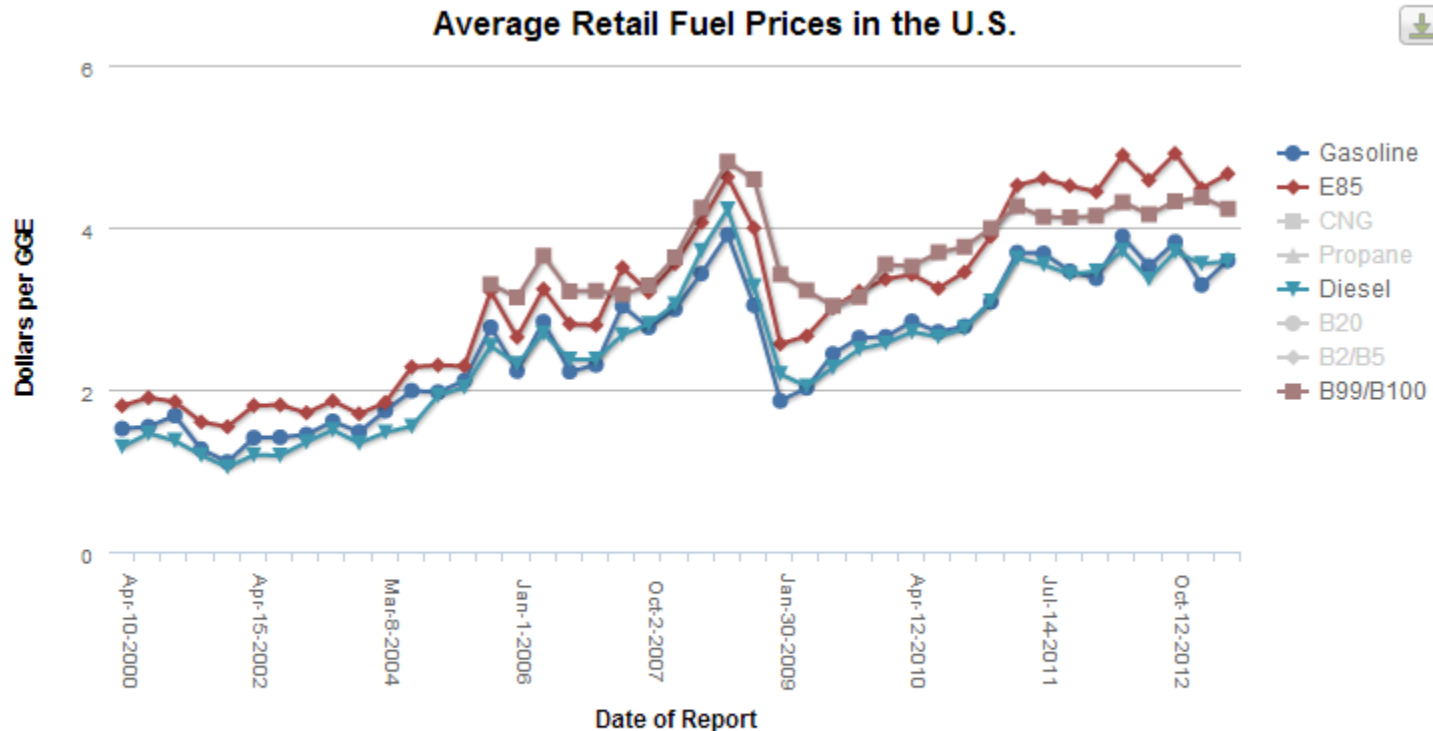


Retail price of selected fuels, after BTU adjustment

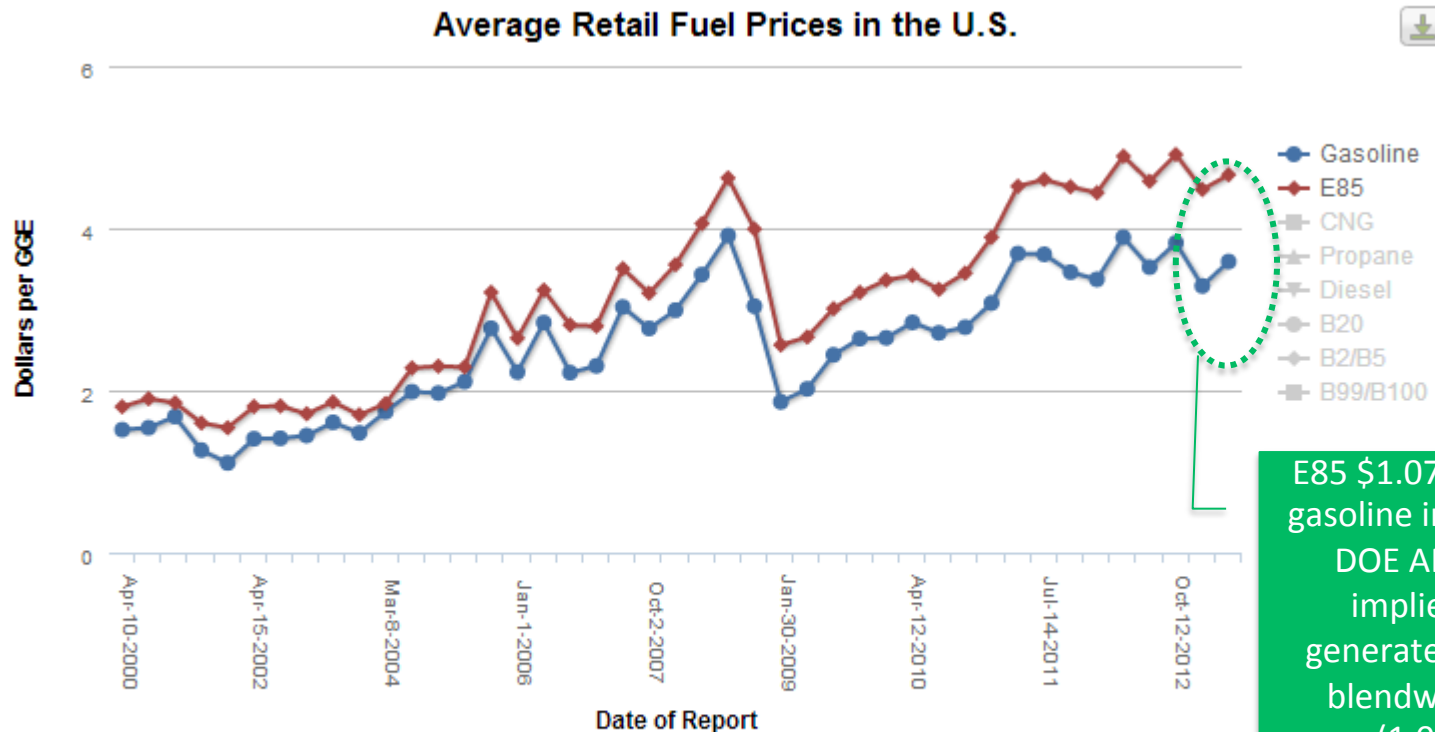


Source: [Clean Cities Alternative Fuel Price Reports](#)

Notes: Fuel volumes are measured in gasoline-gallon equivalents (GGEs), representing a quantity of fuel with the same amount of energy contained in a gallon of gasoline.

Source: DOE Alternative Fuels Data Center, for April (most recent)

Why E85 has ultimately failed: Cost



E85 \$1.07 premium to gasoline in April (latest DOE AFDC data), implies cost to generate a RIN post-blendwall = \$1.29 (1.07/0.83)

Source: [Clean Cities Alternative Fuel Price Reports](#)

Notes: Fuel volumes are measured in gasoline-gallon equivalents (GGEs), representing a quantity of fuel with the same amount of energy contained in a gallon of gasoline.

Source: DOE Alternative Fuels Data Center, for April (most recent)

Compliance Options After the 10% Blendwall

Compliance Option

Reduce volumetric obligation through exports, decreased imports, and/or reduction in crude throughput

Sell E15

Sell E85

Problem

- Reduces obligation, does not fulfill it
- Huge (10%+), impractical reduction in gasoline and diesel supply to US market required to offset deficit
- Would create an extremely tight, volatile US fuels market

- Faces same cost issue as E85; must be discounted to compete with gasoline
- Limited infrastructure (less than ~20 pumps nationwide)
- EPA issued waiver only for model year 2001 and newer vehicles
- Automakers not willing to approve/warranty E15 for existing E10-only vehicles.

- Must be discounted by over \$1/gallon to compete with gasoline
- No mechanism to discount and pass costs on
- Only ~2,400 stations sell E85 out of 200,000 – mostly in rural parts of midwest - each would have to sell 140 gallons per hour, 24/7/365 to generate 2.5 billion RINs
- Avg. station sells 100 gallons of gasoline/hour across all pumps
- Only ~11 million flexfuel vehicles on road

Cost to meet the mandate via E85 (if it were scalable and feasible)

- Per DOE AFDC April data, E85 is \$1.07 more expensive than gasoline on a BTU basis.
- For E85 to become economic at the pump, thus incentivizing blending and generating RINs, it's price must decline:
 - \$1.07/gallon for energy deficit
 - \$0.05/gallon refueling time*
 - \$0.14/gallon for limited availability*
 - **Total: \$1.26**

Price of E85 would have had to drop by \$1.26 per gallon to compete with gasoline in April. Cost to generate a RIN with E85 = \$1.52 (E85 contains max 83% ethanol)

- **2014 RINs currently over \$1.40/gal, as of July 19 2013**
- \$1.52 RINs would increase the marginal cost of supplying gasoline to the US market by \$0.19 per gallon**, constraints listed in previous slide will raise this cost significantly.
 - Total cost to US consumers would be \$25 billion with \$0.19/g increase

*EPA Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis, EPA-420-R-10-006, Feb 2010, for 2022, therefore \$0.14/gallon is conservative

**Ethanol will have to be blended at 12% concentration in 2014 given RFS mandates, therefore each gallon of gasoline requires ~1/8 of a RIN, or \$0.19 gallon at a RIN price of \$1.52.

Evidence of the E85 Option

- High RIN prices (currently over \$1) provide the incentive for ethanol producers to blend and sell E85 at a discount, thus allowing them to collect the RIN and sell it to obligated parties:

“In Iowa, Absolute Energy, a 115 million gallon per year ethanol plant near the Iowa-Minnesota border, is now offering E85, a fuel blend containing 85 percent ethanol and 15 percent gasoline, directly to retailers and is passing on the RIN value generated by blending ethanol. According to OPIS, recent prices for E85 at Iowa terminals were about \$2.77 per gallon, while Absolute Energy listed the price for its E85 at only \$1.93 per gallon earlier this week.

“By offering higher blends like E85 directly to retailers, Iowa ethanol plants are passing along the RIN savings and hoping that retailers will reflect the lower wholesale prices at the pump,” said Iowa Renewable Fuels Association Executive Director Monte Shaw.”

Biofuels Digest, May 27, 2013

<http://www.biofuelsdigest.com/bdigest/2013/05/27/absolute-energy-launches-direct-e85-distribution-to-retailers-at-1-93-per-gallon/>

- This generates RINs, but creates new costs for obligated parties (refiners, importers) without a means to recoup them.
- The E85 subsidy will show up in a combination of reduced refiner margins and higher gasoline and diesel prices at the pump.