

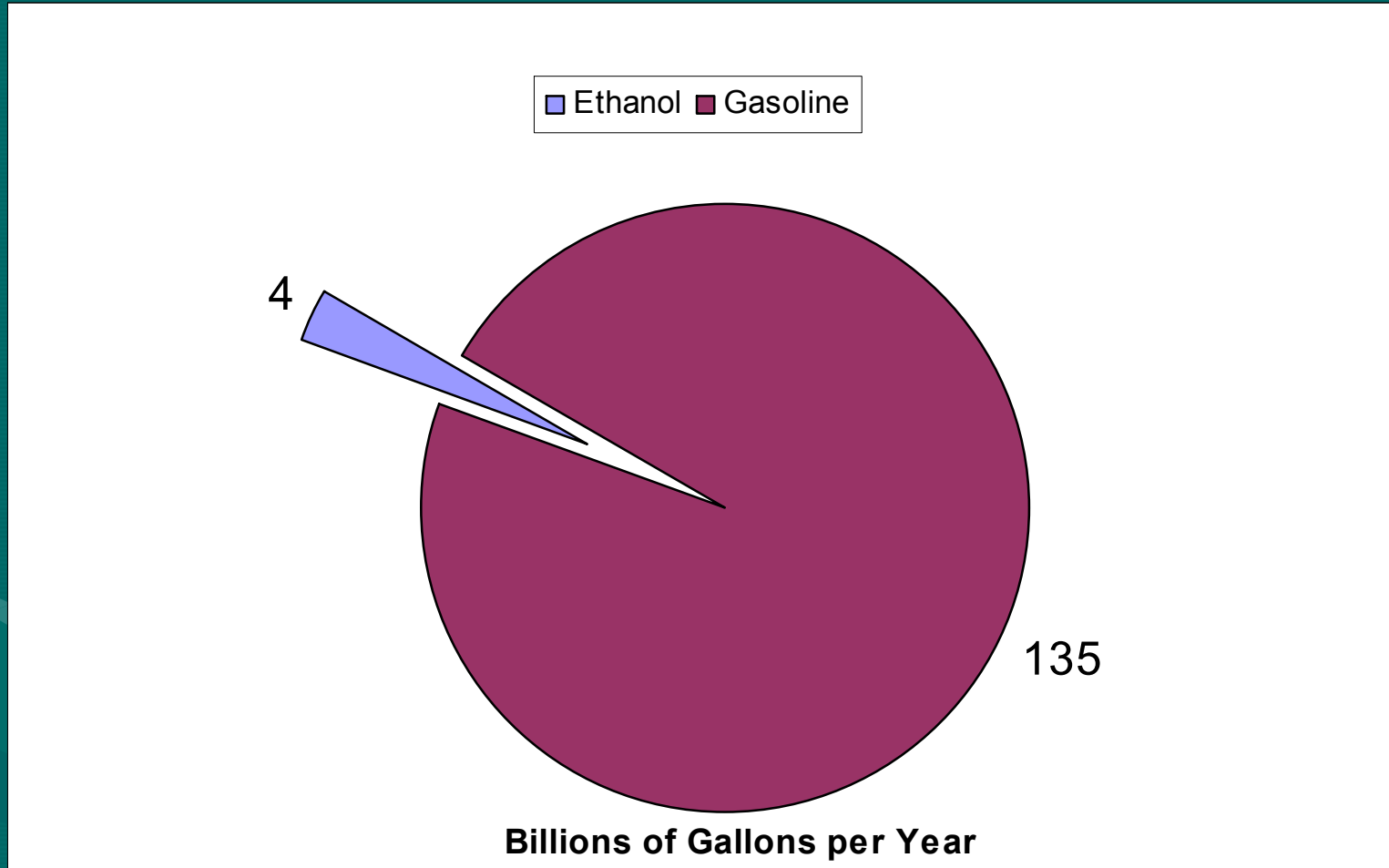
# Situation and Outlook for Ethanol in the US

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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 and one on the right, appearing to be in a gesture of offering or support.

**Thank You!**

Any Questions?