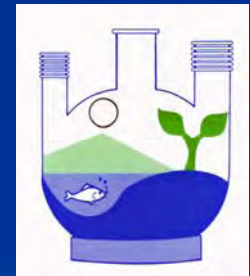


Biodiesel in West Virginia

A Producers Perspective

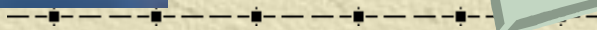
Dean Cordle
Executive Vice President
AC & S, Inc.



Today's Topics

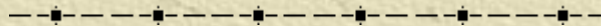
- ✦ Project Feasibility Evaluation
- ✦ Plant Construction
- ✦ Policy & Energy Markets
- ✦ Renewable Fuels Advocacy

Project Feasibility Evaluation



Business Model

- ✦ Maximize the Use of Existing Manufacturing Equipment
- ✦ Use In-house Maintenance Department for Construction
- ✦ Design the Process for Batch Operation Which Will Facilitate Conversion Back to Custom Chemical Manufacturing



Project Evaluation and Pre-Construction Tasks

Research

- Manufacturing Process
- Regulatory Requirements
 - IRS
 - EPA
 - NBB
 - WVDEP
 - WV Excise Tax License

Manufacturing Cost Analysis

- Raw Material
- Labor
- Capital
- Operating
- Laboratory
- Tax Credit

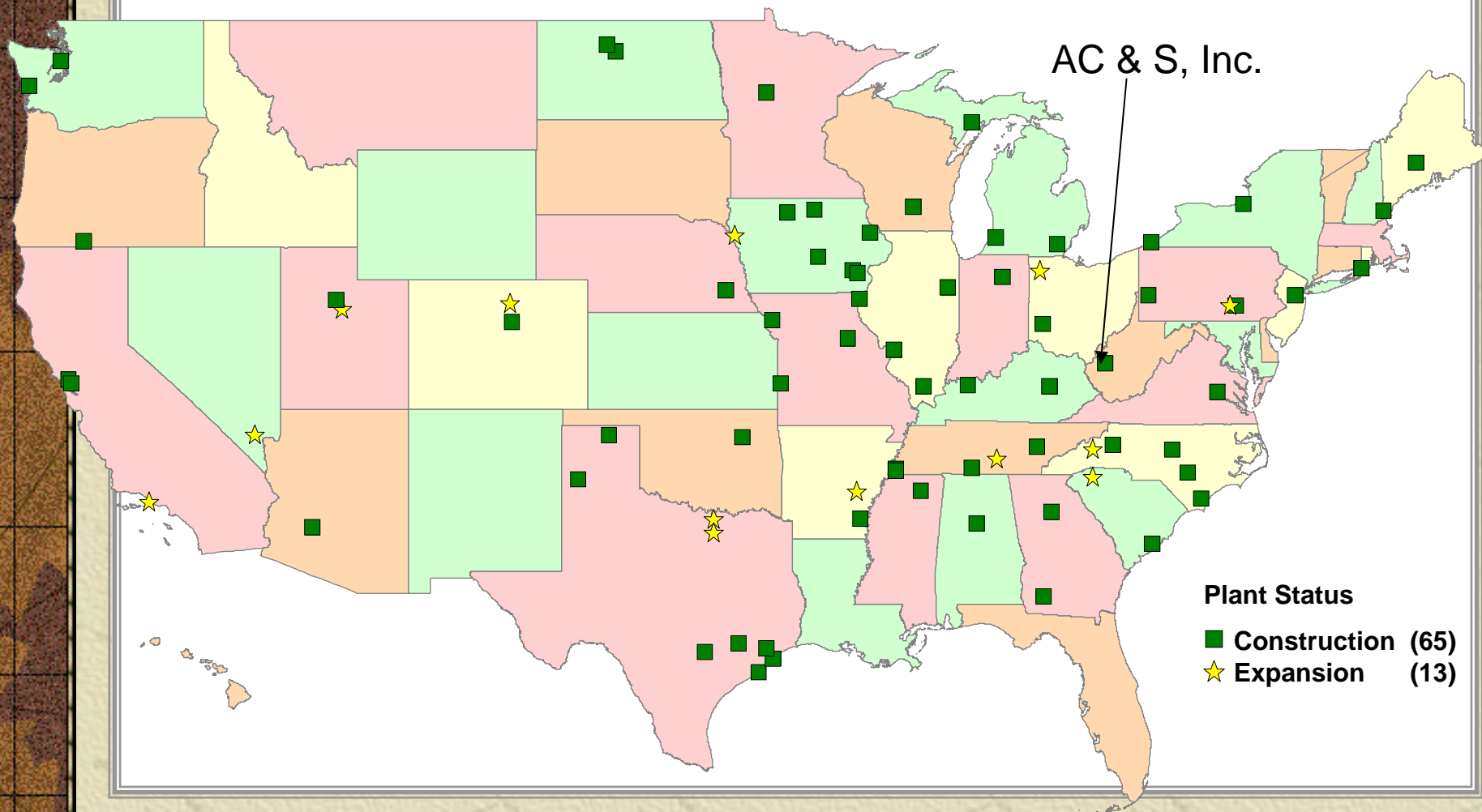
Process Development

- Batch Manufacturing vs. Continuous
- Catalyst Evaluation
- Wet Process vs. Dry Process

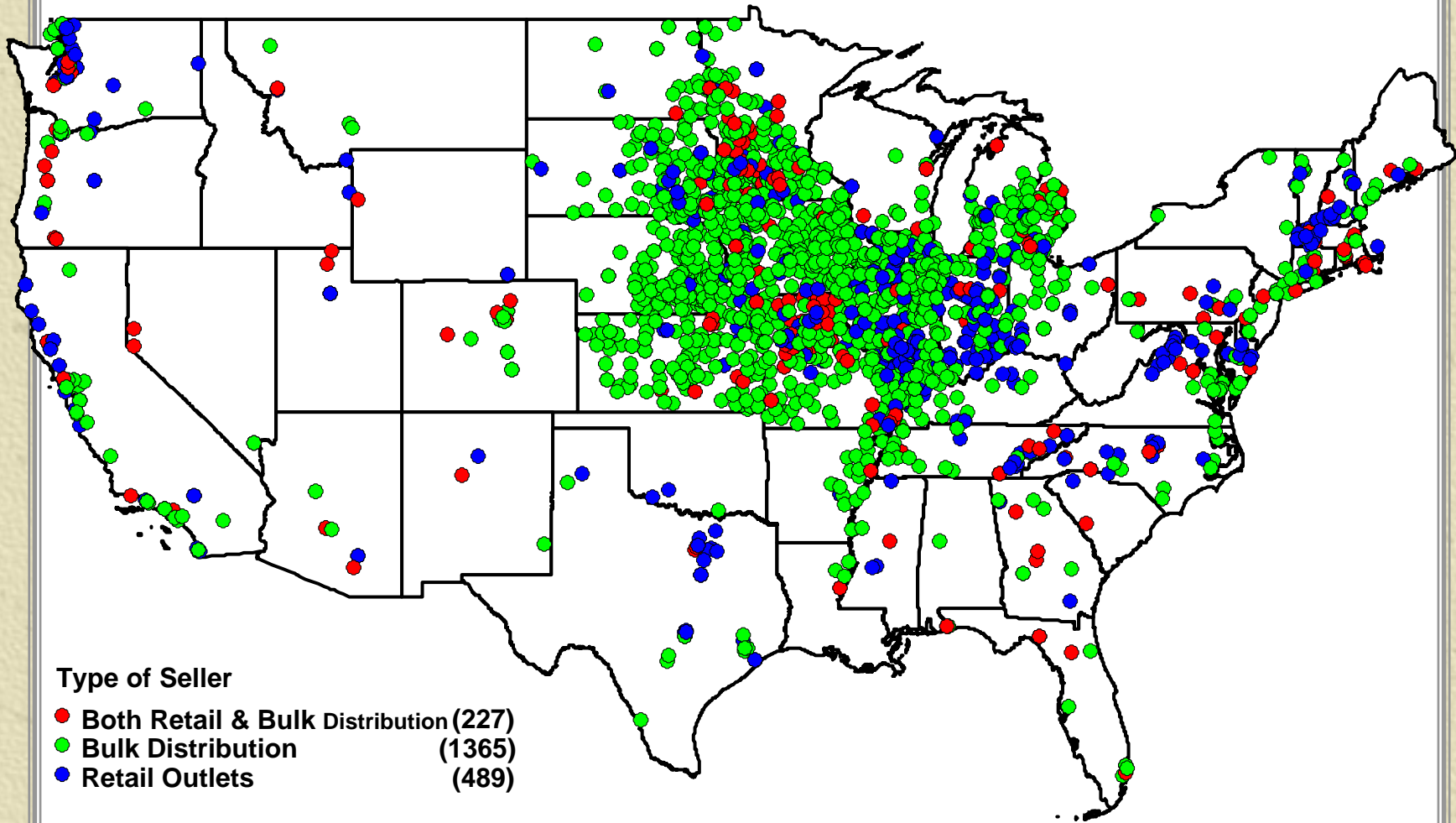
Market Analysis

- National
- Regional
- Local

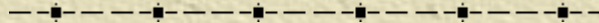
Biodiesel Plants Under Construction & Expansion (9/13/06)



Distribution Locations (May 06)



Plant Construction

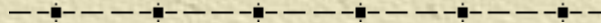


Major Construction Components

- ✦ Raw Material and Finished Product Storage
- ✦ Automation and Instrumentation
- ✦ Modify Existing Equipment
- ✦ Piping Layout
- ✦ Electrical Distribution
- ✦ Environmental Considerations



*Legislative Policy
and Energy Markets*



Federal Energy Policy

✧ **Biodiesel Blender's Tax Credit** (\$1.00 per gallon)

✧ **Biodiesel Producer's Tax Credit** (\$0.10 per gallon)

✧ **Clean Energy Act of 2007 H.R. 6**

Increases Renewable Fuels Use

8.5 billion gallons in 2008

36 billion gallons in 2022

✧ **Farm, Nutrition, and Bioenergy Act of 2007 (Farm Bill) H.R. 2419**

Sec. 9007 CCC Bioenergy Program (\$1.4 Billion)

Sec. 9003 Loan Guarantees For Biorefineries & Biofuel
Production (\$2 Billion)

✧ **New Direction for Energy Independence, National Security, Consumer Protection Act H.R. 3221**

Sec. 9013 Forest Bioenergy Research Program

Sec. 9308 Grants For Cellulosic Ethanol Production

Sec. 9312 Cellulosic Ethanol Research

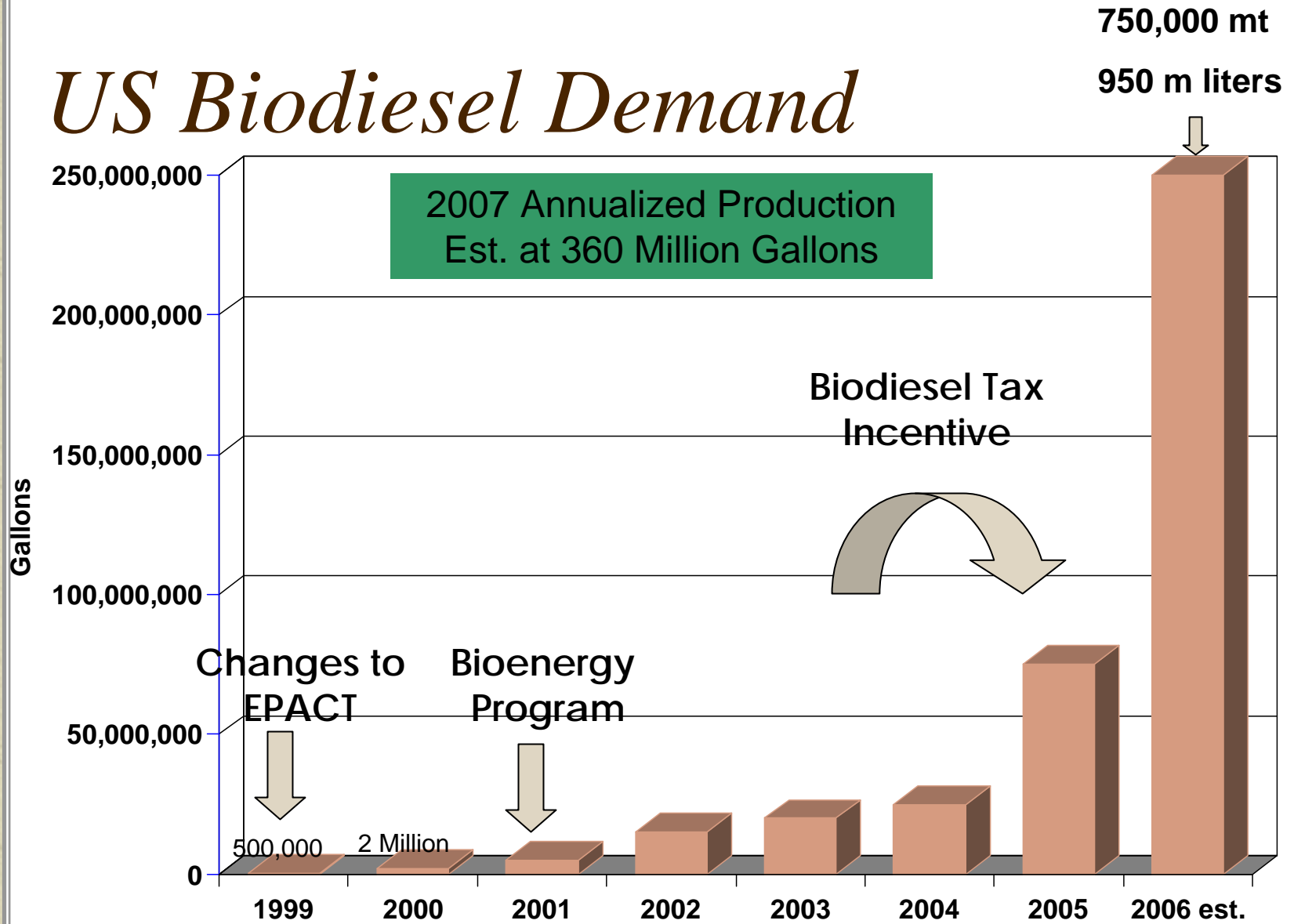
Sec. 9315 Grants for Certain States Renewable Fuel Production

✧ **Renewable Energy and Energy Conservation Tax Act H.R. 2776**

Adds \$0.50/gallon tax credit for Cellulosic Ethanol Production; in addition to the existing \$0.51/gallon and \$0.10/gallon credits



US Biodiesel Demand



Conversions: 1 mmt ~ 300 m gallons ; 1 gallon = 3.8 liters

US Biodiesel Industry Objectives



- ✦ 2005 goal: 1 billion gal by 2015
- ✦ 2007 New Industry goal “**5x15**”
- ✦ 5% on-road displacement by 2015 \approx 1.85bgy

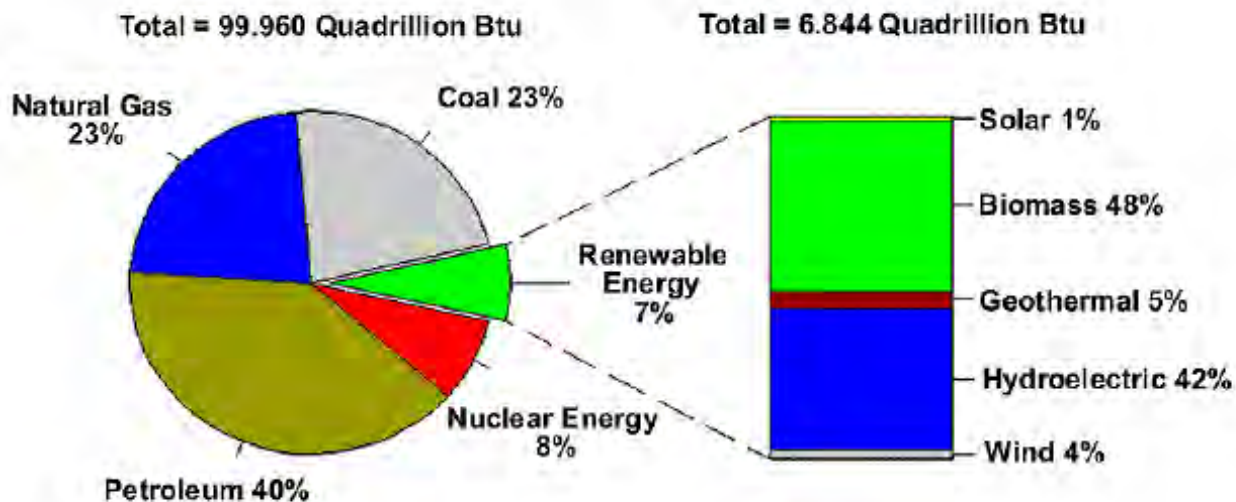
Market Potential for Distillate Blended to a B5

- ✦ US would require 3.1 billion gallons of B100
- ✦ West Virginia and Contiguous States would need over 500 million gallons of B100
- ✦ West Virginia alone would need over 30 million gallons

Source: Energy Information Administration

Renewable Energy Consumption in 2006

The Role of Renewable Energy Consumption in the Nation's Energy Supply, 2006

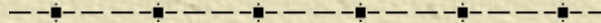


Source: Table 1 of this report.

Source: Energy Information Agency; Renewable Energy Consumption and Electricity Preliminary 2006 Statistics, August 2007



*Renewable Fuels
Advocacy*



Renewable Fuel Stakeholder Advocacy

- ✦ Promote Policies
- ✦ Support Regulations
- ✦ Encourage Research and Development
- ✦ Form Collaborations Between Government, Research Institutions and Industry

Increasing OEM Support

- ✦ Diesel powered Jeep Grand Cherokee CRD to have B5 factory fill
- ✦ New Holland approves B20 in all of its diesel engines
- ✦ DaimlerChrysler approves B20 in 2007 Dodge Ram pickup's used in fleets
- ✦ GM working towards B20
- ✦ EMA approves a B20 specification
- ✦ Cummins approves B20



United States 1973

- On October 17, 1973 OPEC announced they would no longer ship oil to countries who supported Israel in the Yom Kippur war
- OPEC quadrupled the price of crude oil



United States 2007

