

Renewable Fuels Association



“THE VOICE OF THE ETHANOL INDUSTRY”

FOR OVER 25 YEARS

BIOFUEL STANDARDIZATION

JULY 20, 2007

World Biofuels Outlook



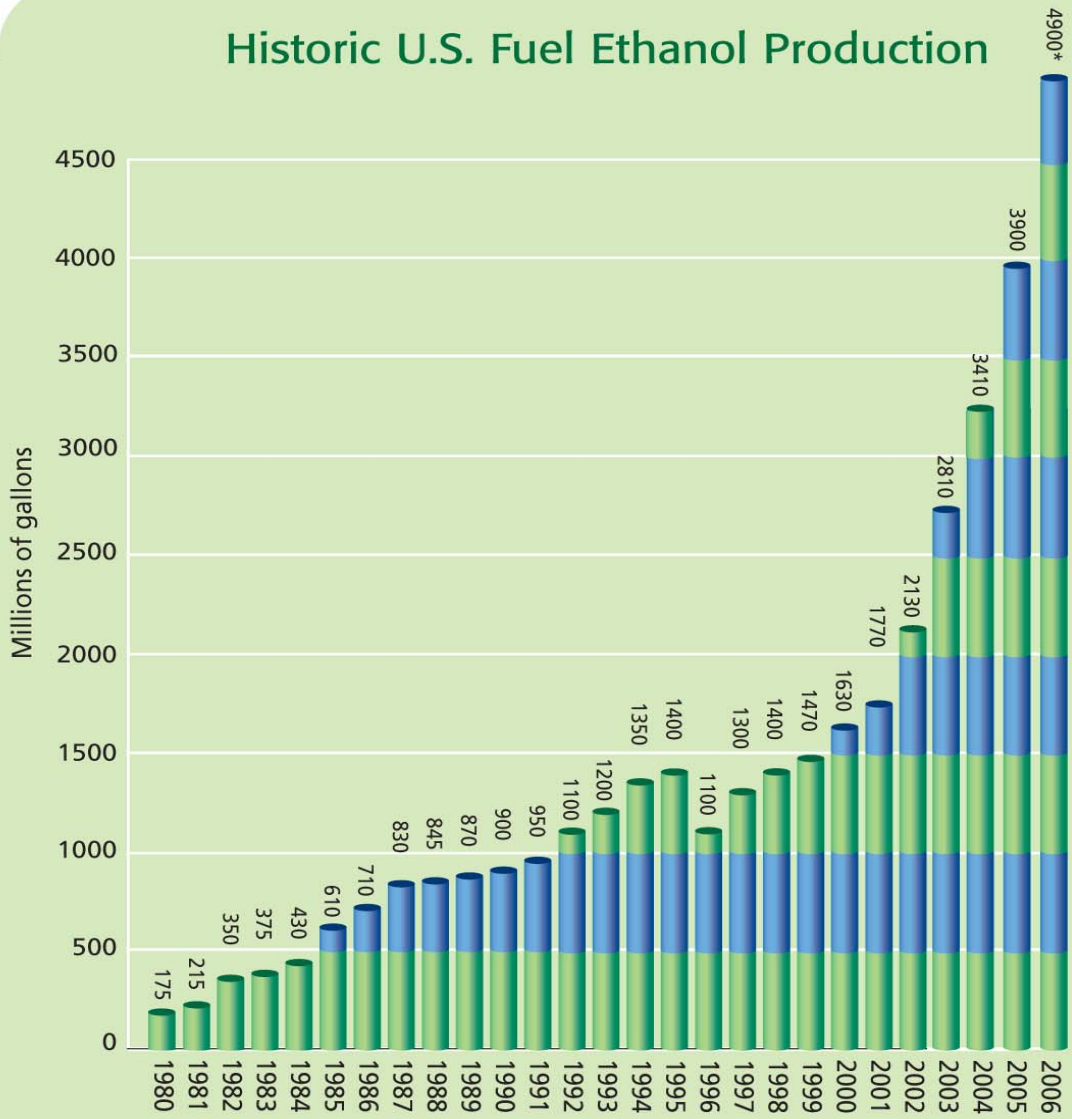
- Output expected to reach 16 billion gallons per year in 2006
- 27.6 billion gallons per year by 2012
 - Included Ethanol and Biodiesel projections
- 50% increase in volume
- **STILL ONLY REPRESENTS 2% OF THE WORLD'S FUEL OIL SUPPLIES**

United States Biofuels Projection



- Current Ethanol domestic production 6.4 billion gallons/ year
- Projected 12.5 billion gallons/ year by 2009
- Biodiesel production projected to reach 250 million gallons/ year

Historic U.S. Fuel Ethanol Production



*Estimated

Source: U.S. Energy Information Administration / Renewable Fuels Association

United States Ethanol Production Drivers



- **Fuel Performance**
 - Ethanol a primary Octane booster
 - Allows blending with suboctane gasoline
 - Blending octane of 112.5 at 10%
- **Environmental Goals**
 - Clean Air Act Amendments 1990
 - RFG & Oxy Fuel Program
- **Energy Security**
 - Clean Air Act
 - Energy Policy Act 2005
 - ✦ Renewable Fuels Standard
 - 20 in 10 Presidential Initiative

United States Standards for Fuel Standards



- **Gasoline Standards follow ASTM standards**
 - ASTM D 4814 Spark Ignition Engine
- **Fuel Ethanol Standard**
 - ASTM D 5798 Ed 75 to Ed85 Fuel Ethanol
- **Fuel Ethanol as Blend Component**
 - ASTM D 4806 Fuel Ethanol Blend Component

Other Applicable Ethanol Standards



- **Industry**

- Water (1.0)
- Corrosion Inhibitors
- pHe- Corrosion potential in the fuel system
- Metals- Must not cause Engine Degradation
- Solvent Washed Gum- Must not cause Intake Valve Deposits
- Workmanship

- **Federal**

- Denaturant
- Sulfur (30 ppm)

- **State**

- Sulfur (10 ppm - California)

Ethanol Blending Strategies



- United States current blending at 10%
- Brazil current blending at 20-25%
- Europe current blending at 5%
- India currently blending at 5%

****Varied blending techniques make harmonization of blend components very difficult.****

Harmonization May Not Be Achievable



- **Base Fuels are Different**
 - Varying Crude Oil Supplies
 - Different Environmental Targets
- **Climate/Altitude Vary**
- **Vehicle Technology is Different**
 - Emissions Control
 - Volatility
- **Public Policy Objectives Vary**

Ethanol Current Trade Practices



- Approximately 6.1 billion gallons currently in commerce
- End Use Specification considerations
 - Fuel
 - Industrial
 - Beverage
- Specifications are not a barrier to trade practices
 - Agreement is between buyer and seller and ultimate end use

Thank You



RENEWABLE FUELS ASSOCIATION

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