

The Small Picture – starch-based ethanol and policy options

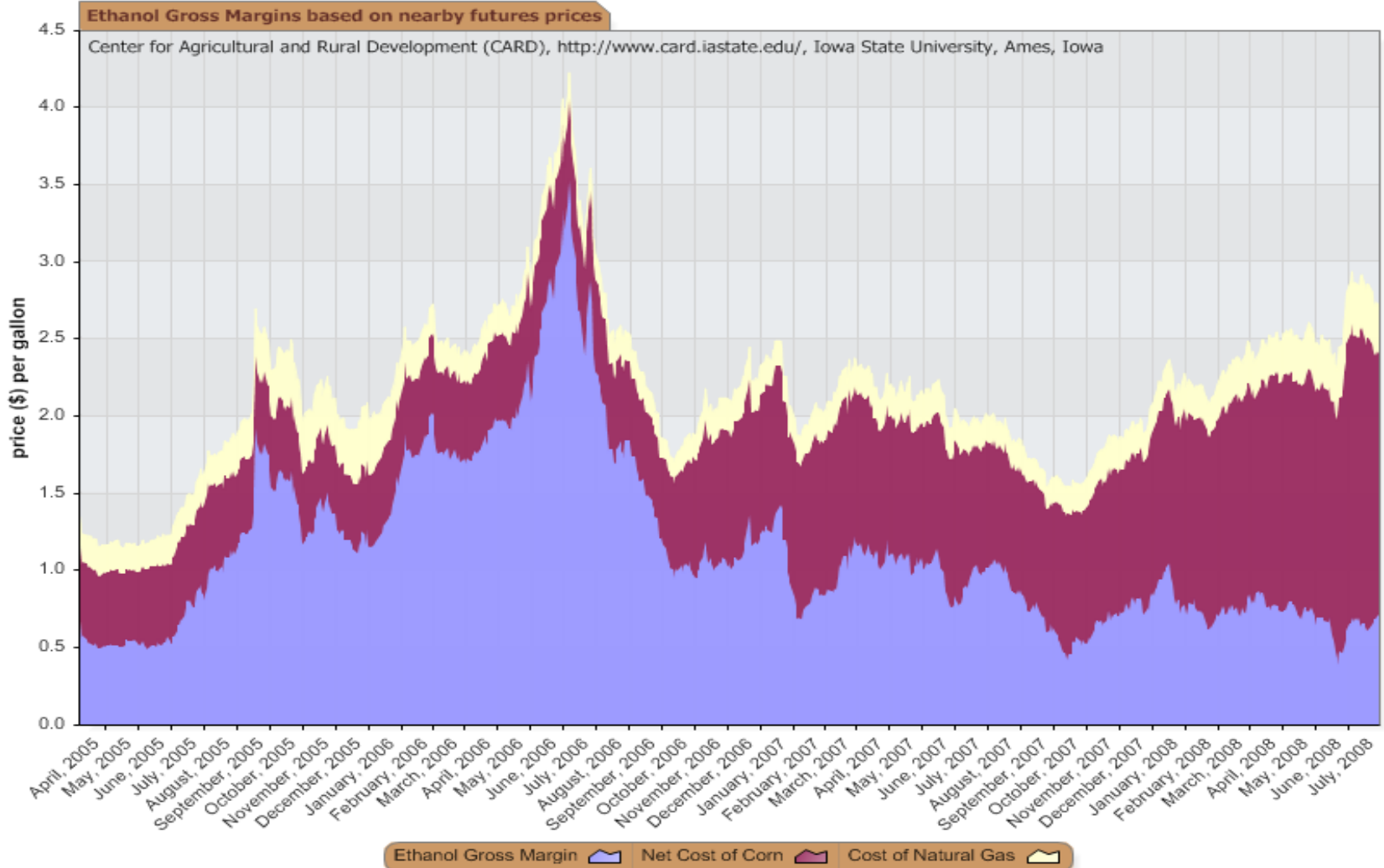
Bioeconomy and Transportation
Advisory Group, MGA

- Mike Doherty, Senior Economist,
Illinois Farm Bureau

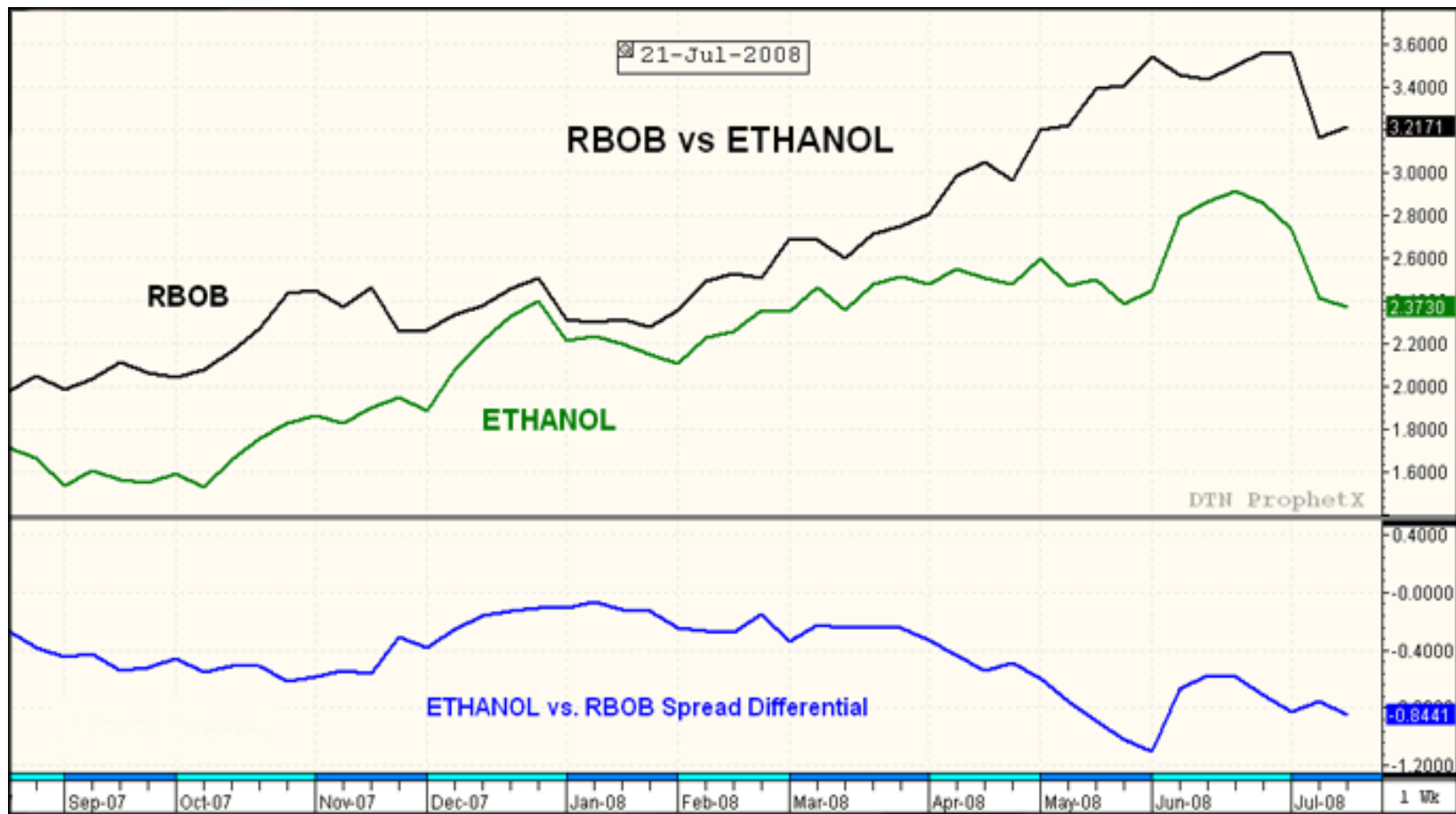
Starch-based ethanol industry – status report

- Profitability is a requirement for the industry
- Wide-range of break-even corn-to-oil prices, even IF such a relationship is even evident (Babcock's break-evens, testimony to Senate Ag Committee, Aug 18)
- Industry will go through a huge wave of consolidation over next 5 years – GHG reduction will be part of what drives that consolidation. And the majors will be positioned for that.

Historic Gross Margins - Ethanol



<http://www.dtnethanolcenter.com/index.cfm?show=10&mid=38&pid=2>



Status report - key observations

- New construction in suspension for 9 months
- Implies 12 BGY ceiling to production through 2010 and until the market changes significantly (corn/natural gas prices, capitalization requirements, debt acquisition).
- Currently there's a backlog of production infrastructure + planned (1.0 to 2.0 BGY)
- a deficit of transportation and storage infrastructure

Capacity vs. Production

- **9 BGY of actual production taking place by Dec 2008 (RFA)**
- **Total new plants + expansions = 13 BGY capacity upon completion**

Ethanol long-term consumption

- Ethanol is currently 4.7 % of 142 BGY U.S. gasoline market & 50% of gallons are blended;
- a 10% blend level = 14 BGY
- Next 3 years – my optimistic view: 14 BGY production by July 2011
- Beyond 2010 consumption? Slow crawl to 15 BGY?

How much corn-based ethanol?

- Moving from 13 BGY to 20 BGY will require an additional 2.6 billion bushels of corn if starch-based. At predicted yields, that would be:
- 14 BGY => 5 billion bu corn
- 20 BGY => 7.3 billion bu corn
- U.S. corn crop for 2008, 12 billion bushel

Alternatives to starch-ethanol

- Cellulosic. Outlook is not positive yet. It may be between R&D and commercialization.
- Imported ethanol. Not likely to amount to large supply. Internal logistical problems, 'bidding for acres' against soybeans, plus increasing internal consumption in Brazil.
- Squeezing additional ethanol from non-starch (cellulosic) part of corn kernel increases it's carbon-reducing profile.

Starch belt versus cellulosic

- How to subsidize cellulosic without subsidizing starch? (Tyner, Policy Alternatives, p. 5)
- Significant cellulosic subsidies required, depending on oil prices.
- Will we get beyond a 15 BGY anyway? FFV doesn't mean ethanol goes in the tank.

“Well to wheel”

- Life-cycle analysis will prove critical, if low-carbon standards are to drive ethanol.
- Variations in analysis are significant. Serious concerns over EPA approaches.
- Variations due to oil origin – Canadian sands vs. high-quality, easily-pumpable crude.

MGA on LCFS and LGFS

- Identifying challenges:
 - Leaning on E-85 for bearing results
 - Wheel-to-well, not just tailpipe analysis
 - Life-cycle and embodied energy issues are complex
 - Need standardization of carbon/fuel life cycle plus tracking system on imported oil.

Related policy issues for LCFS

- Fleet fuel efficiencies changing
- Infrastructure of RRs and pipelines – general issues with transportation



Thank you for your attention!