



America's Advanced Biofuel

Don Scott

Director of Sustainability

iesel is a domestic,
renewable fuel for
diesel engines derived
from vegetable oils or
animal fats which meets
the specifications of
ASTM D 6751.



US Biodiesel industry goal: 5 x 15

% on-road displacement by 2015

significant in terms of energy security

significant in terms of emission reductions

responsible, because we can meet this goal by using existing agricultural products, recycled oils, and wastes

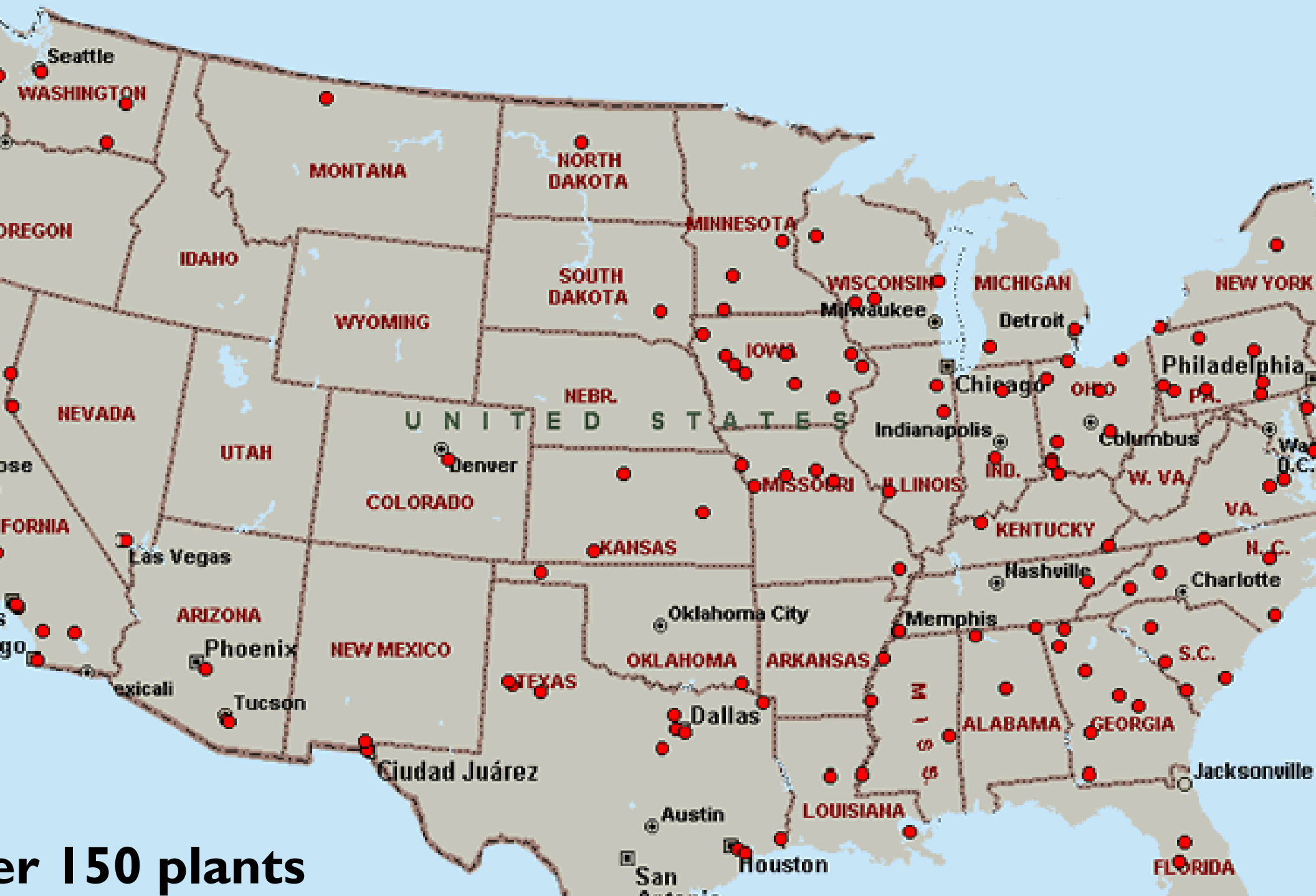
Energy Security

U.S. Currently imports 60% of our petroleum.

- Over \$1 billion every day
- More than \$700,000 every minute

We could be spending this money in our own communities.

U.S. biodiesel industry supports 78,000 domestic jobs.



er 150 plants

Fuel Quality

iodiesel is the only diesel substitute with established fuel quality specifications.

STM specification D 6751 for B100

- D 975 for B5 in diesel fuel
- D 396 for B5 in heating oil
- D 7467 for B6-B20

iodiesel must meet D 6751 to be entered into commerce.

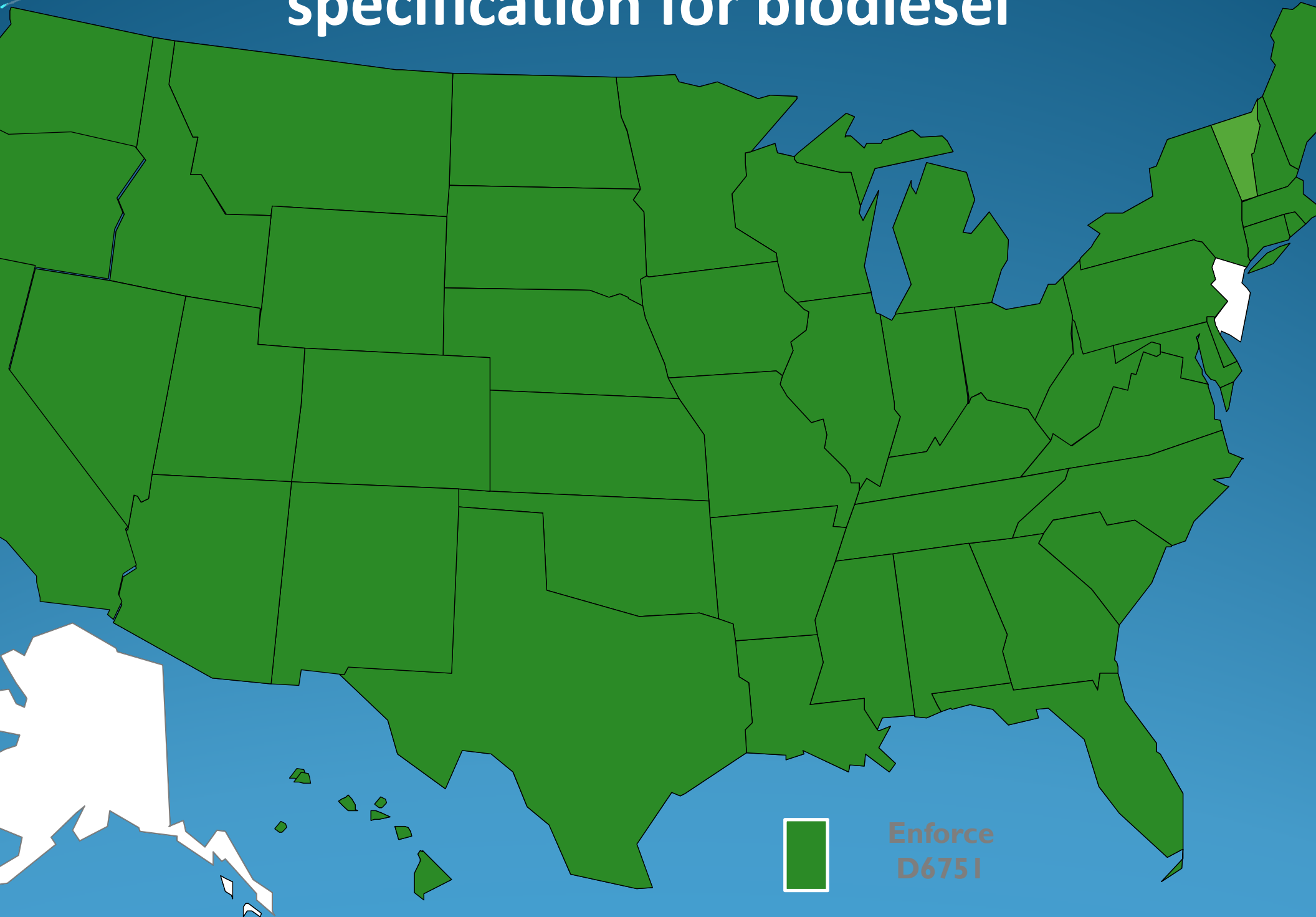
EPA penalty

- civil penalty \$25,000 a day

RS penalty

- felony and shall be fined not more than \$100,000 (\$500,000 in the case of a corporation) or imprisoned not more than three years.

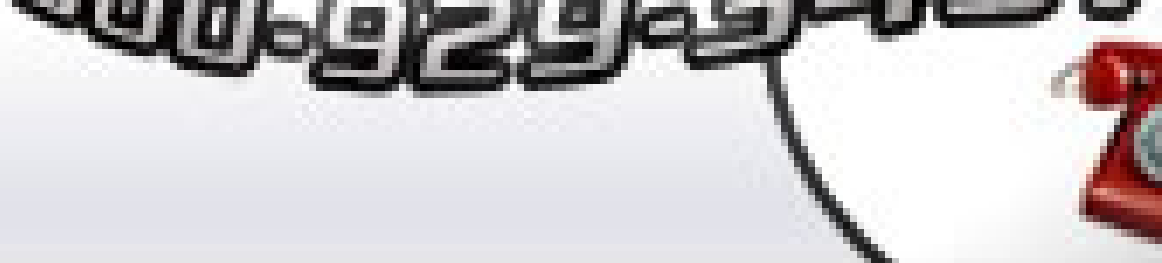
specification for biodiesel



Enforce
D6751



No Reference



- NBB maintains a Fuel Quality Hotline
- <http://www.biodiesel.org/hotline/>
- 1-800-929-3437

Fuel Quality - BQ-9000

- ASTM Grade Fuel, BQ-9000 Companies
- Over 70% of US biodiesel from BQ-9000 companies

Focus of Fuel Quality: Education, Encouragement, Enforcement

48 States have adopted D 6751, 18 states do proactive testing



OEM Warranty Statements



Biodiesel

All major U.S. OEMs support at least B5, ASTM D 6751

- B5 now included in diesel specification, D 975
- Most OEMs are also recommending use of a BQ-9000 supplier

Over 60% of U.S. OEMs support B20 or higher, ASTM D 7467

More OEMs completing testing, progressing to support for B20

For a complete listing of OEM position statements on biodiesel, as well as the current U.S. Diesel Vehicles List, visit: <http://www.biodiesel.org/resources/faq>

B20 Approved



Ford approves
B20 in all its
2011 and
beyond



Class 2 - 5
Super Duty &
Class 6,7
Medium Duty
Trucks



B20 Approved



2011 and beyond GM Heavy Duty Products
are approved for B20:



Chevrolet
Silverado

GMC
Sierra



Chevrolet
Express

GMC
Savana



B20 Approved for Fleets



Chrysler supports the use of B20 in the Dodge Ram for government, military and commercial fleets



Cummins supports B20 in its engines

Companies Supporting At Least B20



100 Approval

The following companies approve biodiesel use up to 100:

- Case IH (approx. 50% of models)
- New Holland
- Fairbanks Morse



OEM Biodiesel Blend Approvals

Approve B5:

- Audi
- BMW
- Mercedes
- UD Trucks
- Volkswagen (researching B20)



Approve B5*:

- Detroit Diesel / Daimler
- Freightliner
- Isuzu
- Kubota
- Mack
- Peterbilt
- Sterling
- Thomas Built Buses
- Volvo



Exceptions have been made
for B20 use by fleets



Environmental Benefits

- Cleaner, Safer Diesel Exhaust Emissions
 - Lifecycle Carbon Reduction
 - Superior Energy Efficiency
 - Improves Food Security
 - Nontoxic & Biodegradable

Reduces Wastewater & Hazardous Waste Producti

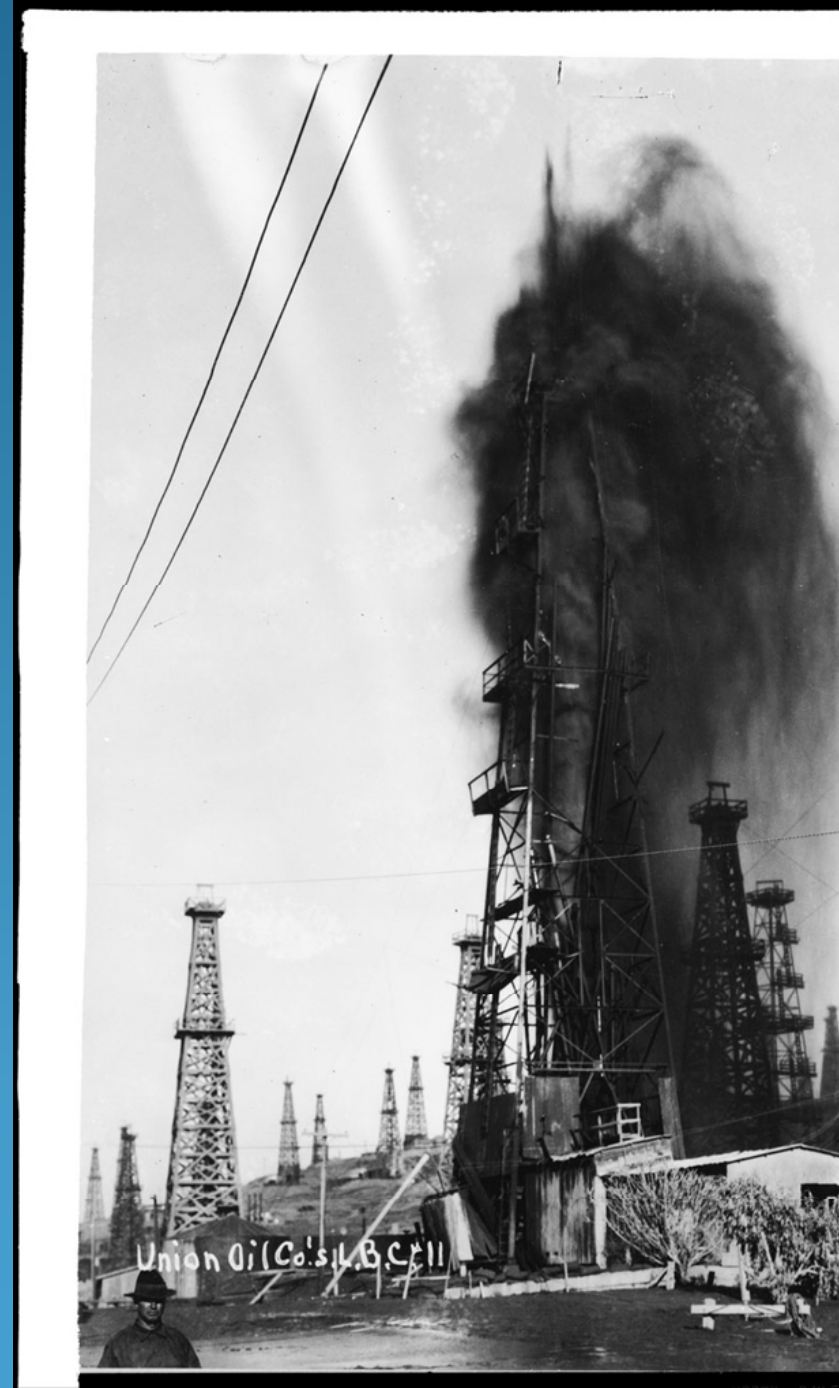
Biodiesel Lowers Emissions

Emission Type	B100	B20	B2
Total Unburned Hydrocarbons	-67%	-20%	-2.2
Carbon Monoxide	-48%	-12%	-1.3
Particulate Matter	-47%	-12%	-1.3
Polycyclic Aromatic Hydrocarbons	-80%	-13%	-1.3
Recycle Carbon Dioxide	-85%	-17%	-1.7

sequesters carbon while
growing plants
prevent extraction of carbon
from fossil fuels



VS.



EPA Definition

40 CFR 80.1401

Advanced Biofuel means renewable fuel, other than ethanol derived from cornstarch, as lifecycle greenhouse gas emissions that are at least **50 percent less than baseline lifecycle greenhouse gas emissions.**

as defined by Section 211 (o) (1) (B) of the Clean Air Act (42 U.S.C. 7545(o)) as amended by the Energy Independence and Security Act of 2007

EPA Definition

40 CFR 80.1401

Renewable Fuel (i) fuel that is produced from renewable biomass.

Renewable Biomass

.) Planted crops and crop residue harvested from existing agricultural **land cleared or cultivated prior to December 19, 2007** and that was nonforested and either actively managed or fallow on December 19, 2007.

EPA Definition

Renewable Biomass for Biodiesel:

) Soybean oil

) Canola

) Corn oil from ethanol plants

) Animal fats

) Recycled grease

) Waste grease

) Algae

Biodiesel Enhances Food Security

Renewable energy is needed for farming and food distribution

Producing food and energy side-by-side may offer one of the best formulas for boosting countries' food and energy security while simultaneously reducing poverty, according to a new FAO report.

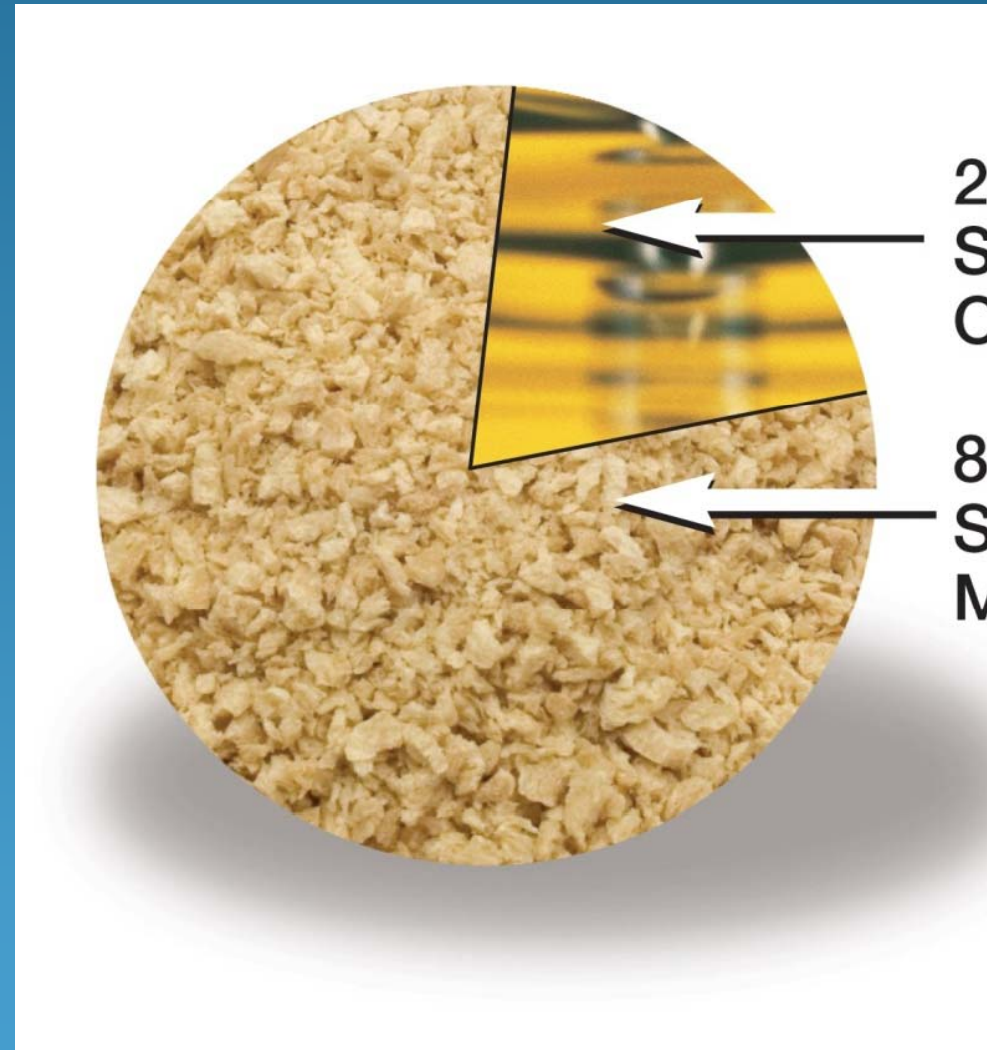
Makes the business of growing food more stable



Co-products of Food Production

Protein meal for livestock feed is the primary driver for soybean production

Better utilization of the oil byproduct can reduce the price of the protein meal.



Food Security

In 2008, 360 million
liters of biodiesel from
soybeans co-produced
enough soybean meal
for the equivalent of 110
billion rations of protein
for the hungry.

In 2009, 247 million
liters of biodiesel from
soybeans co-produced
enough meal for the
equivalent of 72 billion
rations of protein.



Biodiesel has the Best Energy Balance

1 unit of energy
returns 4.56
units of usable
energy.

- Will reach 5.44 by
2015



Becoming More Efficient

Soybean yield rising:

- 15% increase 2000-2009

Farm energy use decreasing:

- 20% decrease 1998-2010

Biodiesel processing more efficient:

- 45% improvement 1998-2009

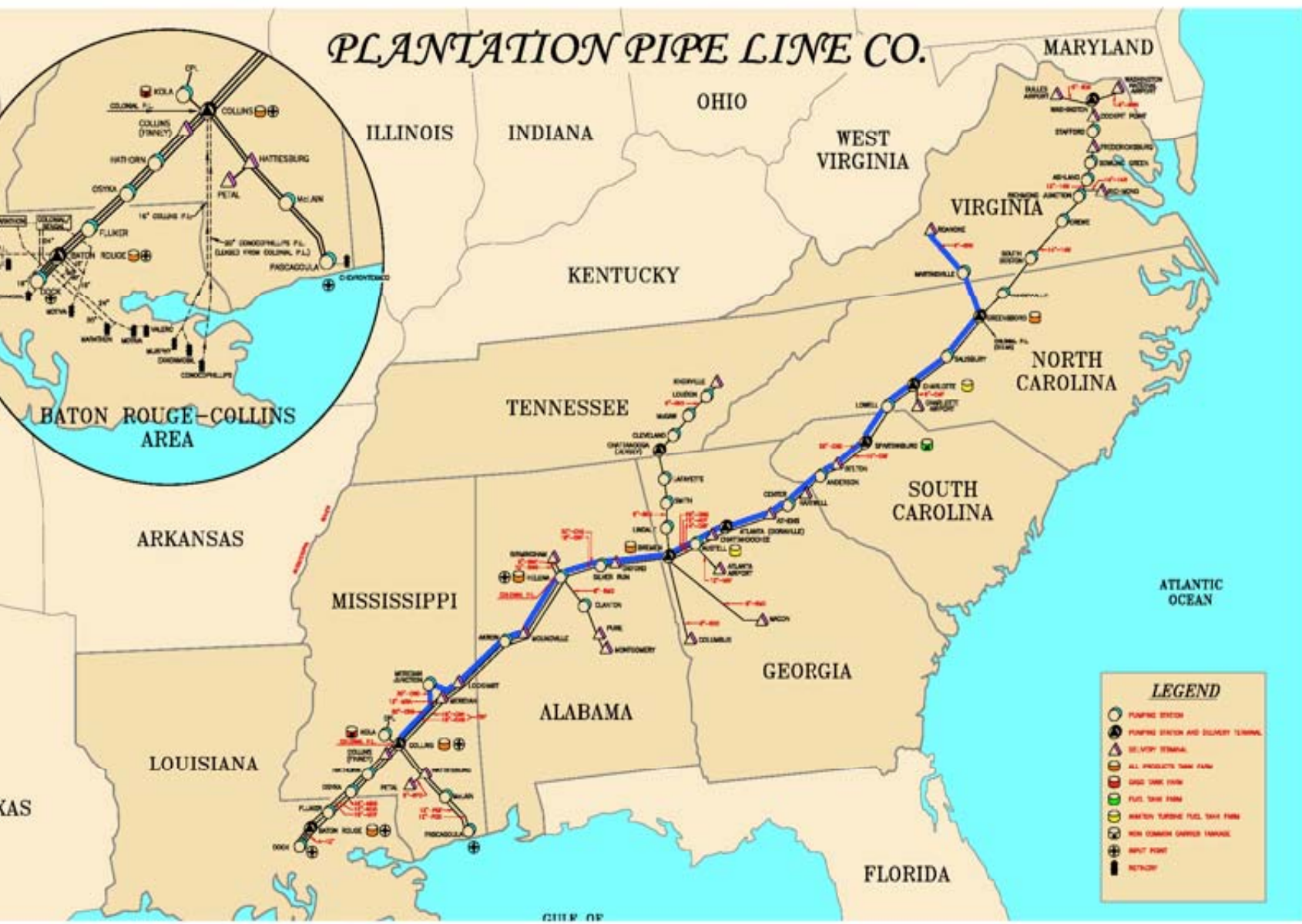


Water Wise



- Biodiesel is Nontoxic
- Biodiesel is Biodegradable
- Reduces wastewater by 79% compared to petroleum
- Reduces hazardous waste by 96% compared to petroleum

odiesel by Pipeline:



Existing
Capabili
Plantatio
Pipe Line

Public Policy

Federal Renewable Fuel Standard (RFS)

- Requires 1 billion gallons of “biomass-based diesel” annually through 2022

Biodiesel Tax Credit

- \$1/gallon credit for blending biodiesel with petroleum
- Expires December 31, 2011

State and local support

Petroleum Consumption, Energy Security and Fuel Costs:

- Will replace 7% annual gasoline and diesel consumption in 2022
- Decrease oil imports by \$41.5 billion
- Result in additional energy security benefits of \$2.6 billion.

In Summary

Biodiesel blends are a drop-in compliment to diesel

- ▶ Biodiesel is available now.

- ▶ Biodiesel has significant environmental benefits

- ▶ Biodiesel reduces \$ spent on imported petroleum

- ▶ Biodiesel supports domestic jobs