

Past, Current and Future Drivers of the U.S. Ethanol Industry

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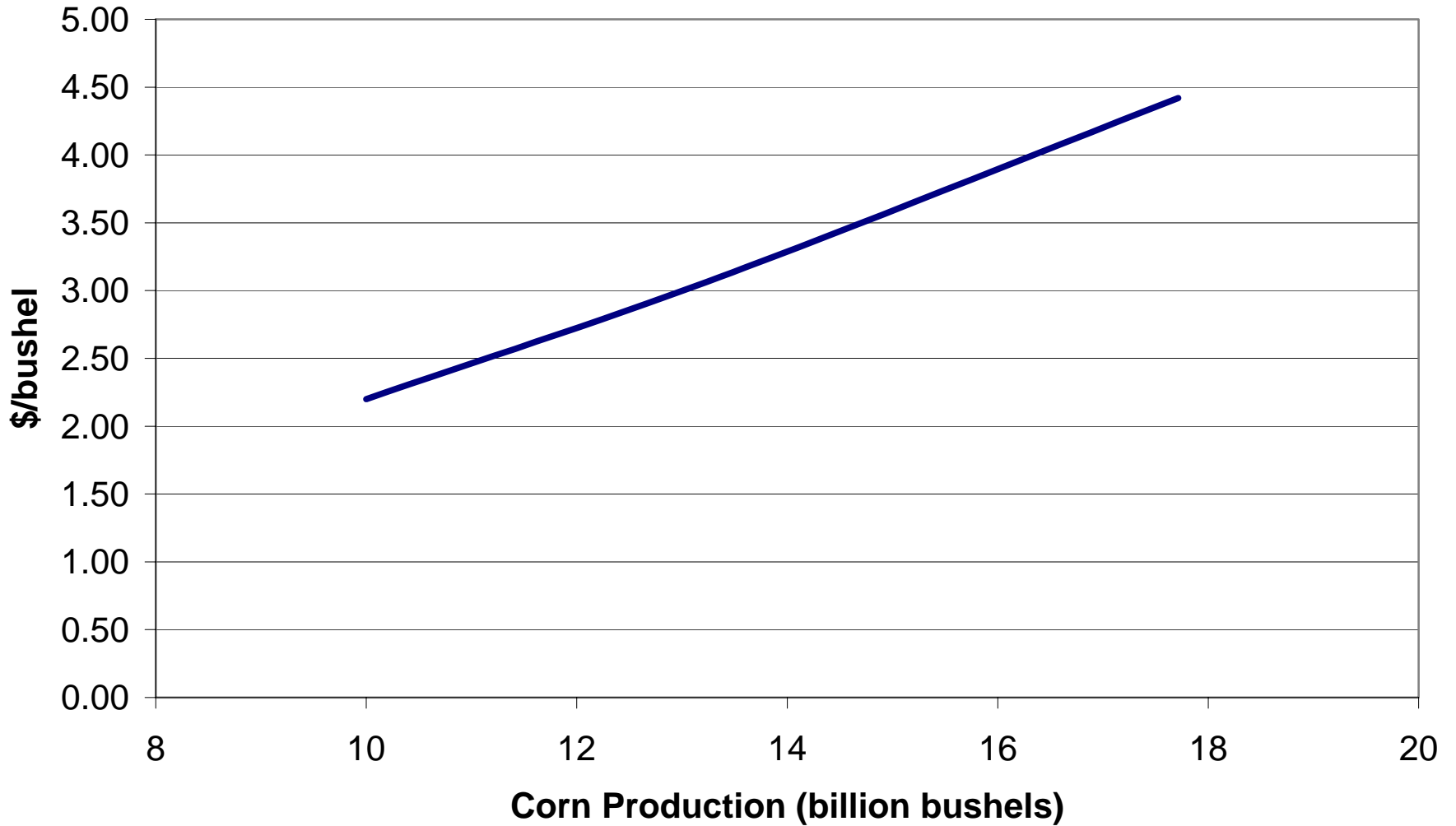
Commodity Economics

- Profits tend towards zero
 - When profits are positive, expansion occurs, output price goes down, profits go down
 - When profits are negative, contraction occurs, output price goes up, profits go up

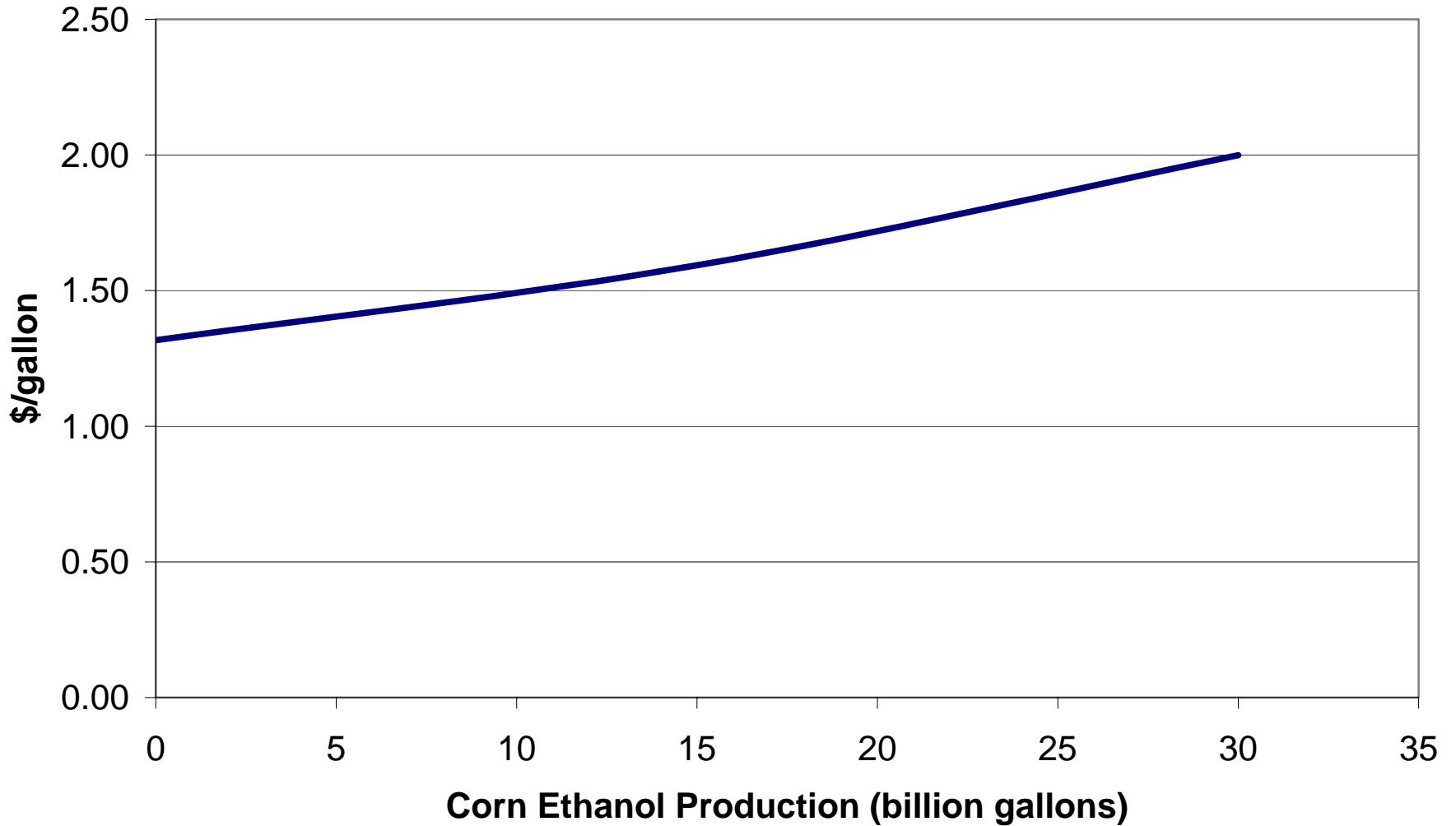
Biofuels Commodity Economics

- Profits tend towards zero
 - When profits are positive, expansion occurs, feedstock price goes up, profits go down
 - When profits are negative, contraction occurs, feedstock price goes down, profits go up

U.S. Corn Supply Curve



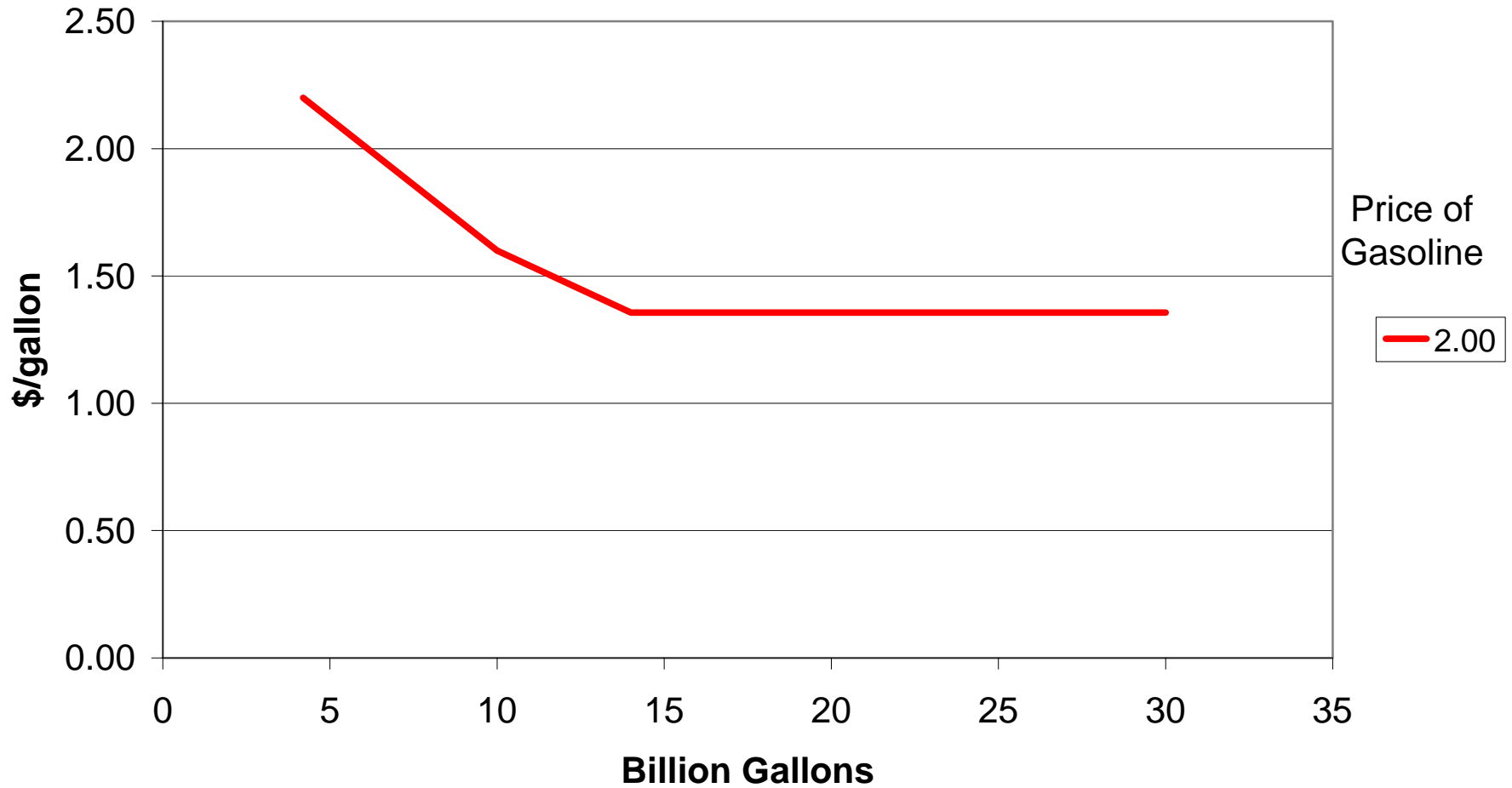
U.S. Corn Ethanol Supply Curve



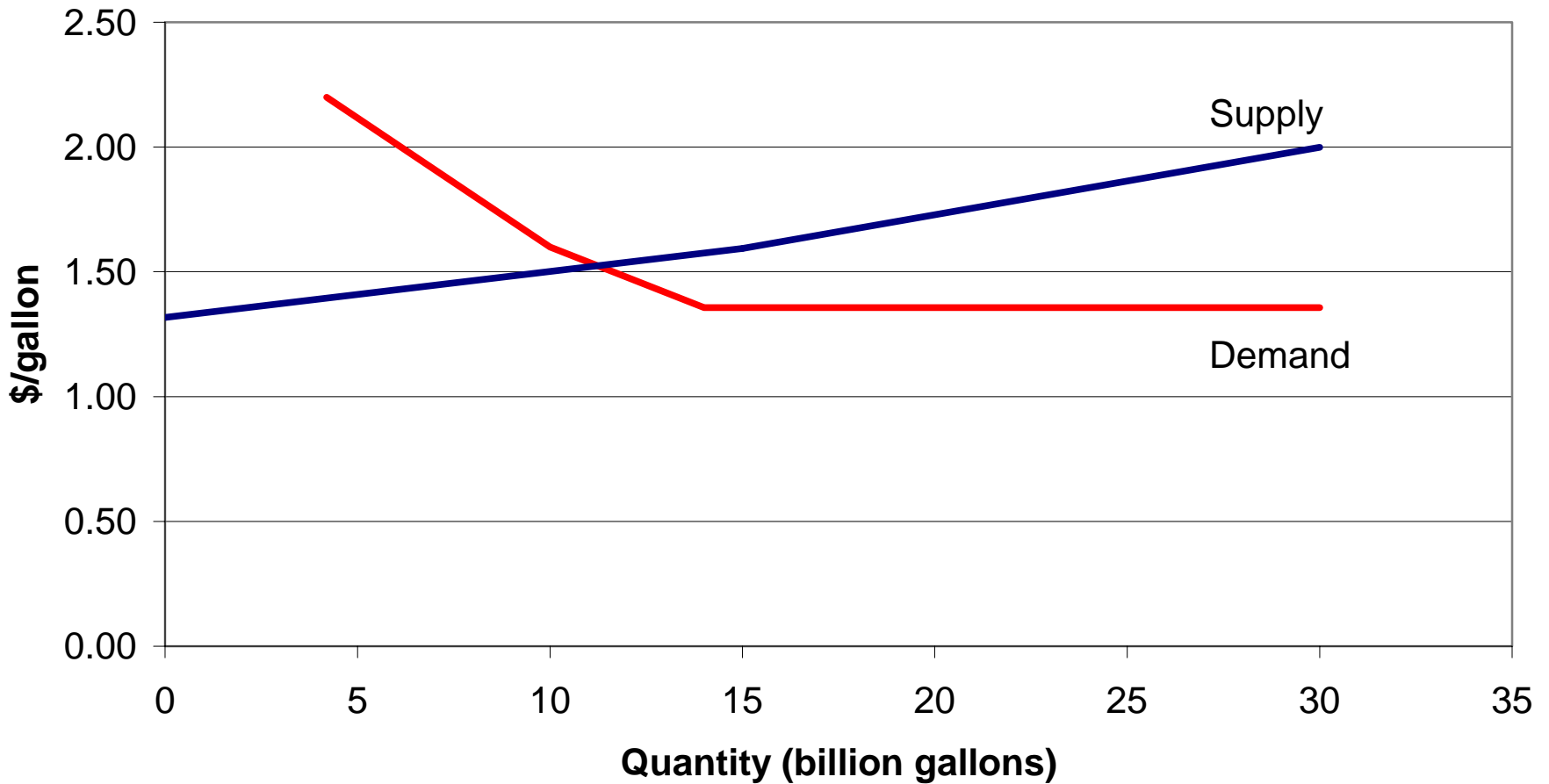
Demand for Ethanol

- Substitute for gasoline
- Octane enhancer
- Component in Clean Air Act fuels
- Fuel to meet state and federal RFS
- Fuel to meet low carbon fuel requirements

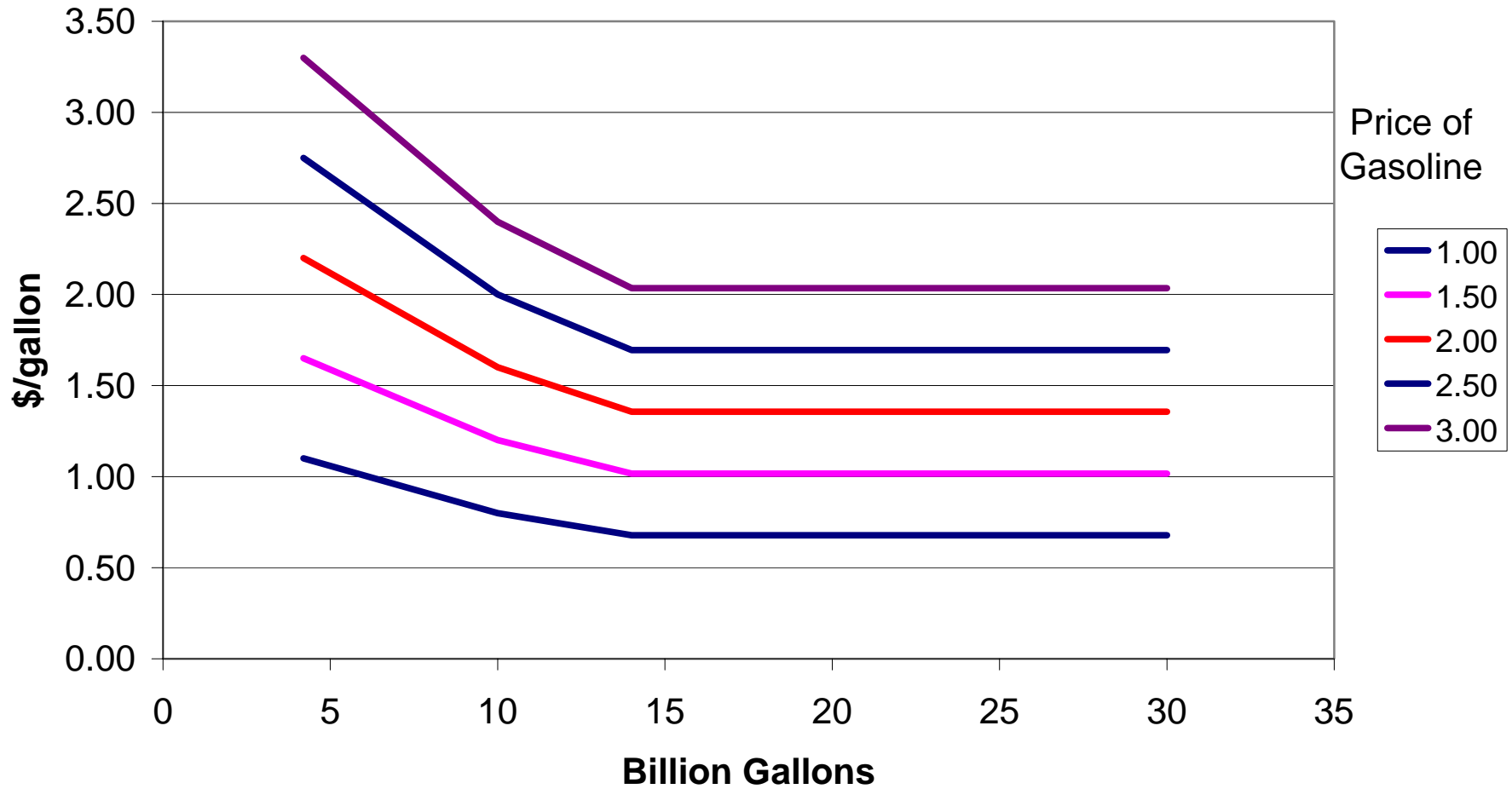
Demand Curve for Corn Ethanol as an Octane Enhancer and as a Substitute for Gasoline



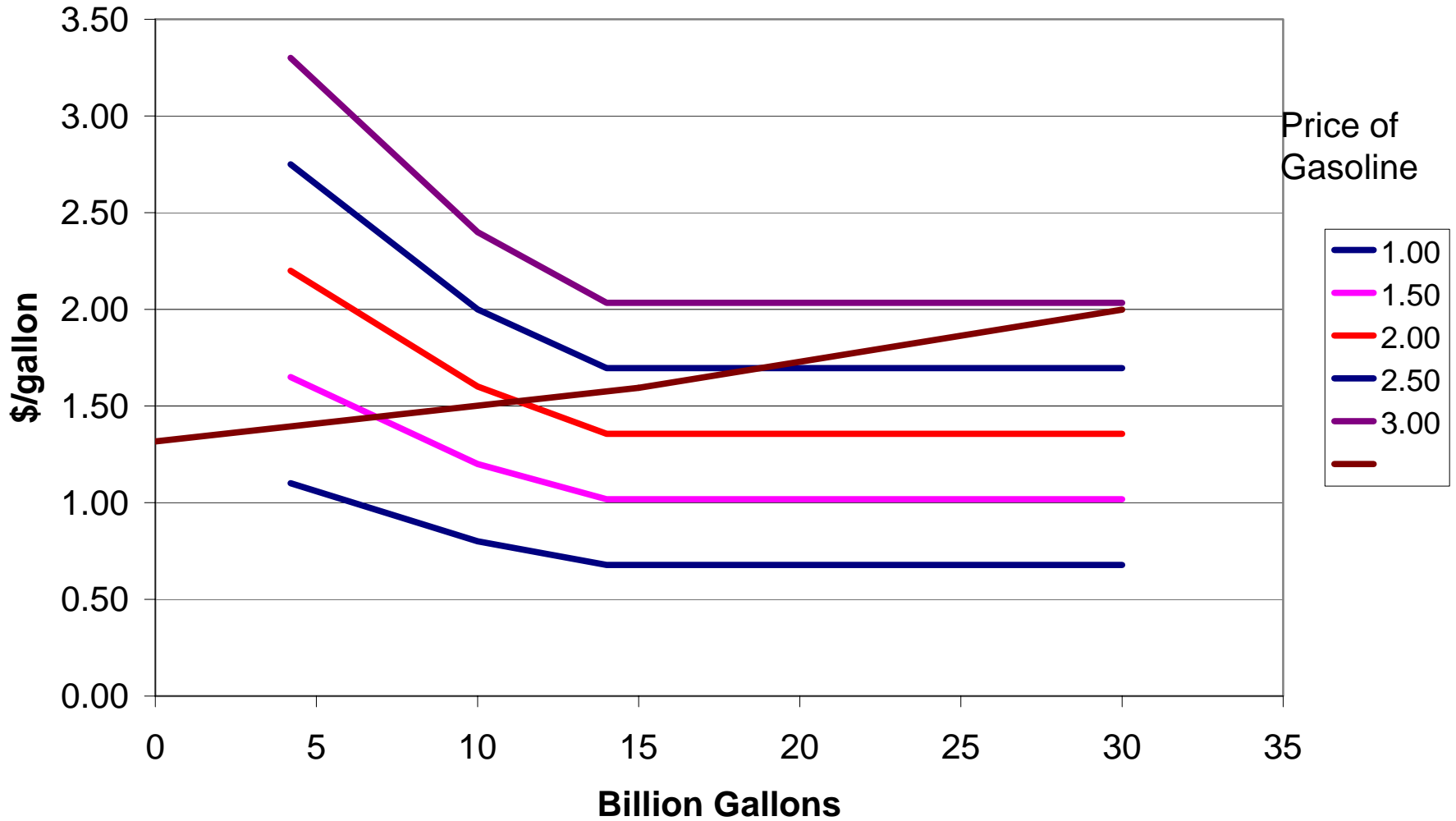
How Big Would Ethanol Industry Be without Subsidies? (Wholesale gasoline price = \$2.00/gal)



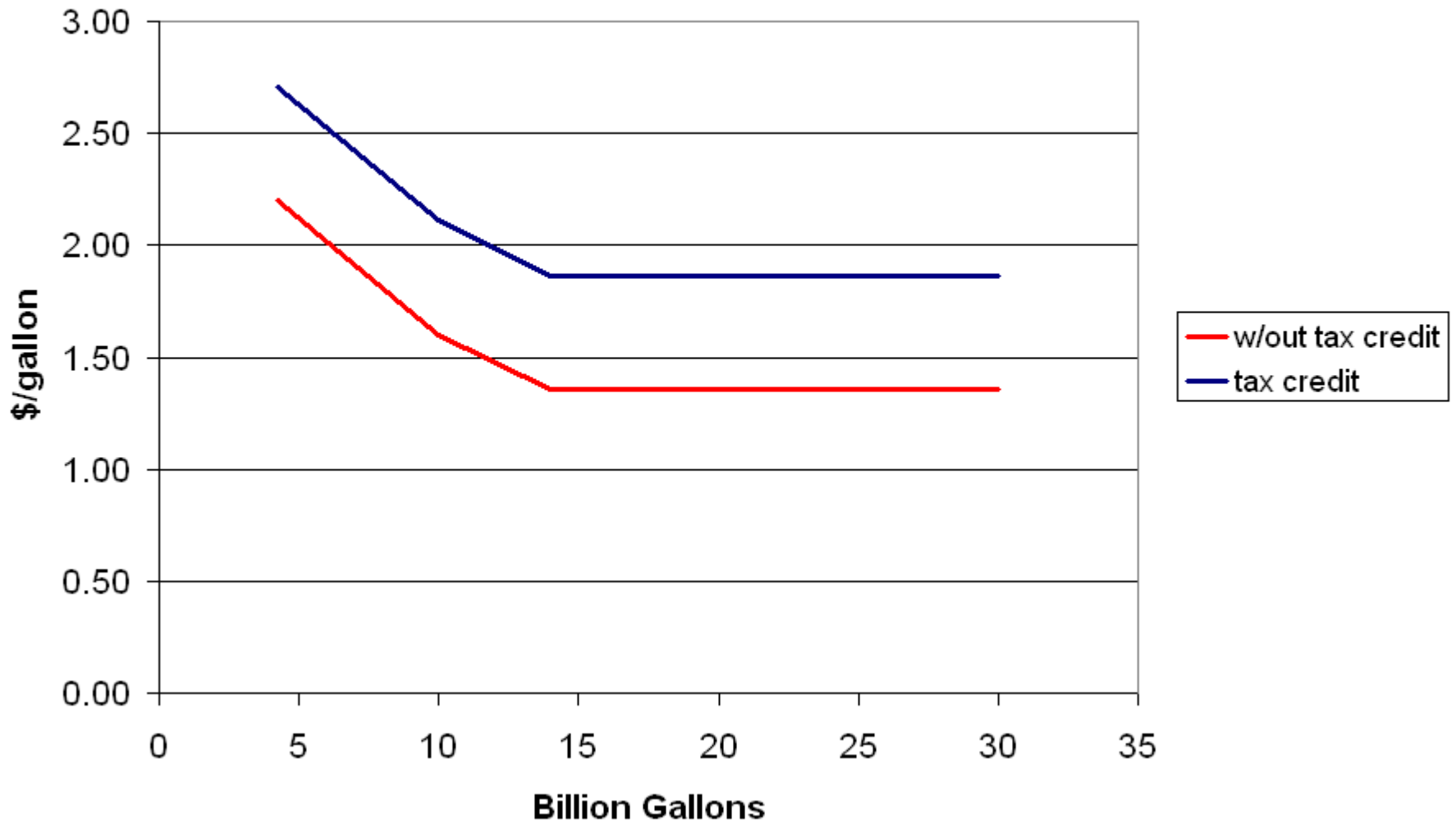
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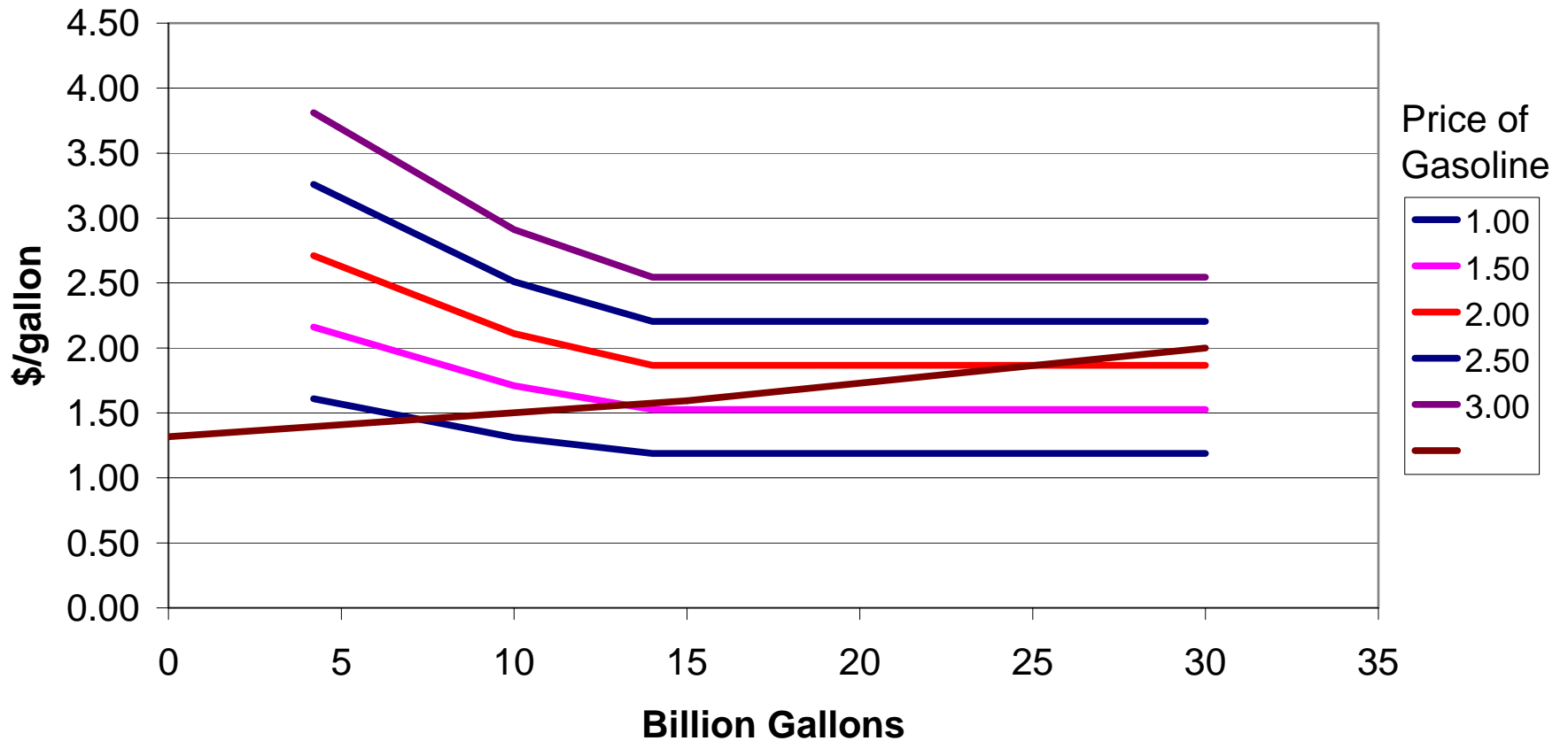
Size of Industry at Different Gasoline Prices



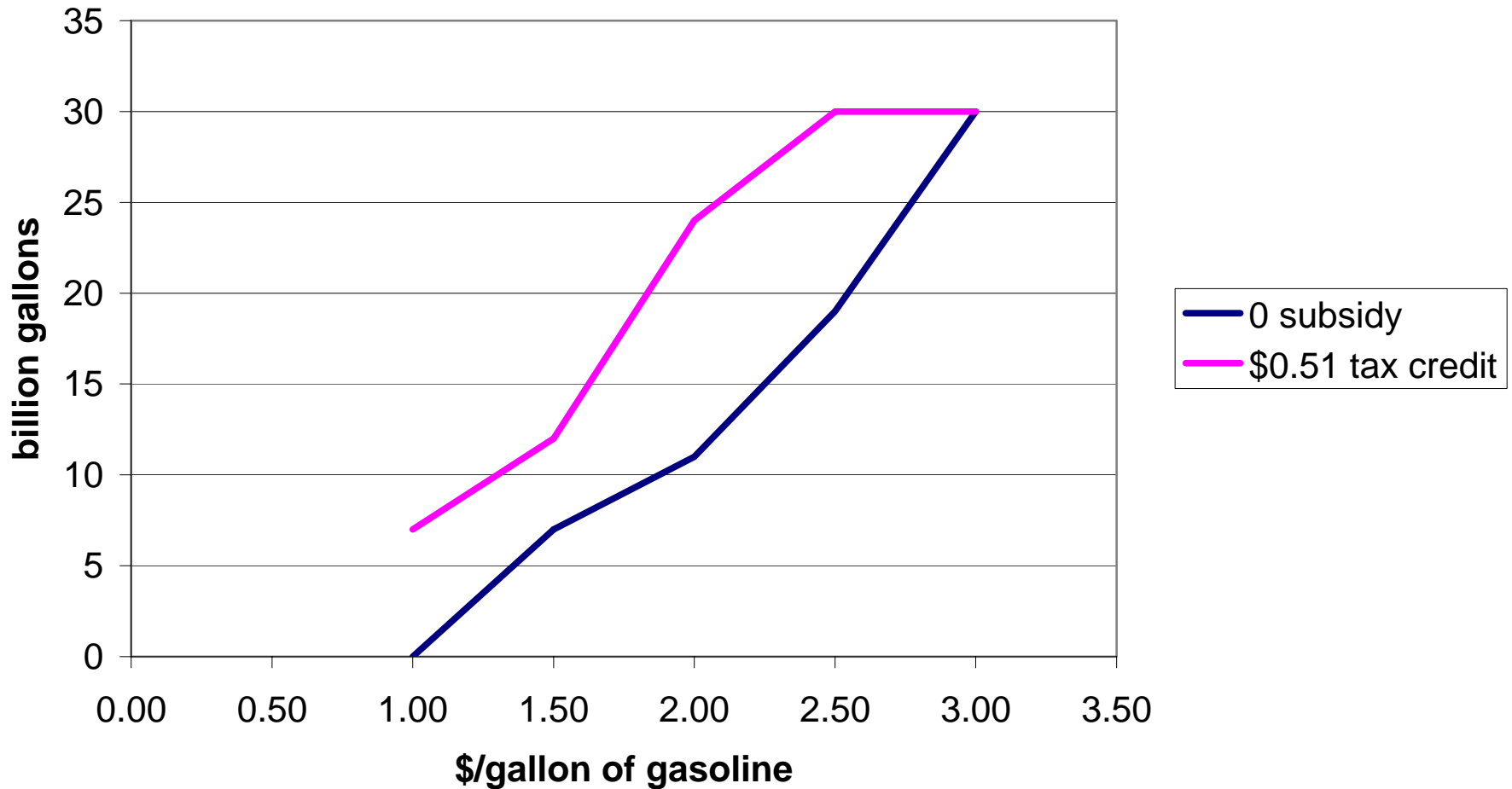
Impact of Tax Credit on Demand for Ethanol



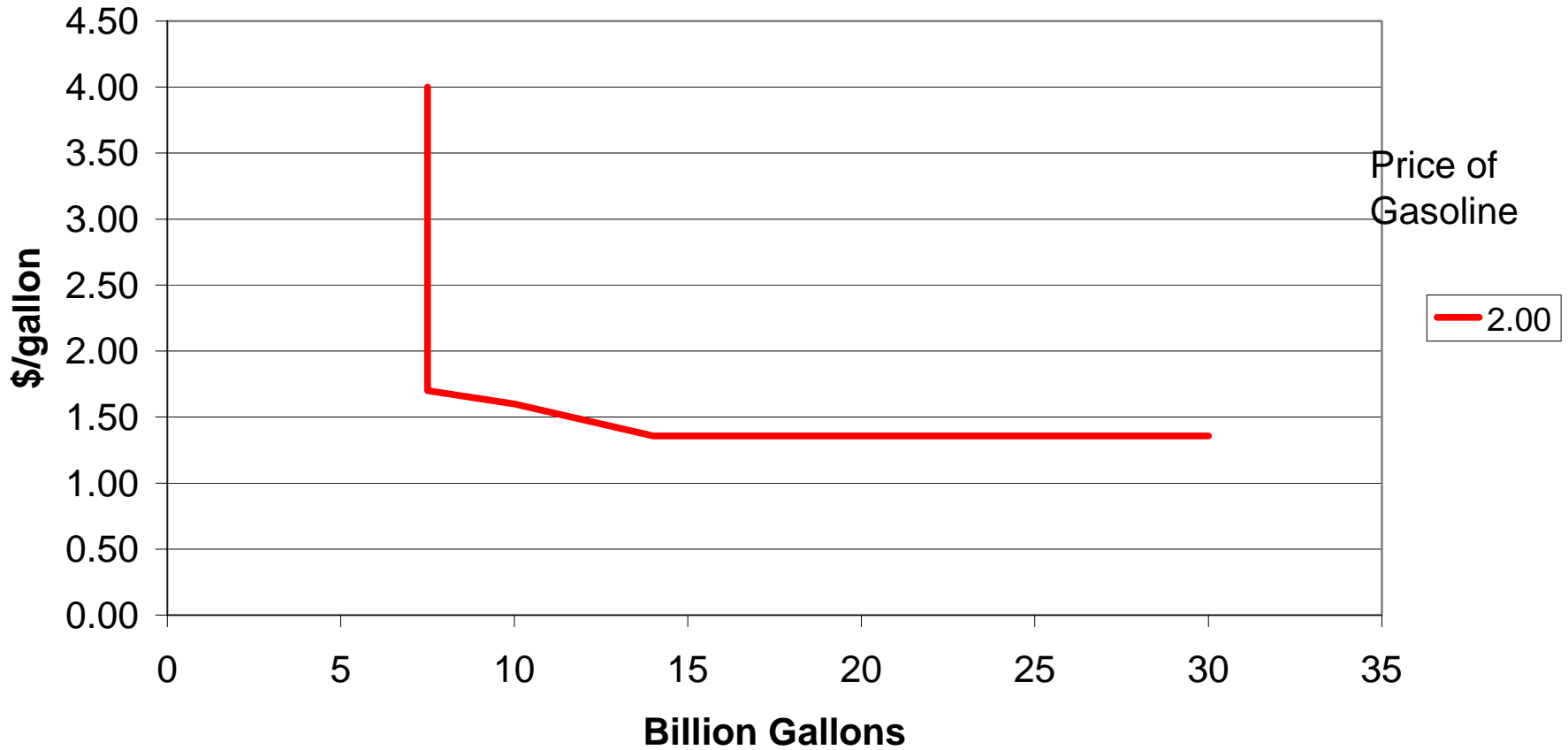
Impact of \$0.51 Tax Credit on the Ultimate Size of the Ethanol Industry



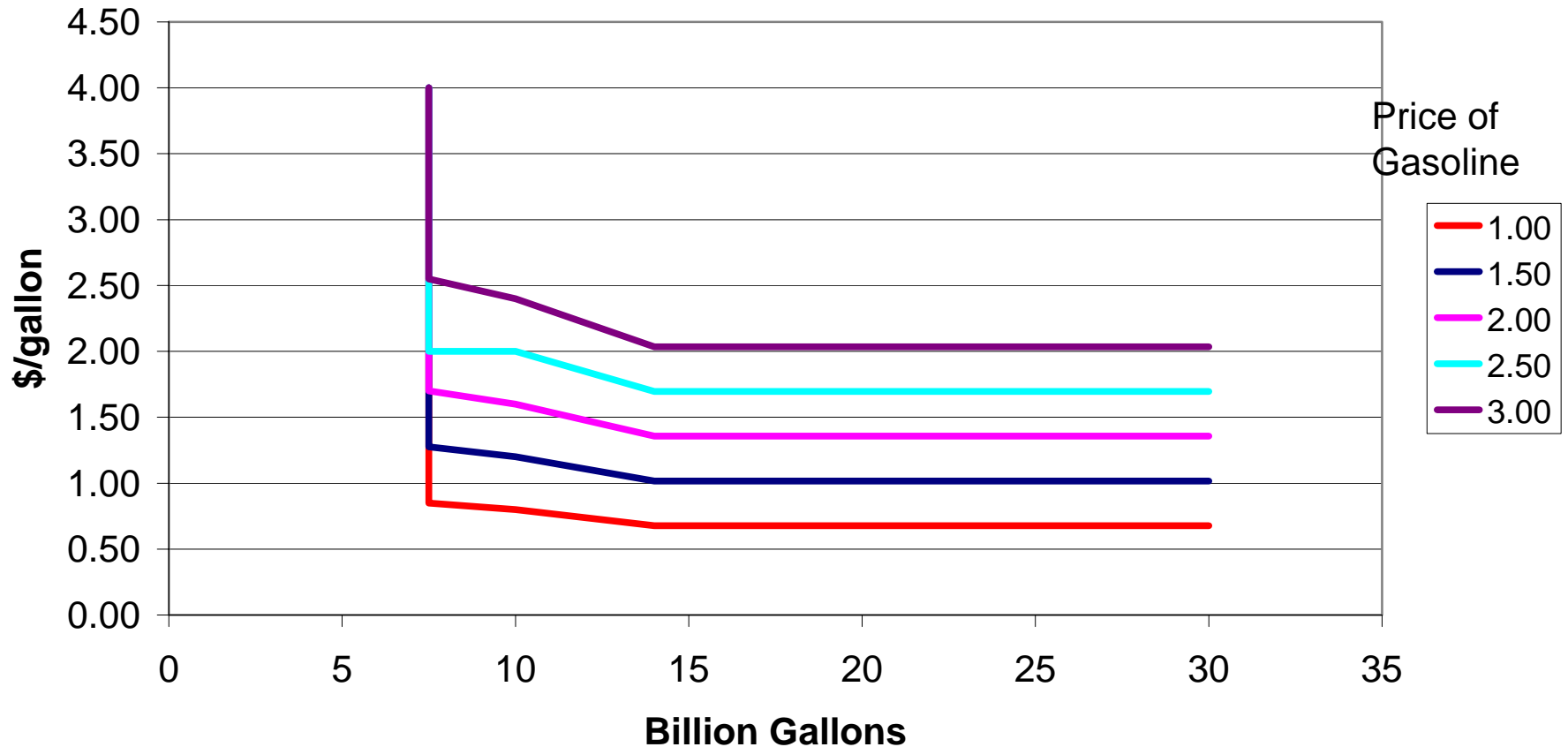
Size of the Corn Ethanol Industry at Different Gasoline Prices



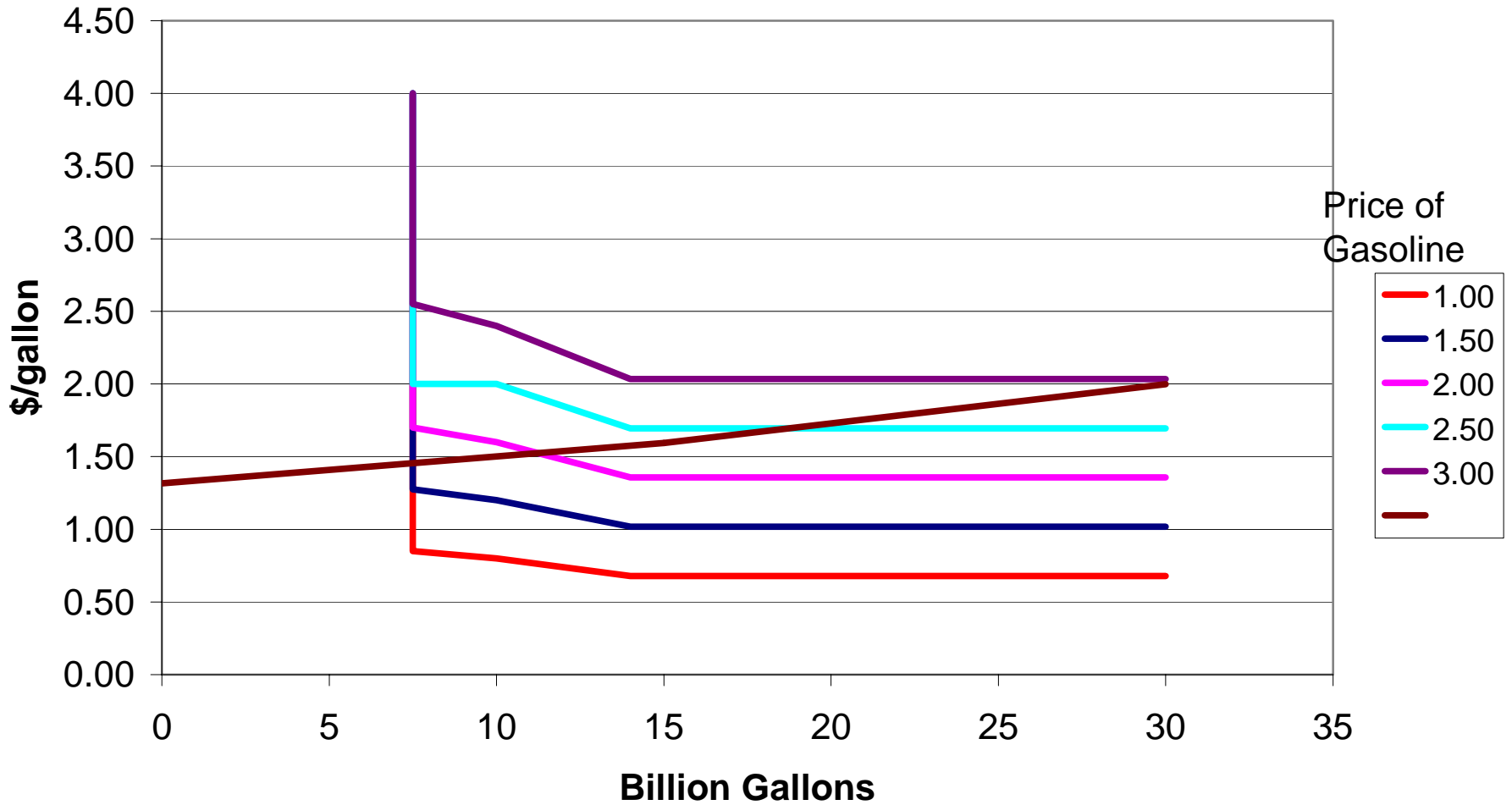
Demand Curve for Corn Ethanol as an Octane Enhancer and as a Substitute for Gasoline with an RFS of 7.5 Billion Gallons



Demand Curve for Corn Ethanol as an Octane Enhancer and as a Substitute for Gasoline with an RFS of 7.5 Billion Gallons



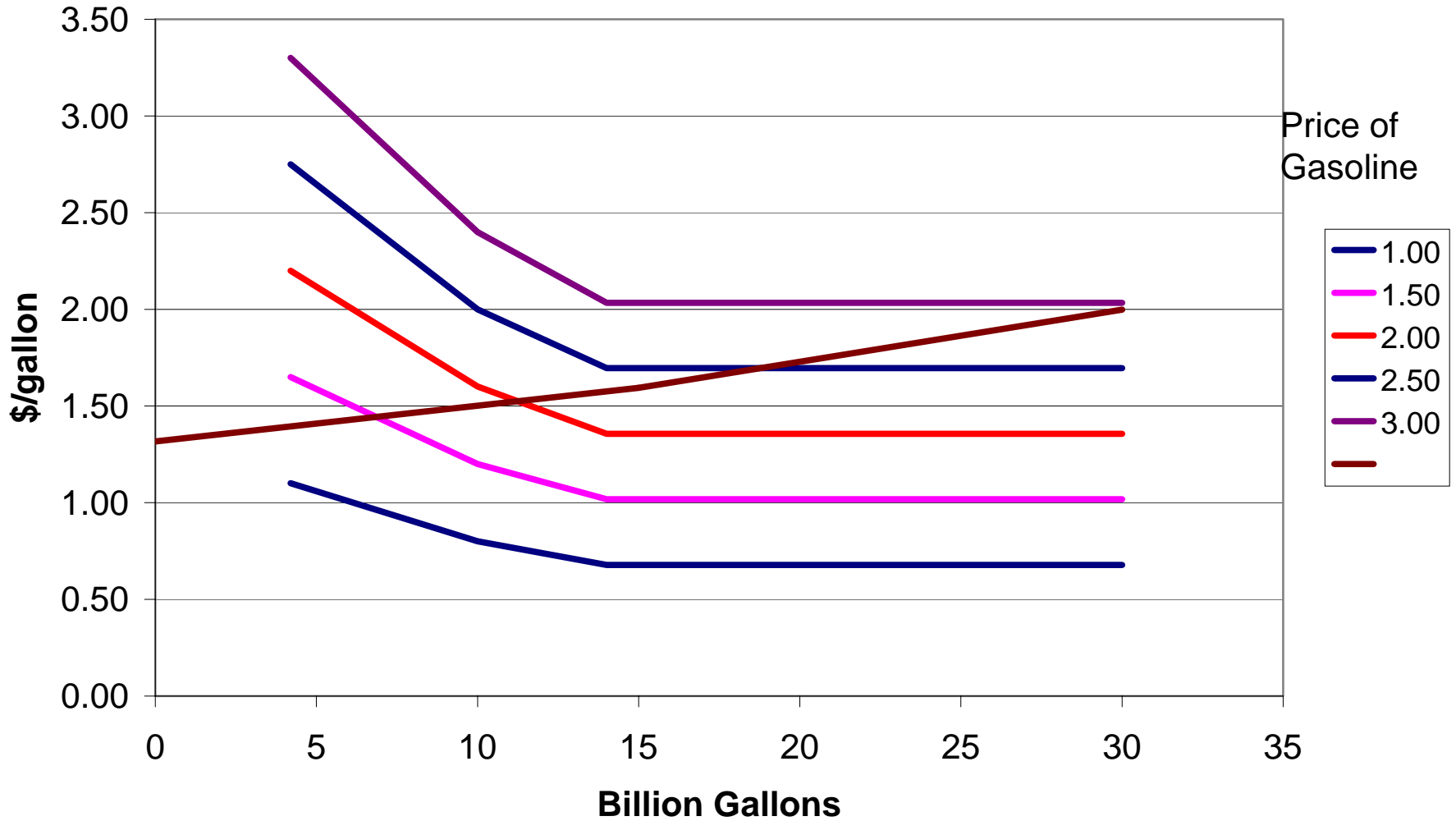
Supply and Demand with a 7.5 Billion Gallon RFS and No Tax Credit



Past Demand Drivers

- Economics of ethanol with low gasoline prices and oil companies using MTBE as an octane enhancer and oxygenate

Size of Industry at Different Gasoline Prices



Political Decision to Create a Pre-2004 Ethanol Industry

- To raise the price of corn (and other commodities)
- To enhance the interests of existing ethanol producers

Future Demand Drivers

- Future looking
 - MTBE out
 - Lower greenhouse gas emissions
 - Diversify our energy sources
 - Keep corn prices high
 - Keep ethanol industry in business

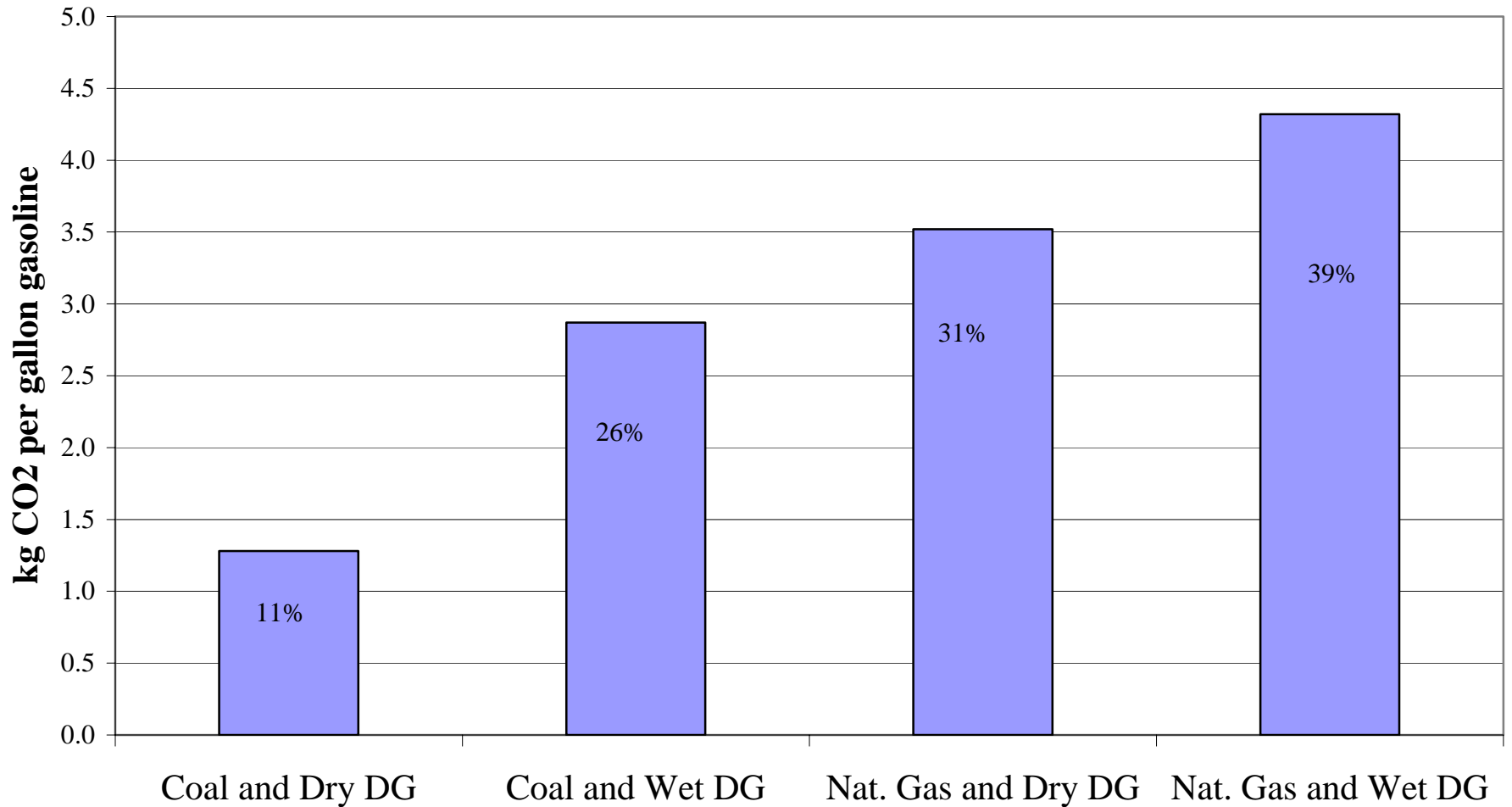
Energy Diversification

- Move to synthetic fuels from coal
- Move to nuclear and more coal whichever is less expensive

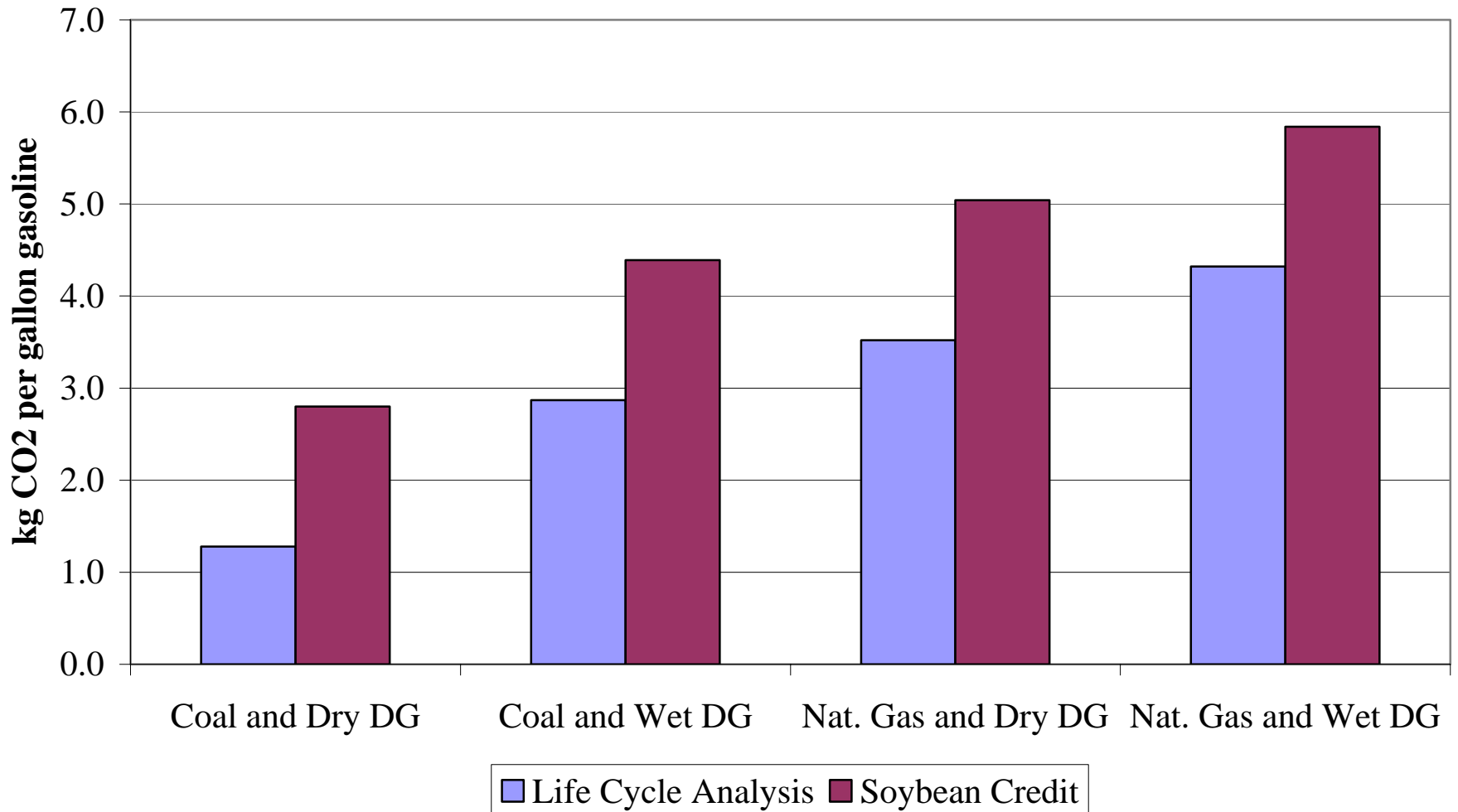
Is Corn a Low Carbon Fuel?

- If so, then corn ethanol has a future in a carbon-valuing economy
 - Feed costs will continue to be high
- If not, then long-run corn-based ethanol outlook is not bright
 - Feed costs will moderate

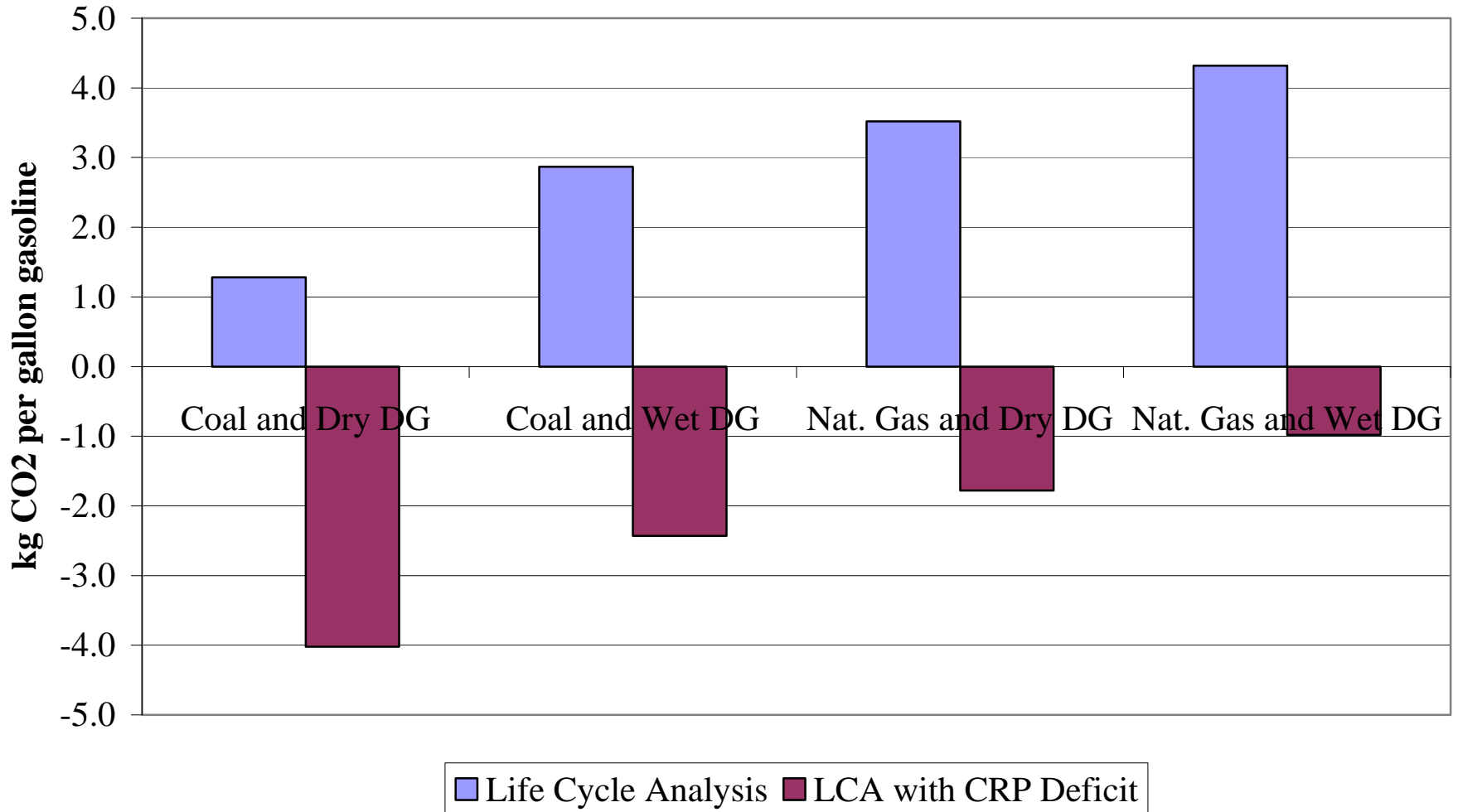
Reduction in Greenhouse Gas Emissions from Corn Ethanol Not Accounting for Land Use Changes



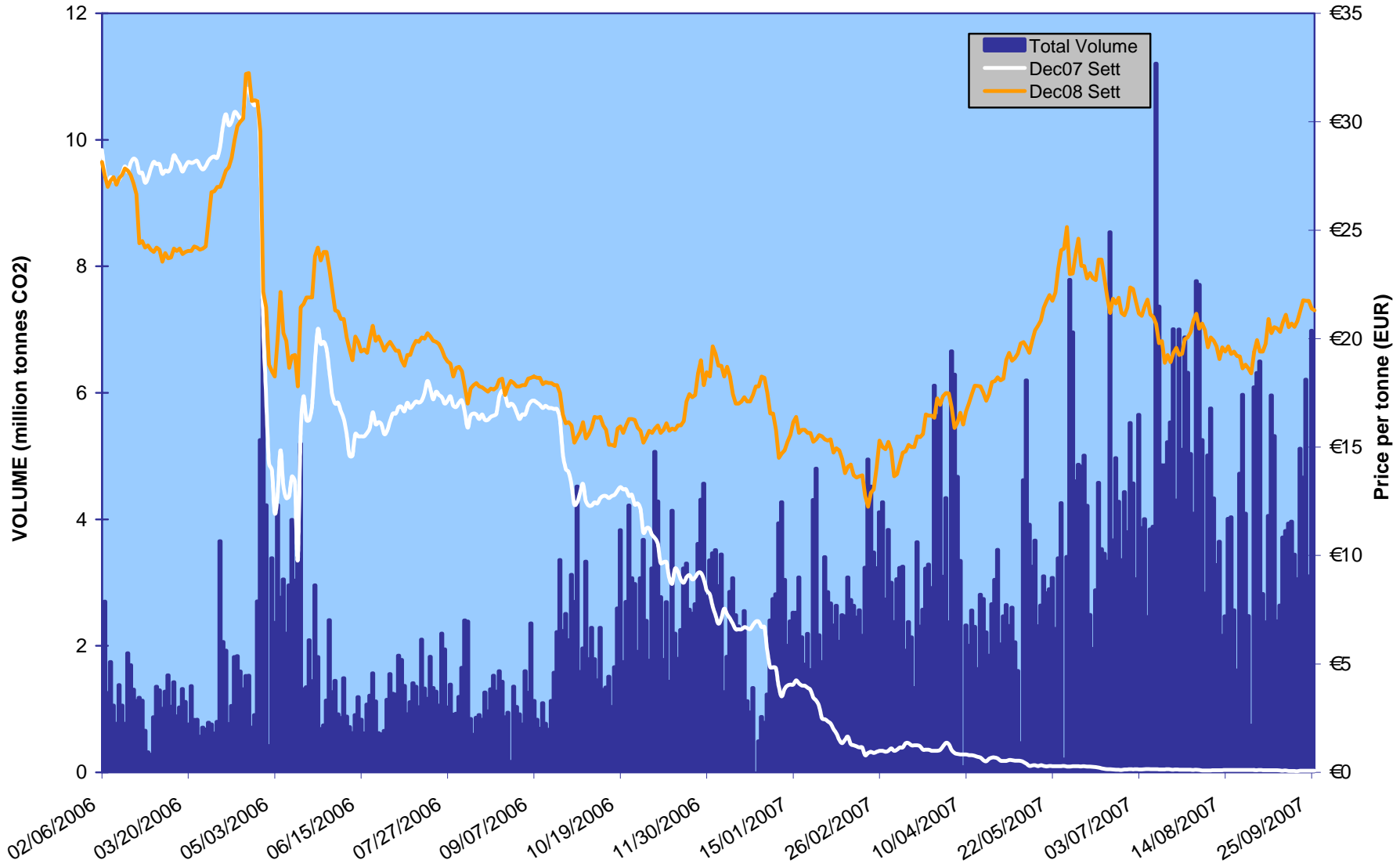
Reduction in Greenhouse Gas Emissions from Corn Ethanol Accounting for Credit from Not Planting Soybeans



Reduction in Greenhouse Gas Emissions from Corn Ethanol Accounting for Debit from Loss of Untilled Land



ECX CFI Futures Contracts: Price and Volume



Incentive (% of annual revenue from ethanol sales) to improve corn ethanol's GHG performance

