

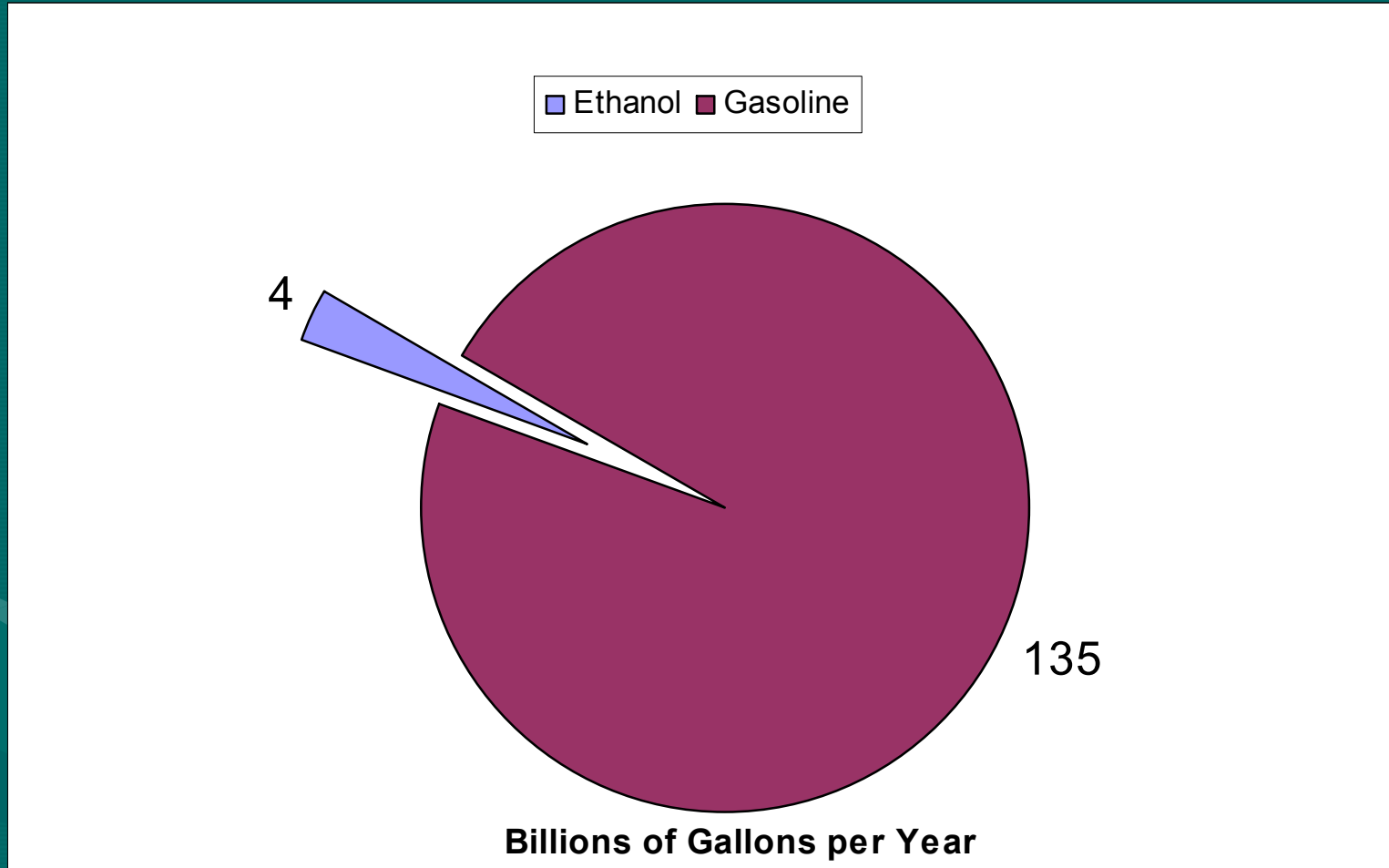
Situation and Outlook for Ethanol in the US

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Why Ethanol?

- Corn-based Ethanol
 - Used 12% of 2005 corn crop
 - Over 1/3 of US gasoline blended with ethanol
 - Over $\frac{3}{4}$ of Iowa gasoline is blended

Ethanol Share of the Pie is Growing



Ethanol Industry Expansion and Projected Growth in Supply

- Ethanol market more than tripled since 2000 and exceeded 4 billion gallons in 2005
- Market adjusting to 30 new plants in last 3 years for total of 84 plants in 2005; another 15 plants on-line by mid-2006; 65-80 on drawing board
- Energy Bill Renewable Fuels Standard for 7.5 billion gallons in 2012 is lower bound.

Ethanol Industry Expansion and Projected Growth in Supply

- Supply likely to be in 9-10 B gallon range by 2012
- By 2015 or earlier, ethanol from biomass will become commercial player
- Currently, an acre of Iowa corn produces about 450 gallons of ethanol
- If we only used 25% of the stover plus the grain, an acre of Iowa corn would produce 600 gallons
- “25 by 25” Group

Potential Role of Ag Biotech in Ethanol Supply Expansion

- Improving feedstock yields
- Improving feedstock traits
 - Pioneer, Monsanto, Syngenta
- Improving bio-refining process
 - ICM/Genencor & Broin/Novozymes
 - Chemical co-products – the future
- Potential to reduce environmental damages

Supply Issues

- What are the economies and diseconomies of plant sizes?
 - Location tradeoffs in plant siting, production vs. handling costs, feedstock and product transportation costs?
 - Competitiveness and technology of biomass conversion?
 - EPA 100 ton pollution constraint going to 250 tons

Supply Issues

- What infrastructure investments are needed to efficiently move biobased products to market and distribution?
 - Pipelines, rail cars, centralized loading terminals, feedstock transportation & handling?
 - Integrated production and transportation systems?
 - How do we get ethanol to the coasts?

Longer Run Supply Issues

- Expand focus from biofuels to biobased products and biomass feedstocks
- What are the new economies and diseconomies of plant sizes?
 - Location tradeoffs in plant siting, production vs. handling costs, feedstock and product transportation costs?
 - Competitiveness and technology of biomass conversion?
 - New financial economics

Impacts of Expanded Ethanol Industry

- Significant number of rural-based, good paying jobs
- Price premium to farmers within 30-mile radius may lead to higher feedstock prices, narrowing basis, imported corn, and less plant profitability
- Impact traditional markets – soybean acres, livestock, corn exports, and local handling and processing capital
- Demand for lock and dam renovation
- Overbuilding problems regional problem

Ethanol Demand Drivers in U.S.

- Crude Oil and Gasoline Prices
- Ethanol Prices
- Consumers, producers, and wholesalers, responding to prices, substituting less costly inputs for more scarce inputs

Ethanol Demand Drivers in U.S.

- EPA and State environmental regulations
 - Clean Air Measures
 - Oxygenate requirements and MTBE bans and liability
 - Various policy incentives for using renewable energy
 - Energy Policy Act – Renewable Fuels Standard (RFS)
- Is U.S. willing to let energy markets work – “cheap energy policy”

Link between Ethanol and Gasoline Market

- Do ethanol prices follow gasoline and crude oil prices?
- Do ethanol prices follow corn prices?
- Omaha gasoline and ethanol market analysis

Possible Policy Changes for Ethanol

- Variable tax subsidies or eliminating of VEETC of \$0.51/gal
- Eliminated RFG requirement in May
- Eliminate oxygenate requirement
- Eliminate state and local incentives
- Eliminate tariff on Brazilian imports

Wild Cards and Market Breakers or Makers

- Demand picture could change if:
 - crude oil and gasoline prices decline
 - clean air regulations eliminated
- Supply picture could change if:
 - corn prices increase
 - ethanol incentives and tax subsidies reduced
 - emission regulations relaxed
 - tariff on Brazilian imports eliminated

The background is a solid teal color. Faint, semi-transparent silhouettes of hands are visible, one on the left side and one on the right side, appearing to be in a gesture of offering or support.

Thank You!

Any Questions?