Renewable Fuels in the U.S. Transportation Sector, July 2009.*** <http://www.eprinc.org/pdf/rfsprimer.pdf>

U.S. policy requiring ever larger volumes of ethanol blended into the gasoline pool is now running into two distinct and important cost realities, both of which are likely to contribute to price increases in gasoline above the rising acquisition cost for crude now faced by domestic refineries.<sup>2</sup> The first is the rapidly rising cost of corn. Disappointing U.S. corn yields, loss of wheat crops worldwide and increasing domestic and international demand for corn has pushed prices from \$3.50/bushel to over \$7/bushel in the last 10 months, driving up ethanol prices to levels well above the cost of gasoline when adjusted on a BTU basis.<sup>3</sup> Expanding access will not solve the cost problem because it cannot provide a cost competitive alternative to E10 (see slide 2 attached).

The second problem is the volumetric mandate on the use of ethanol in the U.S. gasoline pool which will soon cross the threshold of 10% by volume. The RFS requires the placement of greater volumes of ethanol into the gasoline pool every year. When the RFS program was implemented in EISA 2007 it was believed that corn ethanol would be cheaper than gasoline and that U.S. gasoline consumption would continually rise, therefore avoiding a blendwall problem. However, neither assumption has proven correct. The transportation fuels sector is now left with a program that mandates the blending of a fuel regardless of cost, demand, infrastructure, or value.

The RFS mandate not only increases prices at the pump as it requires blending larger volumes of a relatively expensive fuel, but it also creates market distortions and regulatory uncertainty throughout the transportation fuels supply chain. For example, E15 is not appropriate for heavy duty vehicles or vehicles built before 2000, nor is it appropriate for boats and small engines such as lawnmowers and chainsaws. It will require special retail blender pumps and tanks costing approximately \$120,000 each and would require yet to be determined labeling.<sup>4</sup> The auto industry remains concerned over E15's safety in vehicle engines, and the new blend level creates the potential for misfueling – all of which raises the liability to any refiner that produces E15. Most vehicles are warrantied only for E10 fuel and it is unclear who holds the liability for any damage which might be caused by E15. It is illegal to sell blends above E10 to non flex-fuel vehicles built before 2000. These concerns are likely to limit E15's

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<sup>2</sup> As the mandate grows, obligated parties will face rising costs and consumer resistance to the higher ethanol blends, but the volumes must still be marketed. Two outcomes are possible, In those cases where refiners can fully pass through rising costs for blends above E10, these costs will be passed on to the remainder of the product slate (diesel, jet fuel, E10, etc). In those cases, where refiners cannot pass through the rising costs of production, the refining industry will adjust by losing capacity to foreign imports. A middle ground is the most likely outcome, i.e., some price increases and some loss of capacity. A discussion of how refiners and prices will adjust to the higher cost structure in a post blendwall environment is discussed in the forthcoming EPRINC report

***Implementation Issues for the Renewable Fuel Standard Part II.***

<sup>3</sup> A large volume of U.S. corn production was hedged, i.e., ethanol producers had taken out contracts to "lock-in" corn prices at much lower levels than current production. These hedges will eventually come off and all ethanol producers will face higher feedstock costs. Also, the price of ethanol in the market is set by the marginal producer, i.e., the producer that has not hedged his production.

<sup>4</sup> See ***Gas Stations Get Aid to Sell More Ethanol***, Bill Tomson, *Wall Street Journal*, April 9, 2011.

[http://online.wsj.com/article/SB10001424052748704503104576251023724394758.html?mod=googlenews\\_wsj](http://online.wsj.com/article/SB10001424052748704503104576251023724394758.html?mod=googlenews_wsj)

introduction on a national level. In addition, production costs for E85 and E15 are not likely to be cost competitive with E10.

In a market free of volumetric mandates, costs would be the prime determinant in evaluating the appropriate mix of ethanol and gasoline sold at the pump. EPRINC's analysis shows that the volumetric ethanol mandate for the gasoline pool is bringing a more costly product to the market. Gasoline wholesale futures have recently traded (May 2011) at \$3.39/gallon and wholesale ethanol prices (May 2011) at \$2.65/gallon. But when ethanol prices are converted to a gasoline energy equivalent basis, the wholesale price of ethanol is \$3.95/gallon. Ethanol, when adjusted for BTU and MPG equivalence, consistently sells above the price of premium gasoline at retail outlets.<sup>5</sup> (see slide 3 attached)

The Congressional debate over the deficit has highlighted concerns over the cost of ethanol subsidies, now estimated at nearly \$6 billion per year. The true cost is much higher. Absent volumetric mandates and blending tax credits, the U.S. would consume approximately 400,000 barrels/day (bbls/d) of ethanol, half the amount of ethanol consumed today. Ethanol is highly valuable as an oxygenate, particularly since the previously used oxygenate, MTBE, was phased out of use. At current prices the natural market for ethanol is 3%-5% of the gasoline pool (see slide 4), but it could be larger under alternative pricing environments. At best, RFS is responsible only for the incremental blending of an additional 400,000 bbls/d of ethanol and that the true cost of the blender's credit is closer to \$0.90/gallon rather than the nominal credit of \$0.45/gallon..

The federal government estimates that programs that reduce petroleum imports are worth approximately \$14 per barrel. Using estimates routinely used by EPA, the \$14 per barrel benefit for import reduction yields \$2.5 billion in "import savings" benefits for 2011. These benefits must be compared to the direct and indirect costs of the program. The blender's credit alone costs the federal government over \$6 billion in lost revenue. In addition to these costs must be added the cost of grants, loan guarantees, loss of efficiencies in refinery and retail operations, and any impact the ethanol subsidies may have on corn prices. These additional requirements further expand the costs of the program, but even without including these additional costs of RFS, the loss of tax payer revenue alone far exceeds the benefits from the program by nearly 3 to 1 when we factor in the lower mileage performance of ethanol.

It is not surprising that the volatility in the oil market, are also present in the corn market. Corn is a globally traded commodity and China, the world's second largest corn producer, has recently become a net importer of U.S. corn for the first time in many years, slowly leaving behind a policy of grain self-sufficiency. Both the ethanol market and the gasoline market cannot be isolated from global market forces. As long as both of these commodities are locked into a regulatory environment that strictly

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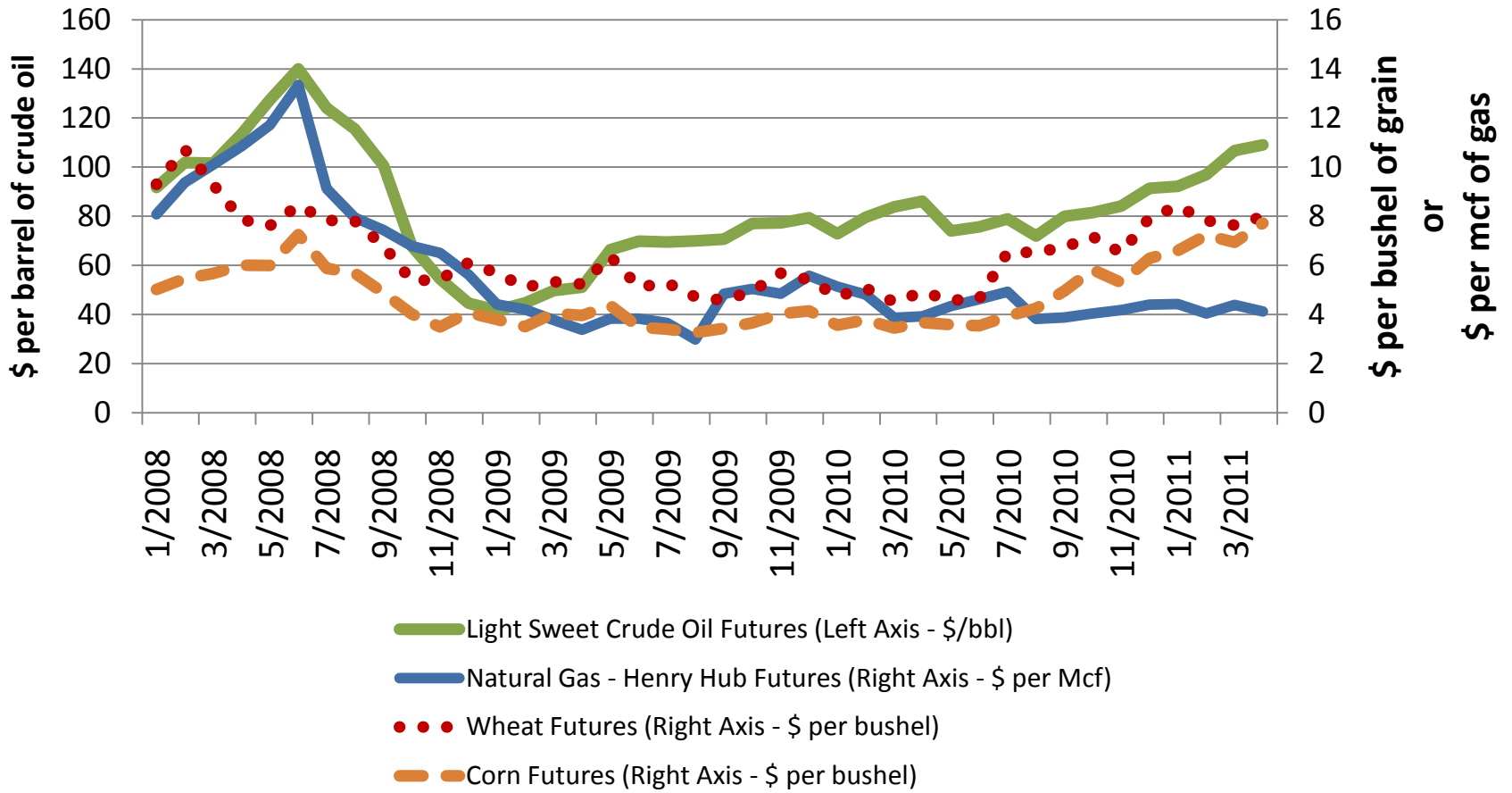
<sup>5</sup> See *AAA's Daily Fuel Gauge Report*.

<http://fuelgaugereport.aaa.com/?redirectto=http://fuelgaugereport.opisnet.com/index.asp>

prohibits adjustments to changes in market conditions, opportunities to temper the costs of market volatility through adjustments in the domestic fuel mix will remain limited, with corresponding and unnecessary cost increases for transportation fuels.

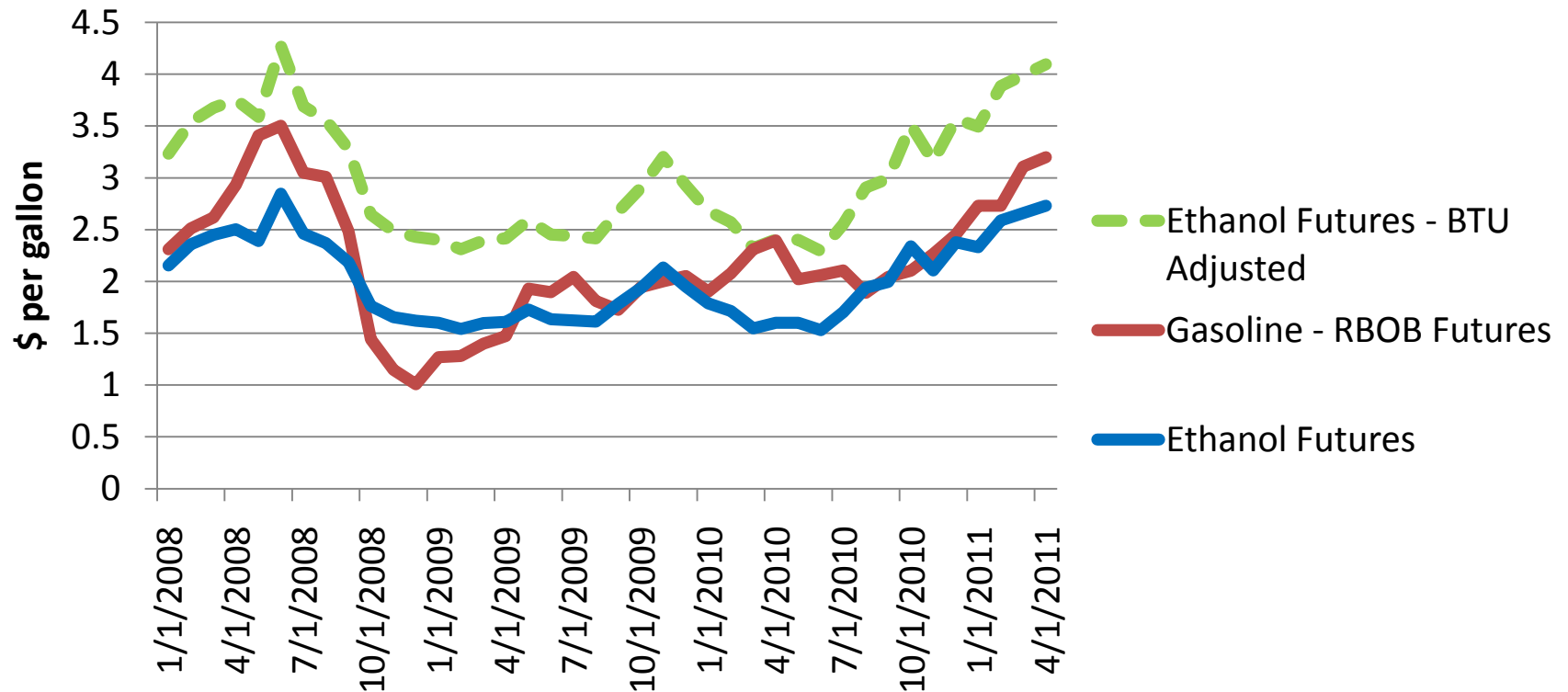
We are well aware that ethanol producers have made expensive capital investments in the production of conventional biofuels and EPRINC has always maintained that ethanol is an important and critical component in the production of domestic transportation fuels. We should not abandon this investment. But existing law will drive the mandate to above 10% of the gasoline pool. These higher blend rates for ethanol will impose major costs on the wholesale and retail distribution components of the fuels sector. In addition to these financial risks, we may also find that the mandate has foreclosed more cost effective alternatives, such as drop in fuels. Given the costs involved, Congress should consider holding the mandate at 10 percent until we can get a full understanding the risks and costs of the full range of strategies to increase the volume of domestic fuels in the transportation fuels sector.

# Corn, Wheat, Oil and Natural Gas Futures Prices



Source: CME Group data for front month futures contracts

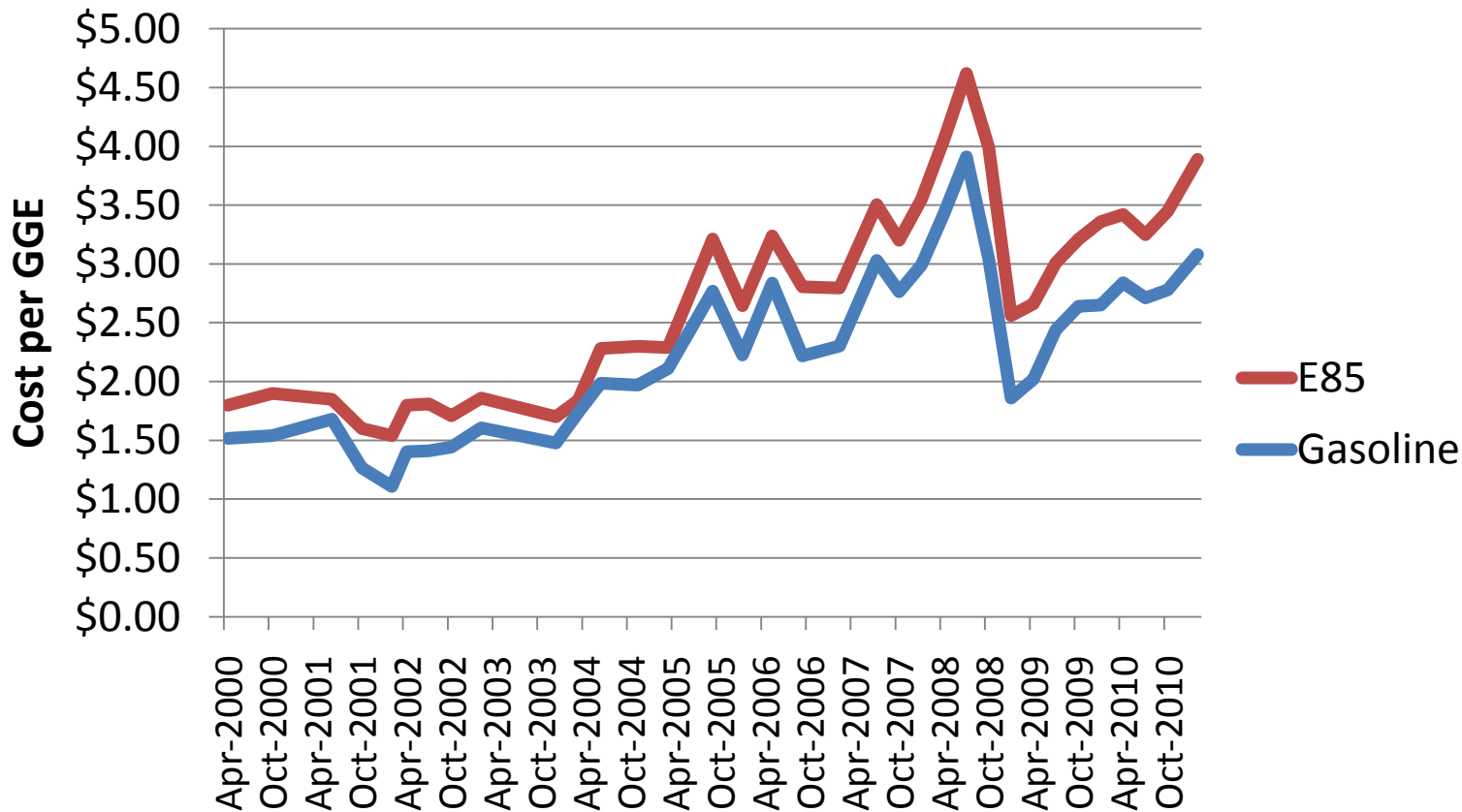
# Ethanol and Gasoline Futures Prices



Source: CME Group data, EPRINC conversion for ethanol

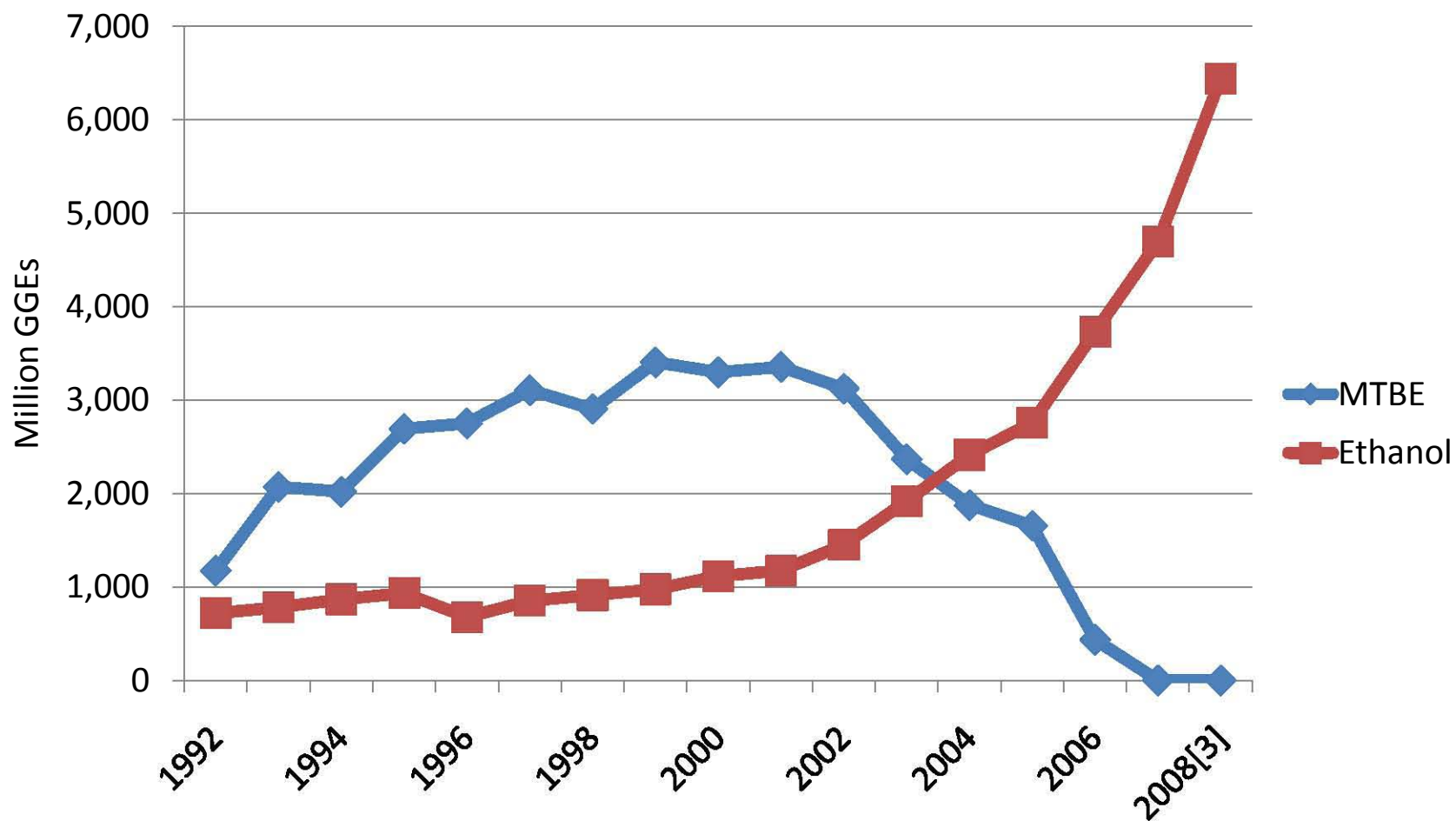


# E85 and Gasoline Retail Prices: DOE Data



Source: DOE data and calculations

# U.S. Oxygenate Consumption by Year



Source: DOE data and DOE calculations

## **Lucian Pugliaresi**

**President, Energy Policy Research Foundation (Washington, D.C.)**

Lucian (Lou) Pugliaresi has been President of Energy Policy Research Foundation (EPRINC) since February 2007 and when the foundation moved from New York to Washington, DC. He previously served on the Board of Trustees of EPRINC before taking over the presidency. Since leaving government service in 1989 and before being his appointment at EPRINC, Mr. Pugliaresi worked as a consultant on a wide range of domestic, energy security, and international petroleum issues. He has served in a wide range of government posts, including the National Security Council at the White House, Departments of State, Energy, and Interior, as well as the EPA. Mr. Pugliaresi has written extensively on energy and has been published in the *Oil and Gas Journal*, *World Oil*, and other publications covering Russian petroleum, energy security and energy policy. .

Mr. Pugliaresi has an A.B. in Economics (with Great Distinction) and extensive graduate study in economics from the University of California at Berkeley.

### **About EPRINC**

The Energy Policy Research Foundation, Inc. (EPRINC), was incorporated in 1944 and is a not-for-profit organization that studies energy economics with special emphasis on oil. It is known internationally for providing objective analysis of energy issues. EPRINC researches and publishes reports on all aspects of the petroleum industry which are made available free of charge to all interested organizations and individuals. It also provides analysis for quotation and background information to the media. EPRINC has been called on to testify before Congress on many occasions. The Foundation briefs government officials and legislators, and provides written background materials on request. EPRINC has been a source of expertise for numerous GAO energy-related studies and has provided its expertise to virtually every National Petroleum Council study of petroleum issues.