

**Ethanol on the Brink:
Significant Growth and New Technology
Is there a tradeoff between food and fuel?**

**Energy Information Administration
National Energy Modeling System/
Annual Energy Outlook**

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Are Renewable Fuels Necessary?

President George W. Bush on America's energy security

- ❖ “As our economy continues to grow, U.S. oil consumption is projected to increase about one-third during the next 20 years”.
- ❖ “America is already using more energy than our domestic resources can provide, and unless we act to increase our energy independence, our reliance on foreign sources of energy will only increase”.
- ❖ “Renewable energy can increase our energy independence and help our farm economy”.

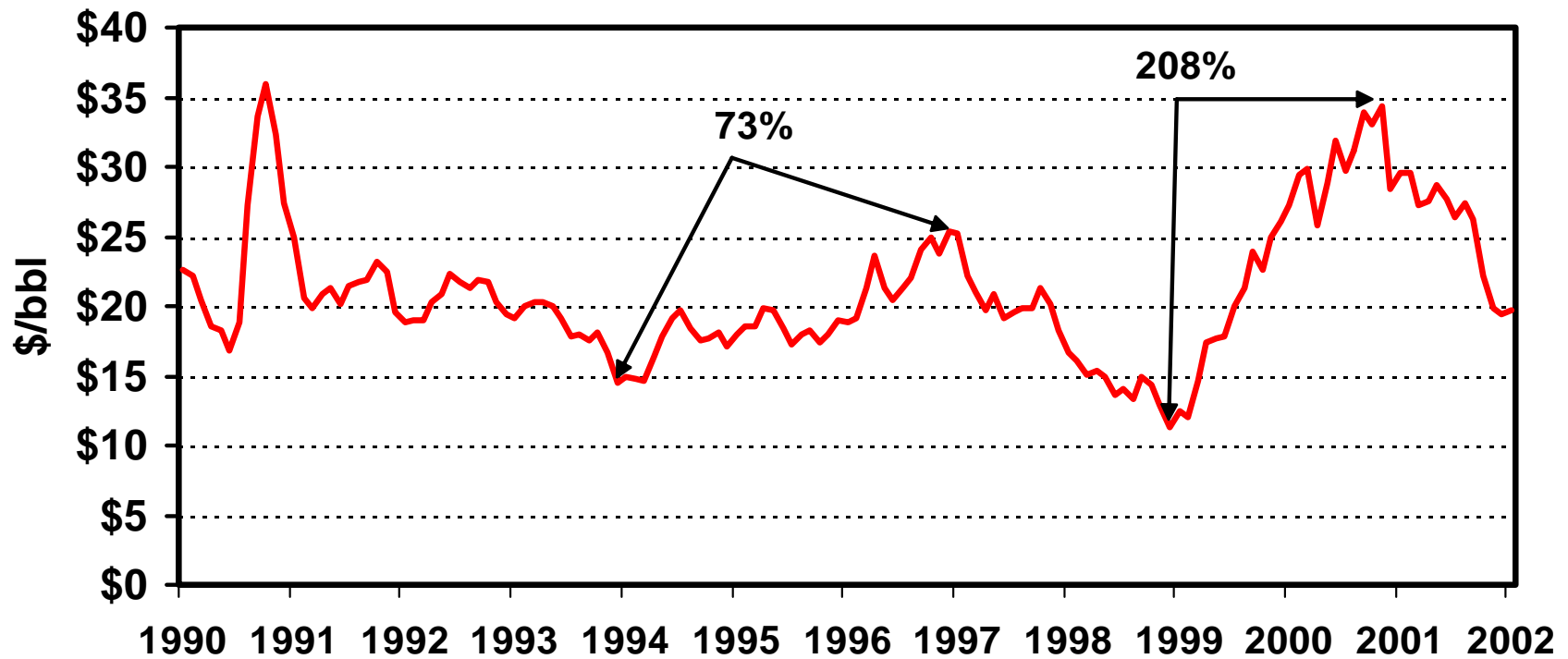


Energy security is multifaceted

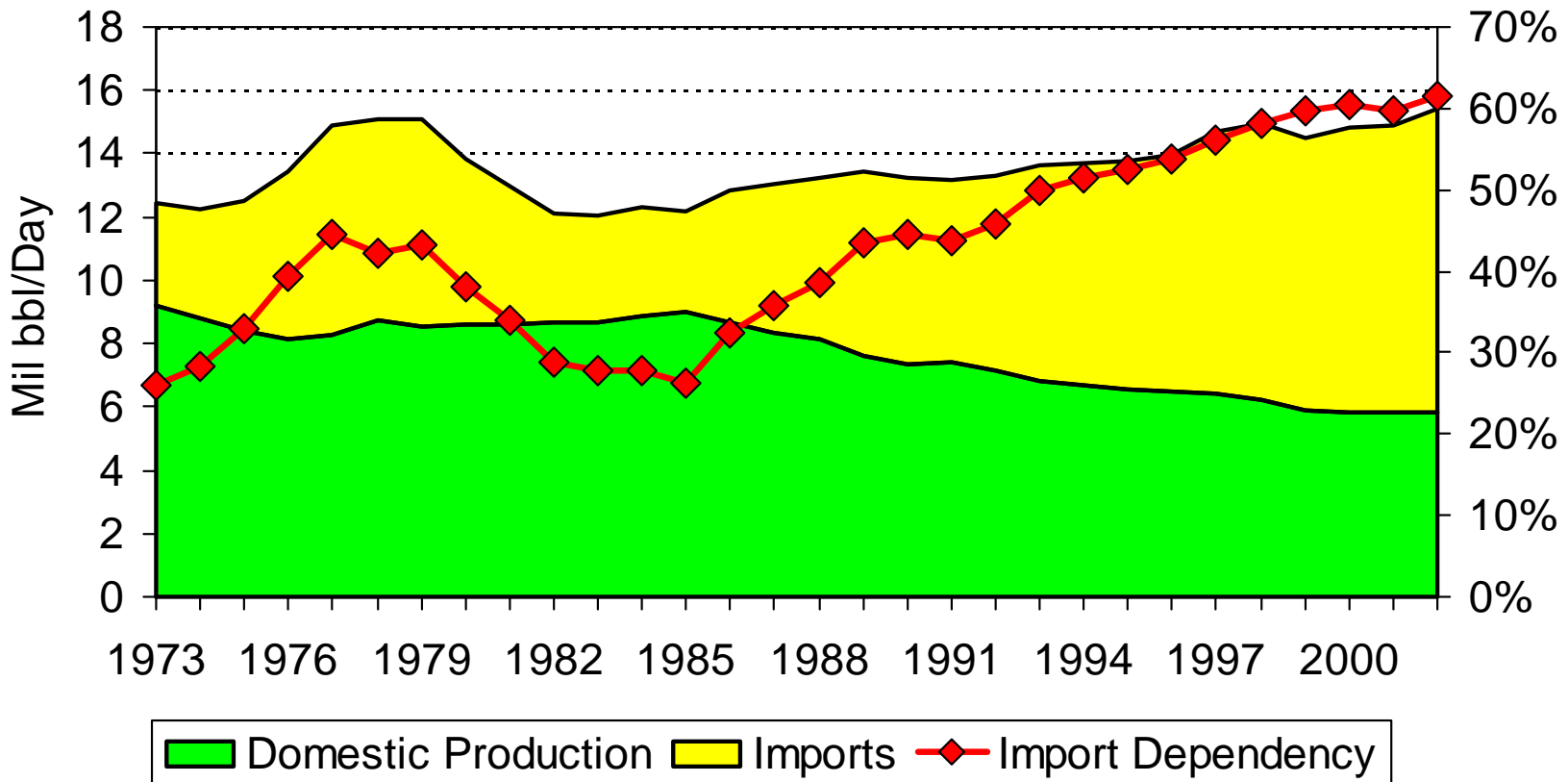
- ❖ National/homeland security
 - Reduced dependency on foreign suppliers
- ❖ Economic security
 - Lower trade deficit
 - Increased investment
 - Higher economic growth
 - New jobs and increased income



Oil prices are down for now, but history has shown that there is a significant upside potential.
(Crude oil, West Texas Intermediate)

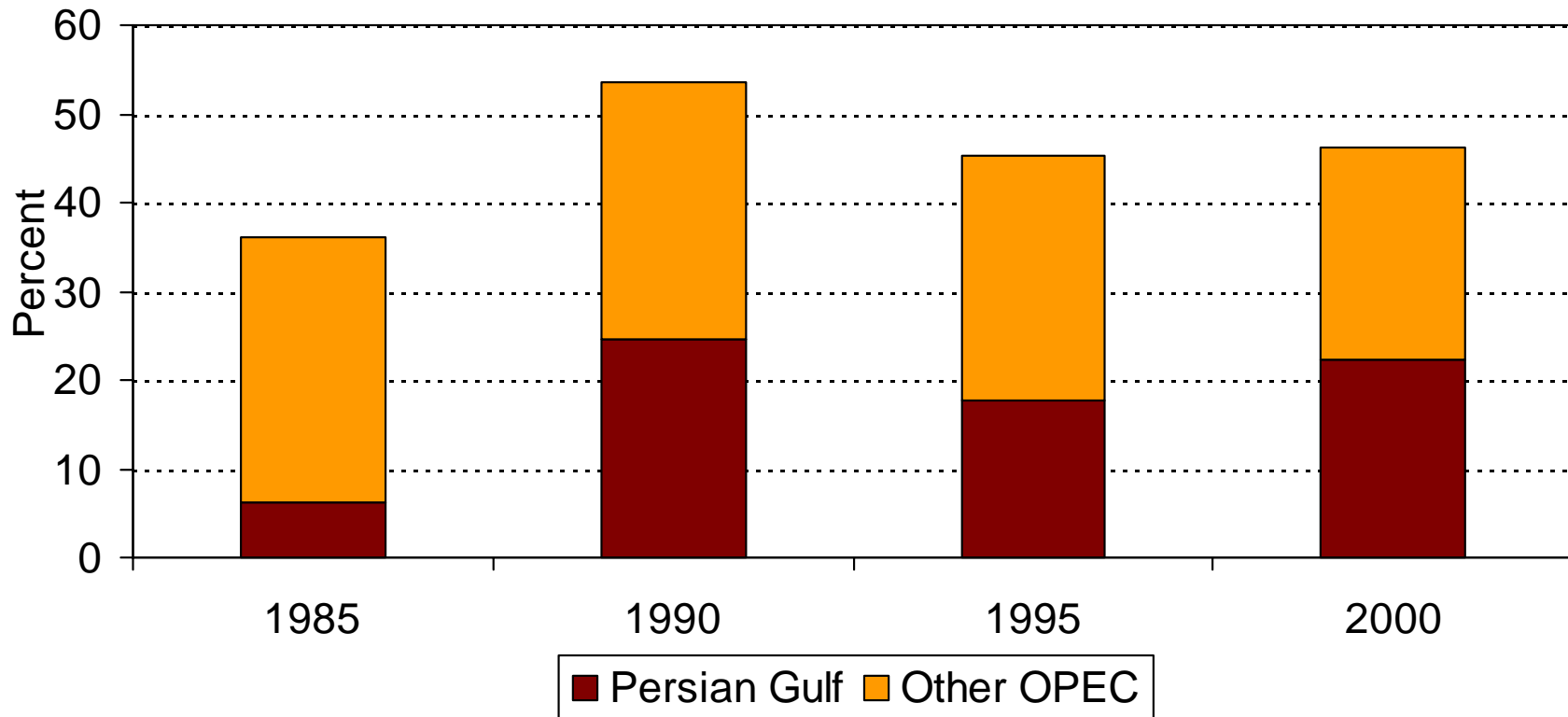


America's dependence on imported oil continues to grow.

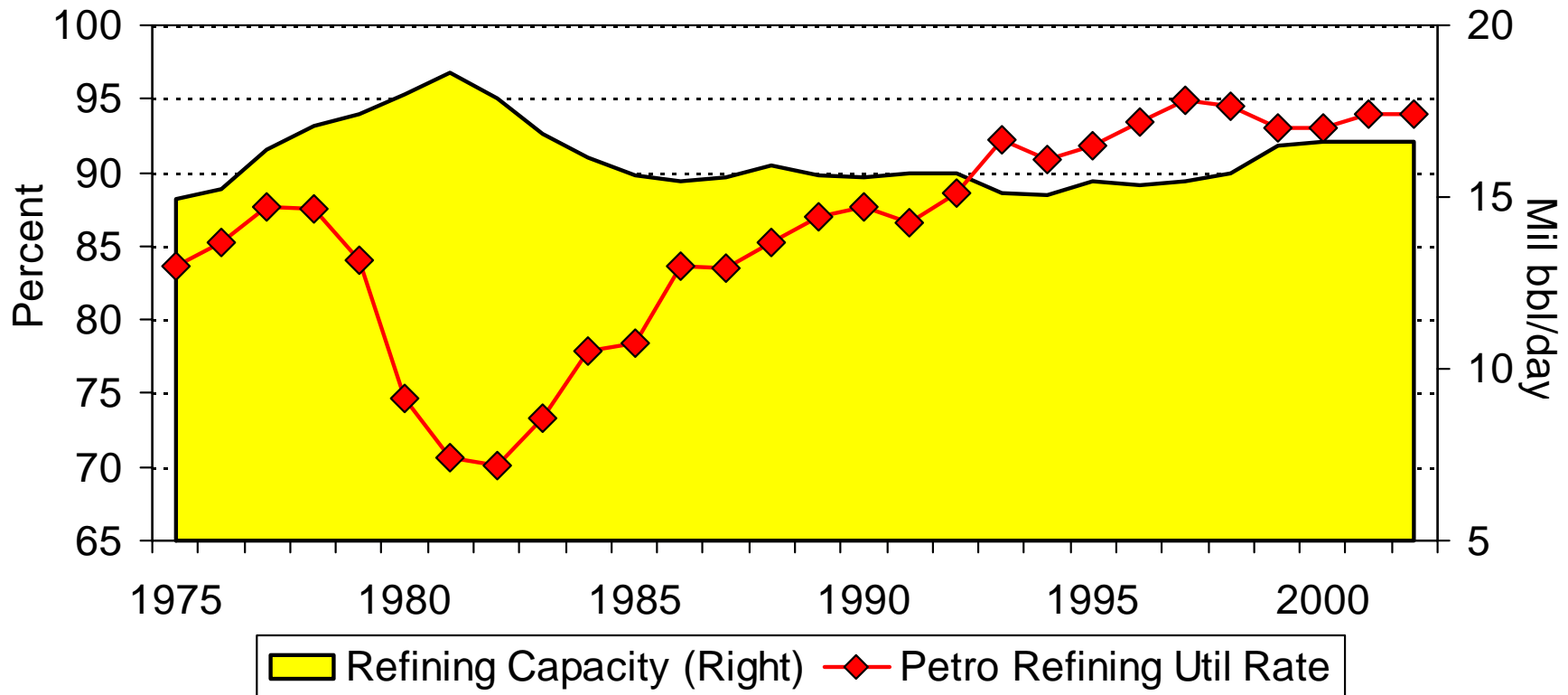


Source: U.S. Energy Information Administration Petroleum Supply Annual

OPEC supplies almost 50% of our petroleum requirements, and increasingly unstable Persian Gulf nations supply half of that.



Declining oil production and high imports are only part of the problem. Domestic refining capacity is tight and utilization is high.

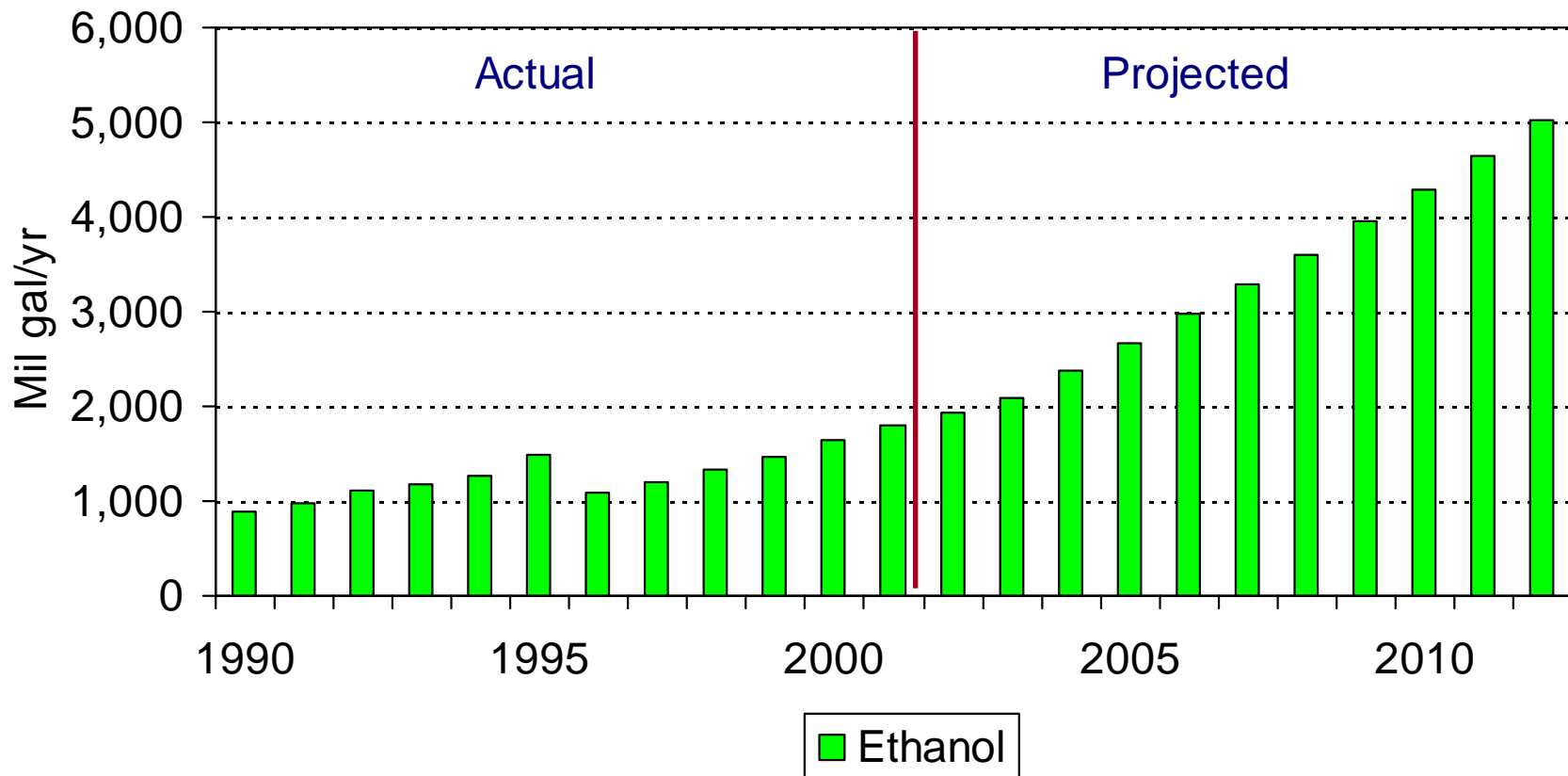


Source: DOE/EIA; Federal Reserve Board

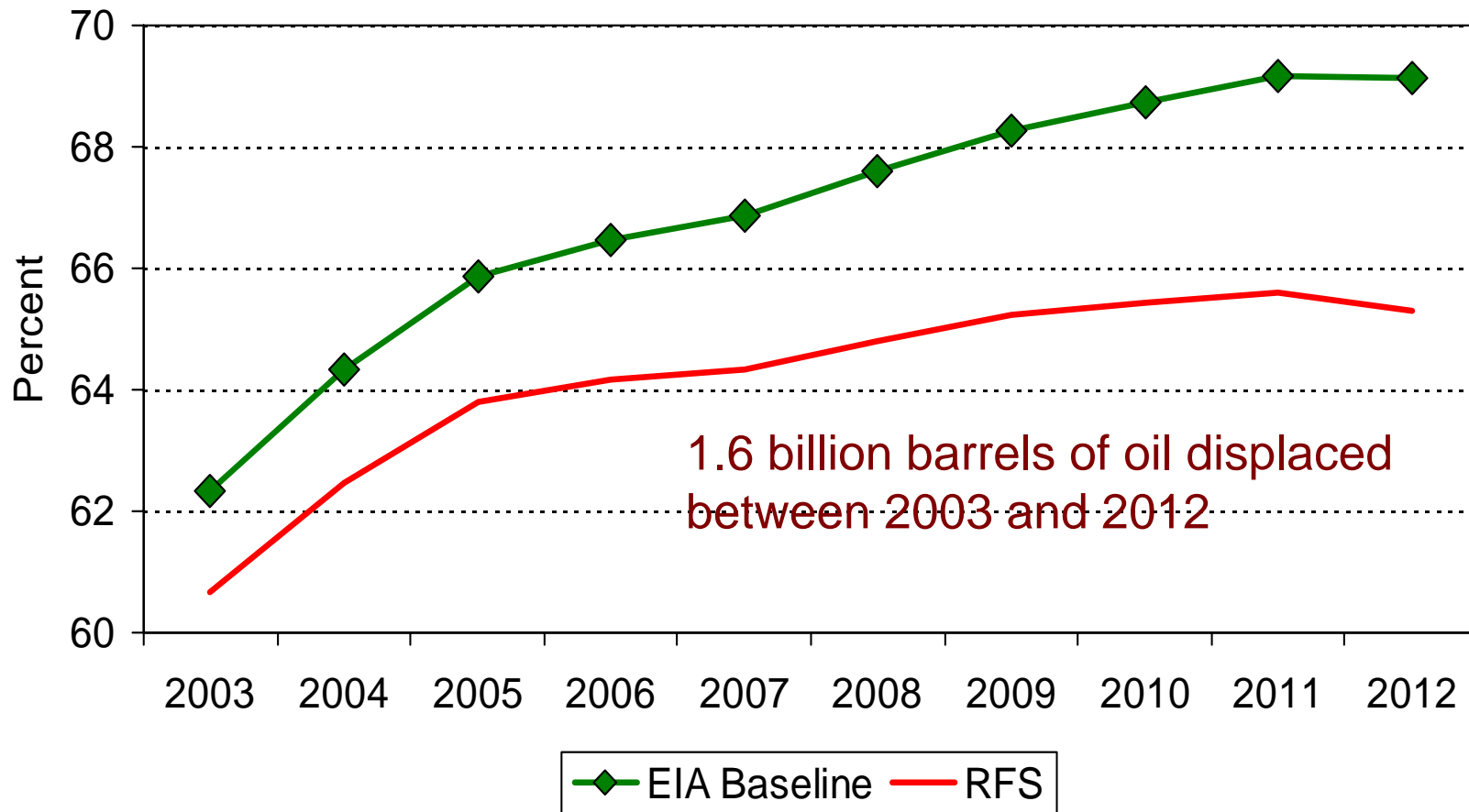
Ethanol and biodiesel are part of the solution

- ❖ A renewable fuel standard resulting in 5 billion gallons of ethanol and significantly increased biodiesel use will displace 1.6 billion barrels of oil over the next decade.
- ❖ An additional \$34.1 billion (1996\$) will stay in the American economy to be spent, saved, or invested.
- ❖ This “fiscal stimulus” combined with the investment spending to increase ethanol and biodiesel production will stimulate the U.S. economy.

A Renewable Fuel Standard will boost ethanol demand and production.



Increased use of ethanol and biodiesel will reduce America's dependency on imported oil

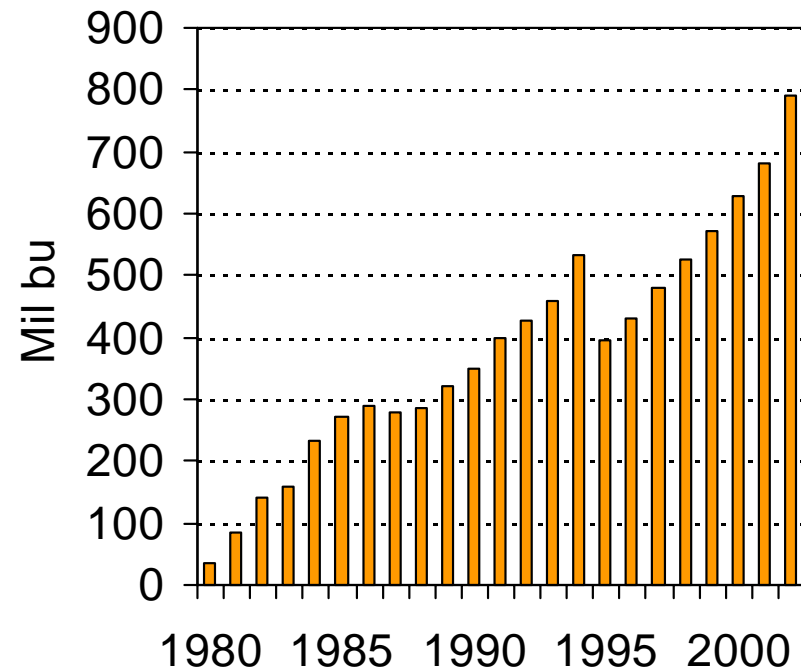


Source: AUS Consultants; DOE/EIA

Where does ethanol come from?

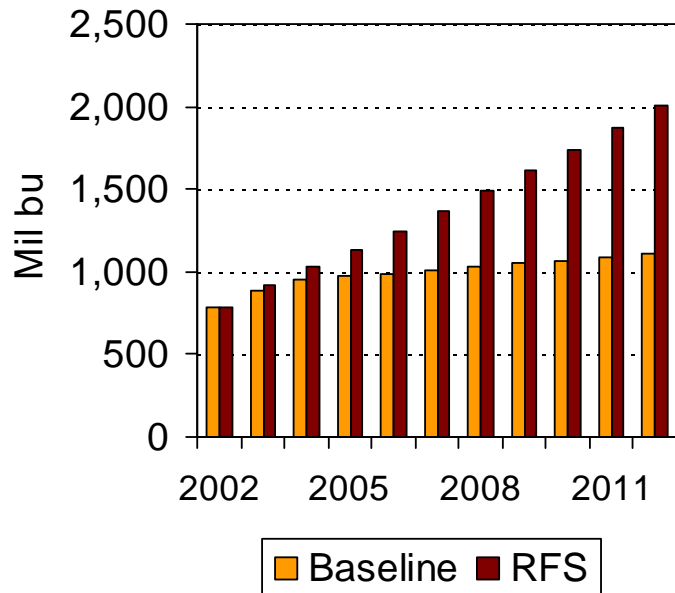
- ❖ In the U.S. almost exclusively from grain with corn the predominant feedstock.
- ❖ Small quantities of ethanol also are produced from sorghum, wheat, barley, and agricultural byproducts and waste.
- ❖ Ethanol is being produced in 58 plants with a current capacity of 2,346 MGY.
- ❖ 60 percent produced by dry mill plants and 40 percent by wet mill plants.

Corn Used for Ethanol Production

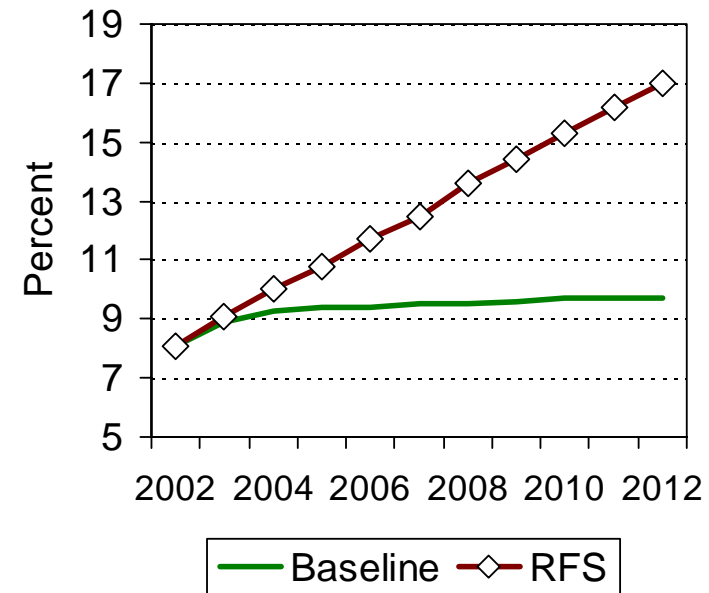


Can we produce both food and fuel?

Corn Used for Ethanol Production



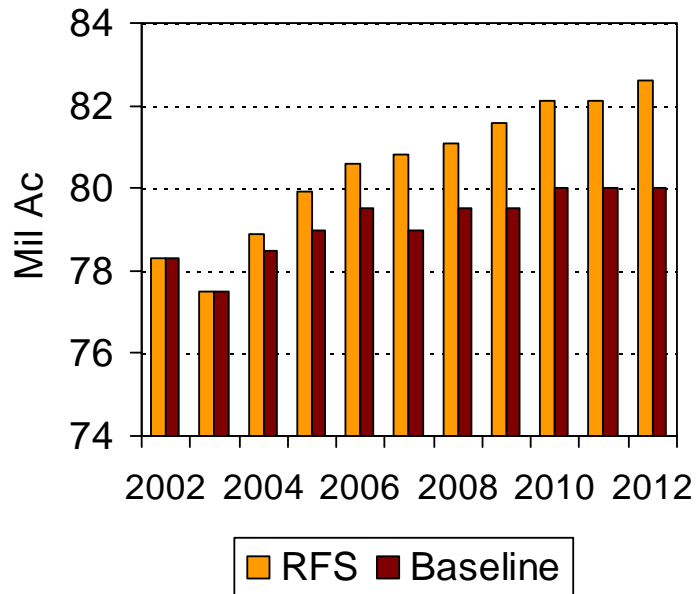
Ethanol as a Percent of Total Corn Utilization



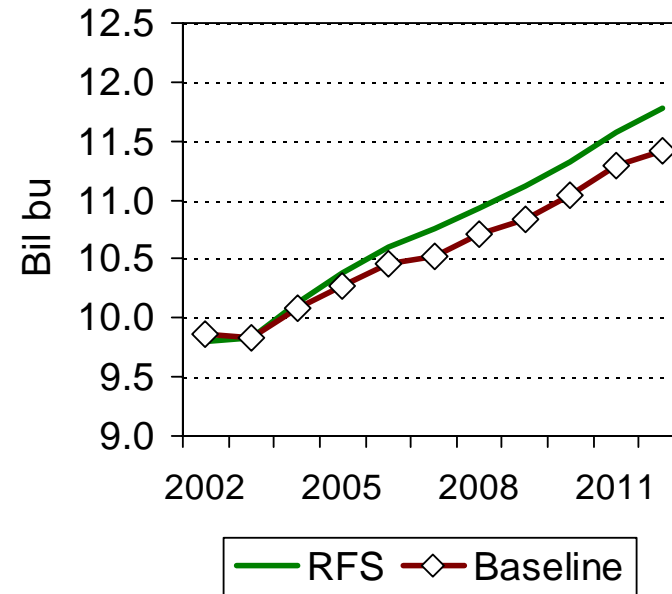
- ❖ Increasing ethanol production from 2,000 MGY to 5,000 MGY by 2012 will require an additional 425 million bushels per year.

This additional demand can be met with a relatively small increase in acres planted.

Corn Acres Planted



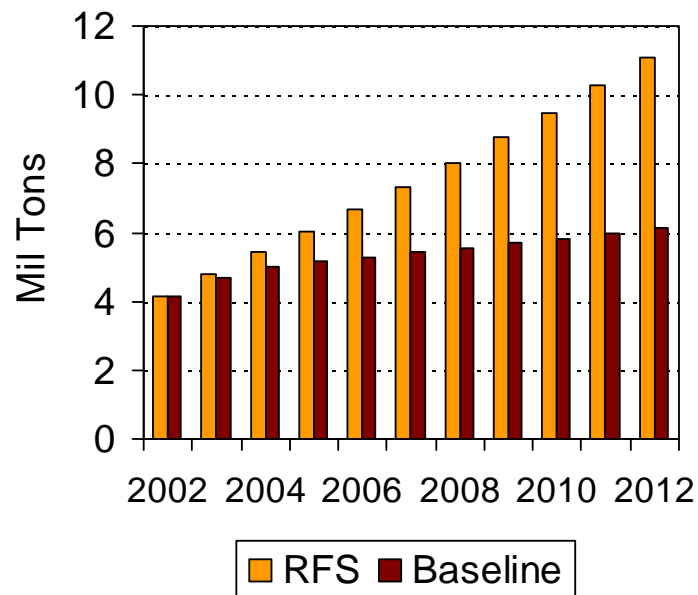
Corn Production



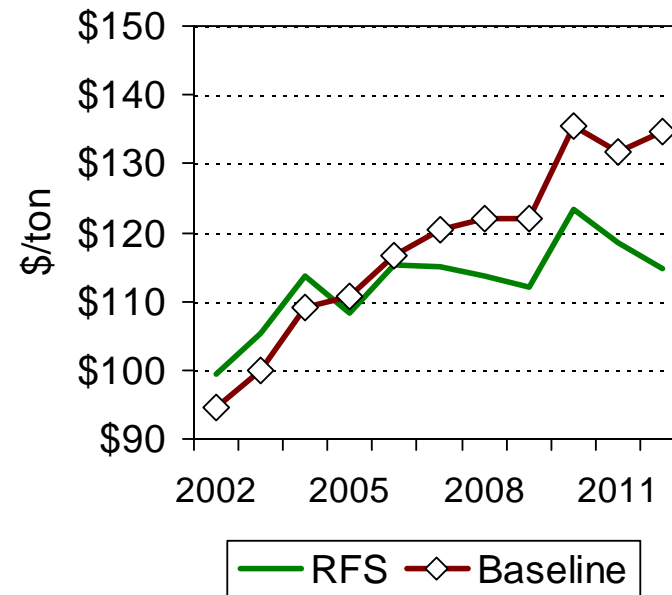
- ❖ Increased ethanol demand will require an additional 1.5 million acres of corn to be planted per year over the next decade resulting in planted area of 82.5 million acres by 2012.

Increased use of corn for ethanol production will have a small impact on livestock producers.

**Distillers Dried Grains
Production**



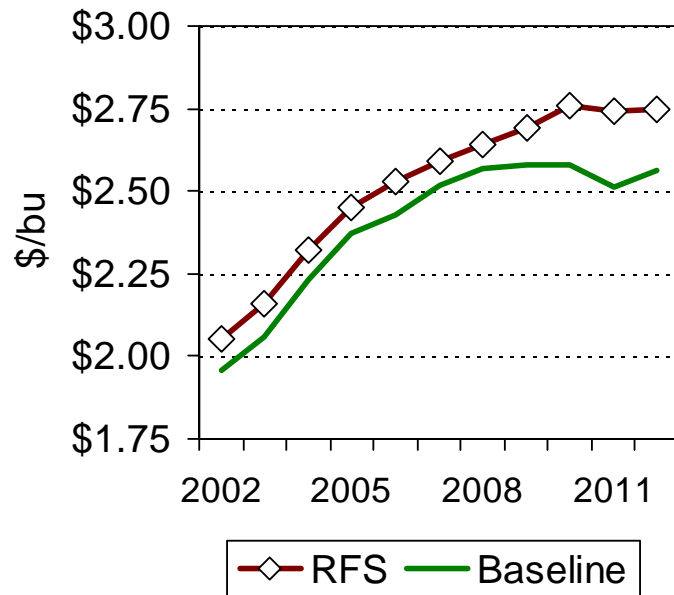
DDG Price



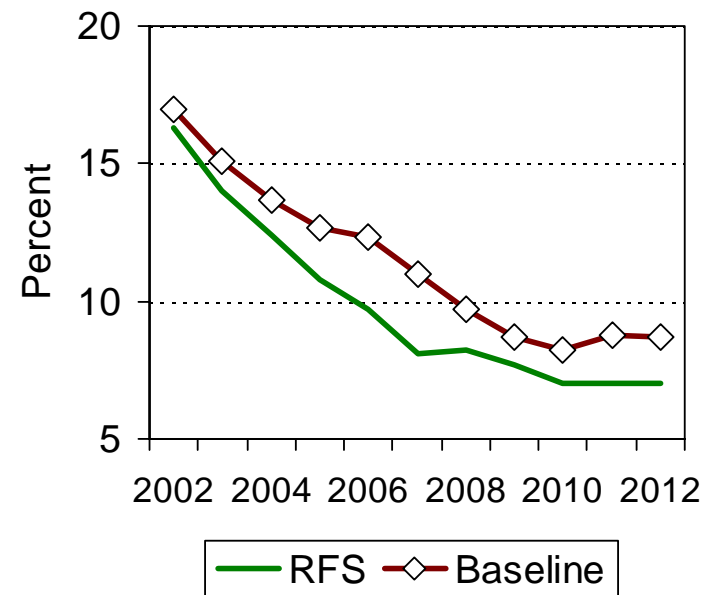
- ❖ Producing ethanol from corn does not remove the full feed value since DDG (a medium protein feed ingredient) also is produced. Increased ethanol production will double DDG output.

Increased ethanol production will provide important market-based support for corn prices.

Corn, Average Farm Price



Corn Stocks to Use Ratio



- ❖ An RFS will increase corn prices an average of 12 cents per bushel, or 5%, over the next decade.

A Renewable Fuel Standard will have a significant impact on both the farm and overall economy.

- ❖ Demand for grain (mainly corn) to produce ethanol will increase 41 percent over the next decade.
- ❖ The impact of higher corn prices on the livestock sector will largely be offset by larger availability and lower prices for DDG.
- ❖ Little or no increase in consumer food prices should result.
- ❖ Crop prices and cash receipts from marketings will increase, thereby boosting market-derived farm income.
- ❖ More than \$5.3 billion (1996\$) of new investment spending will be made to expand renewable fuel production capacity.

Can we produce both food and fuel?

- ❖ In short, yes.
- ❖ Adequate land is available to increase plantings of corn and other grains, and a market-oriented farm bill encourages farmers to plant the most profitable crop.
- ❖ Using grain to produce ethanol does not reduce the feed value available to livestock, dairy, and poultry producers. More DDG will be available at competitive prices.
- ❖ The impact of higher grain prices will be offset by lower feed ingredient prices, resulting in little or no impact on consumer food prices.
- ❖ Increased ethanol demand will provide market support for modestly higher corn prices, thereby boosting farm income and reducing direct government payments.

In summary, with an RFS everyone gains ...

- ❖ Corn prices and farm income increase with little or no impact on consumer food prices.
- ❖ Dependence on foreign oil is reduced thereby enhancing national security.
- ❖ The nation's trade deficit will be reduced by more than \$34 billion (1996\$).
- ❖ U.S. GDP will be \$156 billion (1996\$) higher by 2012.
- ❖ More than 214,000 new jobs will be created throughout the entire economy.
- ❖ Household income will expand by an additional \$51.7 billion (1996\$) over the next decade.

Thank you!