Alabama Clean Cities Biodiesel Quality and Industry Update

Alicia Clancy, Manager, Corporate Affairs

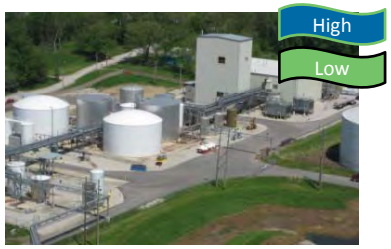
Aug. 31, 2011

Agenda

- Who is REG?
- Introduction to Biodiesel
  - Quality. Quality. Quality.
  - Biodiesel Production & Benefits
- Industry Market Drivers

REG®: America's Largest Biodiesel Producer

REG Albert Lea
30 MGY, Acquired: 07/2011
Albert Lea, Minn.



REG Danville
Danville, IL
45 MGY, Startup: 11/2008

REG Houston
Seabrook, TX
35 MGY, Startup: 08/2008

REG Newton
30 MGY, Startup: 5/2007
Newton, IA

REG Ralston
12 MGY, Startup: 3/2003
Ralston, IA

REG Seneca
60 MGY, Acquired: 04/2010
Seneca, IL

REG Emporia
60 MGY, Startup: TBD
Emporia, KS

REG New Orleans
60 MGY, Startup: TBD
Destrehan, LA

REG Clovis,
15 MGY, Acquired: 09/2010
Clovis, NM

High

High free fatty acid feedstock conversion (fats, corn, waste greases)

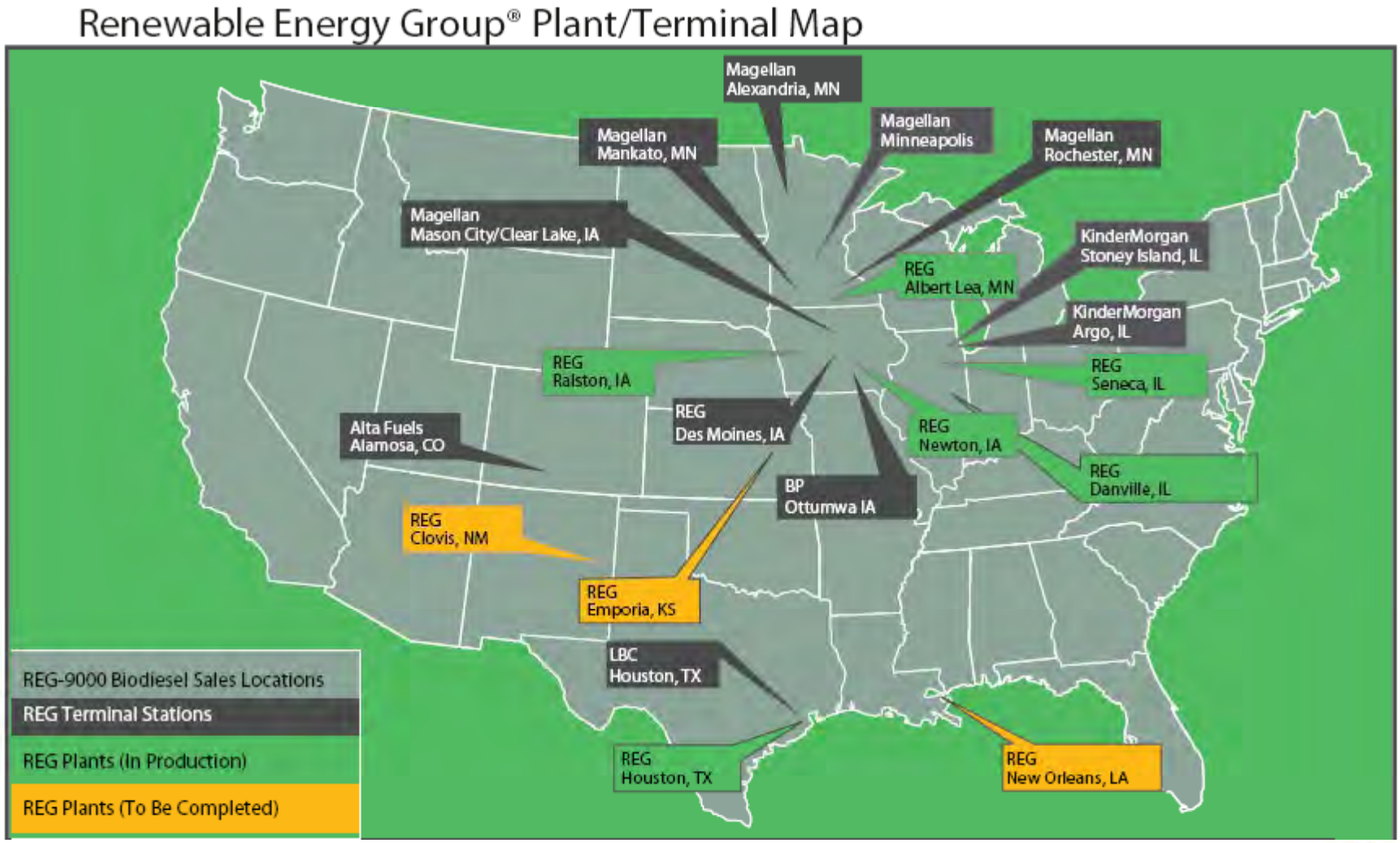
Low

Low free fatty acid feedstock conversion (soy, canola, refined fats)

TBC

To be completed

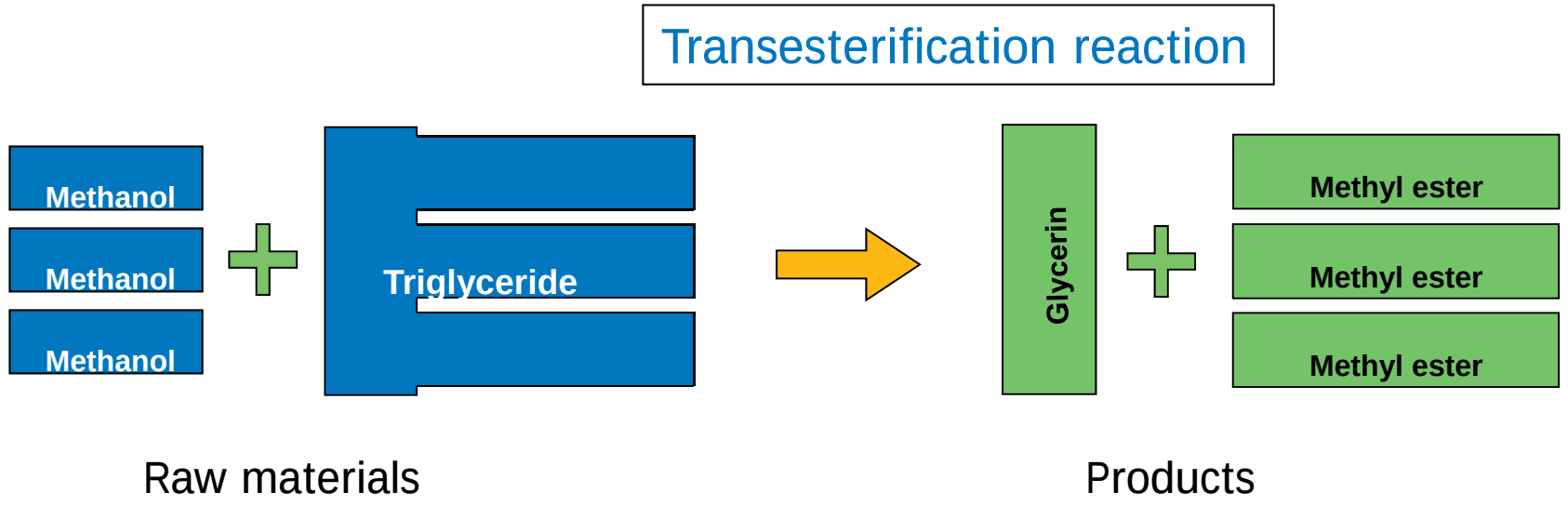
16 National B99/B100 Locations, Product Available Nationwide



Quality. Quality. Quality

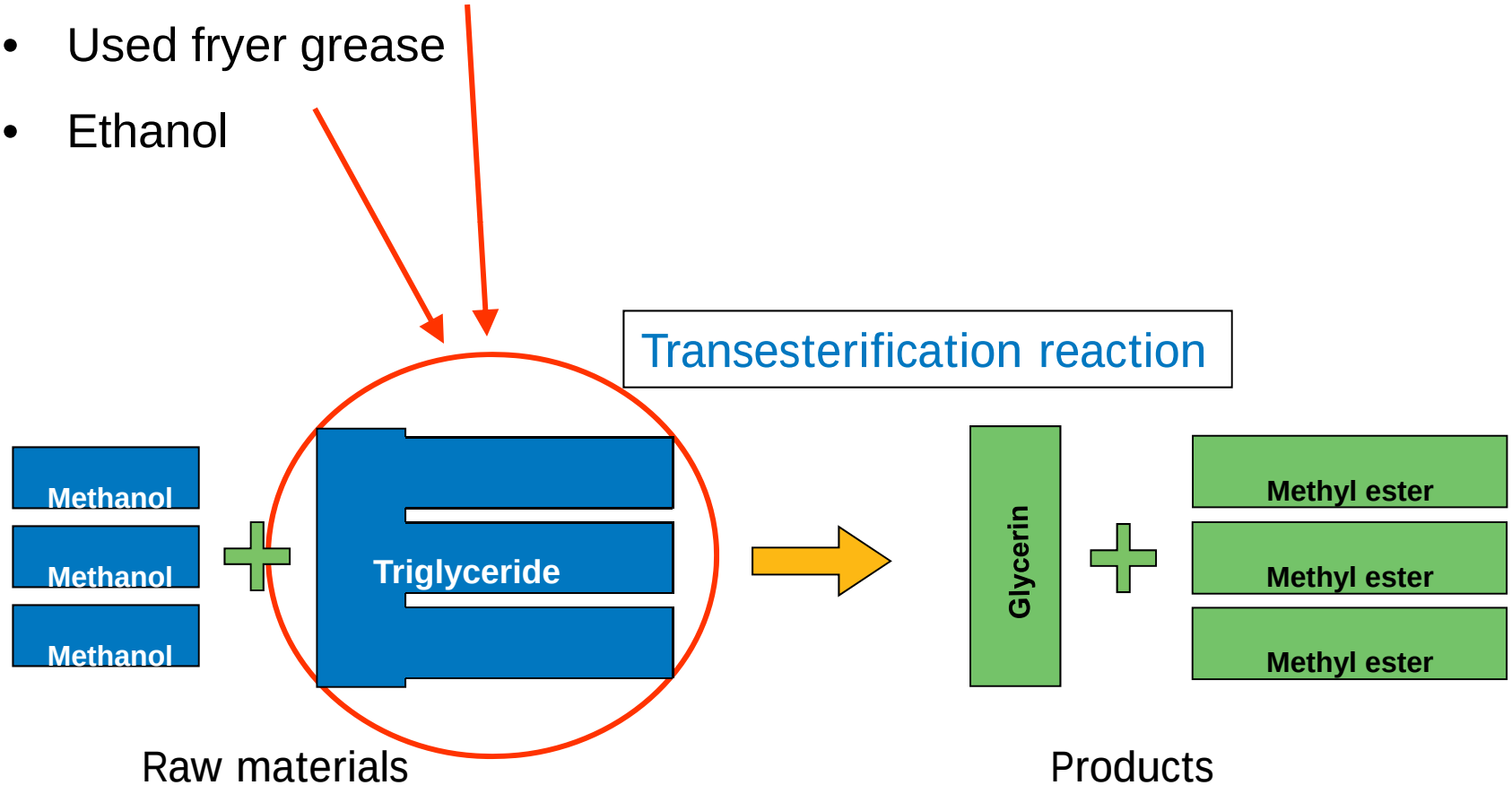
What is Biodiesel?

- Biodiesel is methyl esters made from biological oils and fats (triglycerides) by transesterification
- Must meet industrial specifications (ASTM D 6751)
- Used in modern diesel engines without modification in blends up to 100% biodiesel (B100)



What it isn't:

- Vegetable oil or animal fat
- Used fryer grease
- Ethanol



B100 Biodiesel Quality

- American Society for Testing and Materials (ASTM) D6751 provides biodiesel specifications
  - 20 tests (currently)
  - Includes both quality and performance indicators
  - No specification that restricts feedstock options
  - Represents the minimum acceptable quality
- Certificate of Analysis
  - A “C of A” should be available for every lot of biodiesel
  - Should provide a complete list of specifications and test results
  - May contain additional tests beyond ASTM D6751

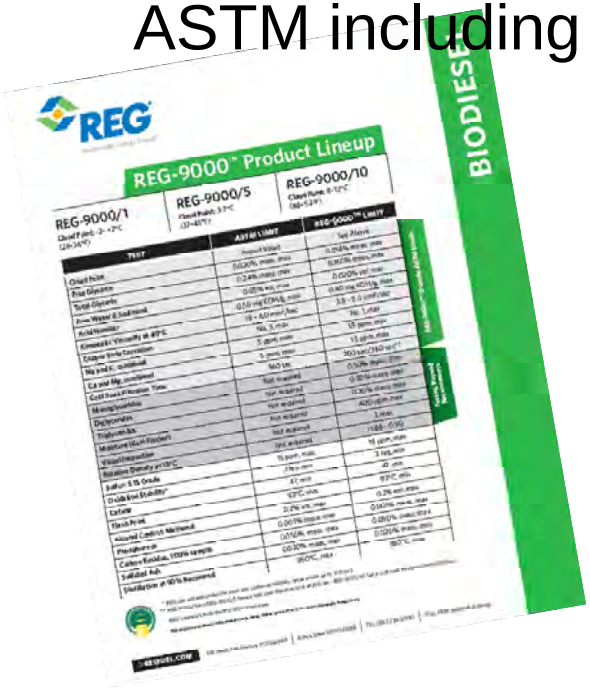
ASTM D6751 Specifications (Full)

Free Glycerin	ASTM D 6584	Max 0.020 % mass
Total Glycerin	ASTM D 6584	Max 0.240 % mass
Flash Point (Methanol)	ASTM D 93	Min 130 °C (Max 0.2 % vol)
Acid Number	ASTM D 664	Max 0.50 mg KOH/g
Water & Sediment	ASTM D 2709	Max 0.050 % vol
Visual Appearance	ASTM D 4176	Max 2 Haze rating
Oxidative Stability	EN 14112	Min 3.0 hr
Cold Soak Filtration Test	ASTM D7501	Max 200/360 sec (summer/winter)
Sulfur	ASTM D 5453	Max 15 ppm
Cloud Point	ASTM D 2500	Report °C
Kinematic Viscosity at 40 °C	ASTM D 445	1.9 – 6.0 mm^2/sec
Sulfated Ash	ASTM D 874	Max 0.020 % mass
Copper Strip Corrosion	ASTM D 130	Max No. 3
Cetane Number	ASTM D 613	Min 47
Carbon Residue for 100% sample	ASTM D 4530	Max 0.050 % mass
Distillation, 90% recovered	ASTM D 1160	Max 360 °C
Phosphorous Content	ASTM D 4951	Max 0.001 % mass
Relative density at 60 °F	ASTM D 1298	Report
Na and K, combined	EN 14538	Max 5.0 ppm
Ca and Mg, combined	EN 14538	Max 5.0 ppm

REG
Renewable Energy Group®

REG-9000® Branded Biodiesel

- Quality specifications are more stringent than ASTM; we beat ASTM spec every lot, every load
  - 10 REG-9000 specs exceed ASTM specifications
  - Six specifications required which are not required by ASTM including mono-, di- and triglyceride levels



REG-9000 Technical Spec Sheet

Note: REG-9000 is a trademark of REG

High Quality Biodiesel Produced from Any Feedstock

- REG-9000 biodiesel can be made from many feedstocks
  - Vegetable oils (soy, rapeseed/canola, palm, etc.)
  - Animal fats (pork CWG, beef tallow, poultry fat)
  - Used oils (yellow and brown grease)
- Feedstock should only affects the following variables:
  - Cloud point / CFPP
  - Oxidation stability
  - Cetane number
  - Sulfur Content
- Production skill and plant technology, not feedstock, determines biodiesel quality.

BQ-9000 Accreditation Status is Important Purchasing Factor

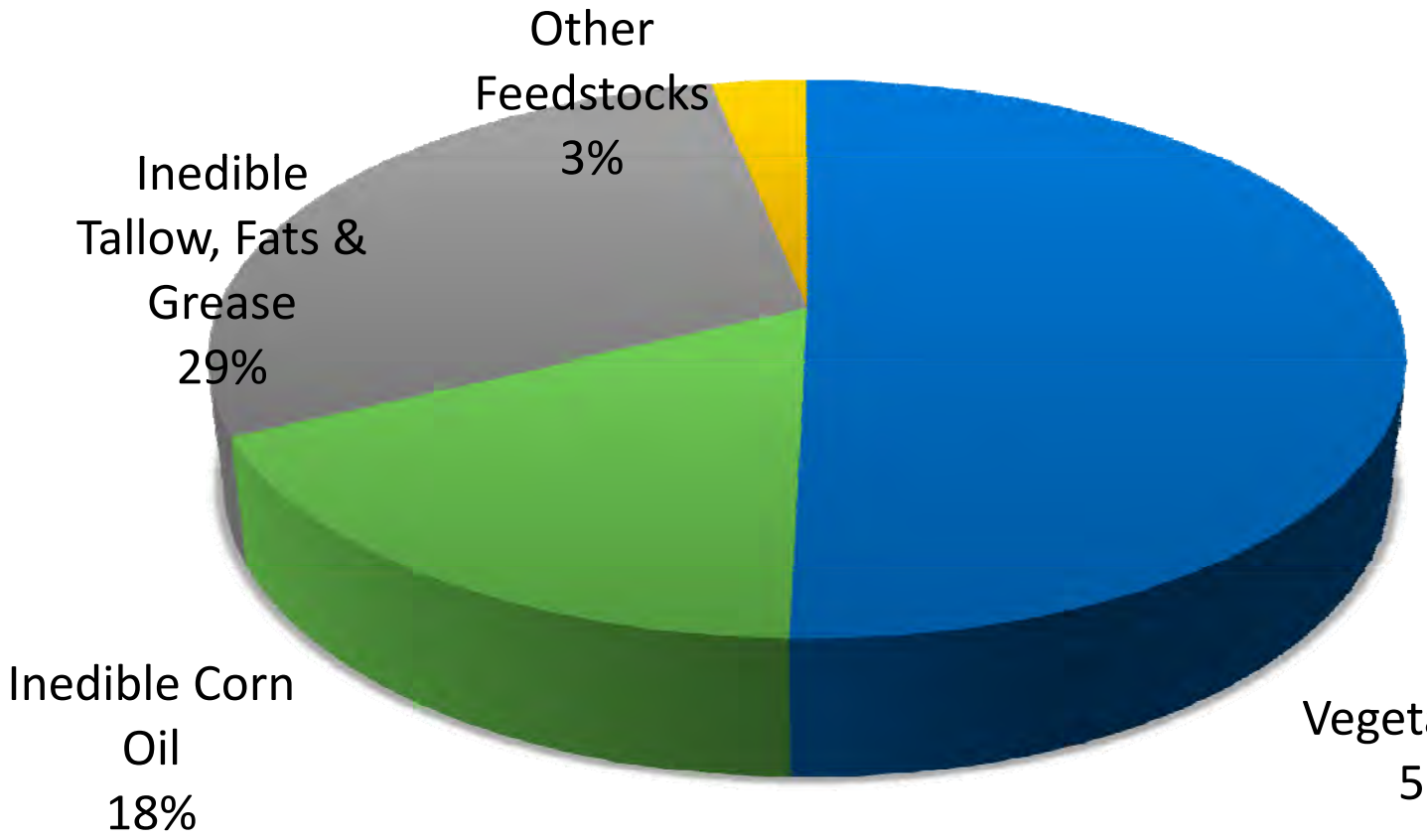
- Over 70% of the biodiesel produced in 2009 was by a BQ-9000 accredited producer
- Currently have:
  - 40 BQ-9000 Producers
  - 19 BQ-9000 Marketers
  - 1 BQ-9000 Lab (Iowa Central)
- Many large refiners (i.e. RFS2 obligated parties) are making BQ-9000 a pre-condition of purchase
- OEM's are requiring BQ-9000 for warranty support

Which One Of These **Doesn't** Belong?

Biodiesel From 34 Feedstocks

Commercially-Available, Domestically Produced

Projected U.S. Feedstocks in 2015



Source: National Biodiesel Board

Feedstock & Fuel Quality

- Biodiesel can be made from:
  - Vegetable oils (soy, canola/rapeseed, palm, etc.)
  - Animal fats (pork fat, beef tallow, poultry fat)
  - Used oils (used cooking oil, brown grease)
- Production skill, not feedstock, determines biodiesel quality
- Feedstock should only affect a few properties:
  - Cloud point
  - Density & viscosity
  - Cetane number

Determined by the carbon chain distribution of the feedstock

B100 Summary

- Biodiesel is a clean burning alternate fuel which is made from biological fats and oils
- REG markets biodiesel on finished fuel attributes, not feedstock sources
- Production skill, not feedstock, determines biodiesel quality
- ASTM D6751 specification for biodiesel consists of 20 tests which include both quality and performance indicators
  - REG 9000® biodiesel exceeds D6751 specifications
  - REG production plants ensure quality through BQ-9000 program

Blends For Your Fleet

Biodiesel Blends

How much biodiesel?

- B100: Underground mines
- B20: School buses
- B2, B5, & B11: retail industry

Blend consideration:

- Handling and storage capabilities
- Blending technique (splash or inline, fuel temperatures)

Consumer/Retailer Specifications

- ASTM D975: Diesel Fuel
  - Allows up to 5% biodiesel in diesel
  - Biodiesel must meet all D 6751 specifications prior to blending
- ASTM D7467: Biodiesel/Diesel Blends (B6 to B20)
  - Required for B6 to B20 blended fuel
  - Biodiesel used is required to meet D 6751 and diesel must meet all D 975 specifications prior to blending
- ASTM D396: Heating Oil
  - Allows up to 5% biodiesel in heating oil
    - No spec for higher than 5% biodiesel blends

47/18 (States Managing Quality)
Specification for Biodiesel

ASTM D 6751-10 B100 - ASTM D 7467-10,B6-20

REG Renewable Energy Group®

Biodiesel Use & Handling Resources Available Online

- Refer to the Biodiesel Use & Handling Guidelines available on the Biodiesel Training Toolkit and at: http://www.nrel.gov/vehiclesandfuels/pdfs/43672.pdf

Guidelines for **Purchasing** Biodiesel

1. Ensure B100 biodiesel meets the ASTM specification for pure biodiesel (ASTM D 6751) before blending with petroleum diesel
   - Purchase biodiesel and biodiesel blends from companies that have been registered under (or follow the requirements of) the BQ-9000 fuel quality program
   - Request of Certificate of Analysis for every load

2. Ensure your biodiesel blend supplier provides a homogenous product

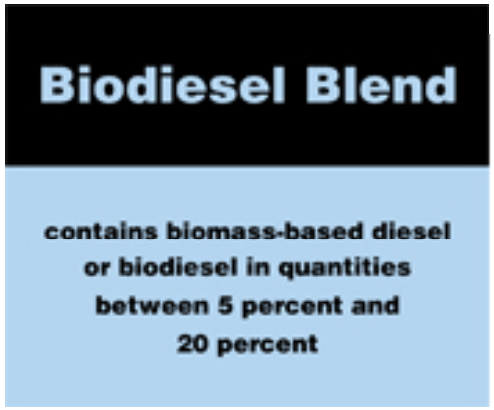
Guidelines for **Handling** Biodiesel

1. Avoid long term storage of B20 and higher blends to prevent degradation. Biodiesel should be used within six to nine months

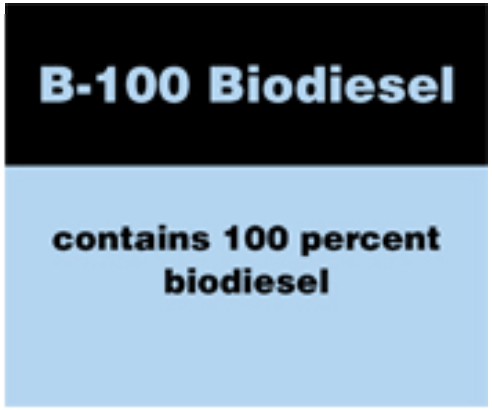
2. Prior to transitioning to B20, it is recommended that tanks be cleaned and free from sediment and water.

3. Check for water and drain regularly as needed.

Retail Biodiesel Label Requirements



Federal Trade Commission-required labels for B6-B20 blends at retail locations



Federal Trade Commission-required labels for B100 at retail locations

Source: Federal Trade Commission

Biodiesel Performance

- Biodiesel blends can be used in any diesel engine
  - Mfg after 1993 requires no modification
  - Performance essentially the same as diesel in horsepower, torque, towing capability and fuel economy
- Biodiesel vs. diesel
  - Higher Cetane than No. 2 diesel
  - High lubricity, even in blends as low as B1 or B2

OEM Warranty Statements and Biodiesel

- All major U.S. OEMs support at least B5 blends, provided they are made with biodiesel meeting ASTM D 6751
- More than 50% of U.S. manufacturers support B20 or higher blends in at least some of their equipment
- Several more are completing testing and progressing toward support for B20 now that new ASTM standards for B6-B20 blends have been published (ASTM D7467)
- Most are also recommending use of a BQ-9000 supplier

For the Latest OEM Updates…

- http://www.biodiesel.org/resources/oems
- Complete listing of **OEM position statements on biodiesel**
- Current **U.S. Diesel Vehicles List**

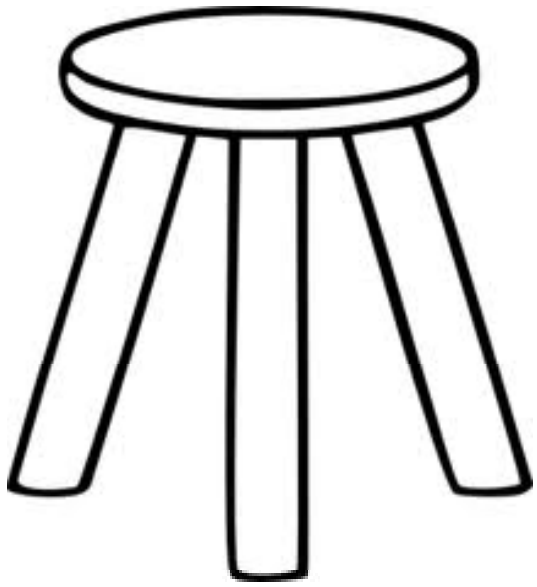
What's Driving the Biodiesel Industry?

Stable, Sound Federal Biodiesel Policy Creates Foundation for Economic Growth

Renewable Fuels Standard (RFS2)

Federal Biodiesel Tax Incentive

State Level Incentives/Requirements



Industry Has Entered Important New Stage with Implementation of RFS2

- First biodiesel Renewable Fuels Standard
- Requires petroleum refiners and importers to show compliance for biodiesel use
  - Refiners/importers known as “obligated parties”
  - Biodiesel accounts for 0.91% of obligated party’s diesel fuel refining/importation
- Compliance shown using “Renewable Identification Numbers”
  - RINs are the tracking mechanism for obligated party compliance
  - Value associated with RINs determined by market’s supply/demand of biodiesel

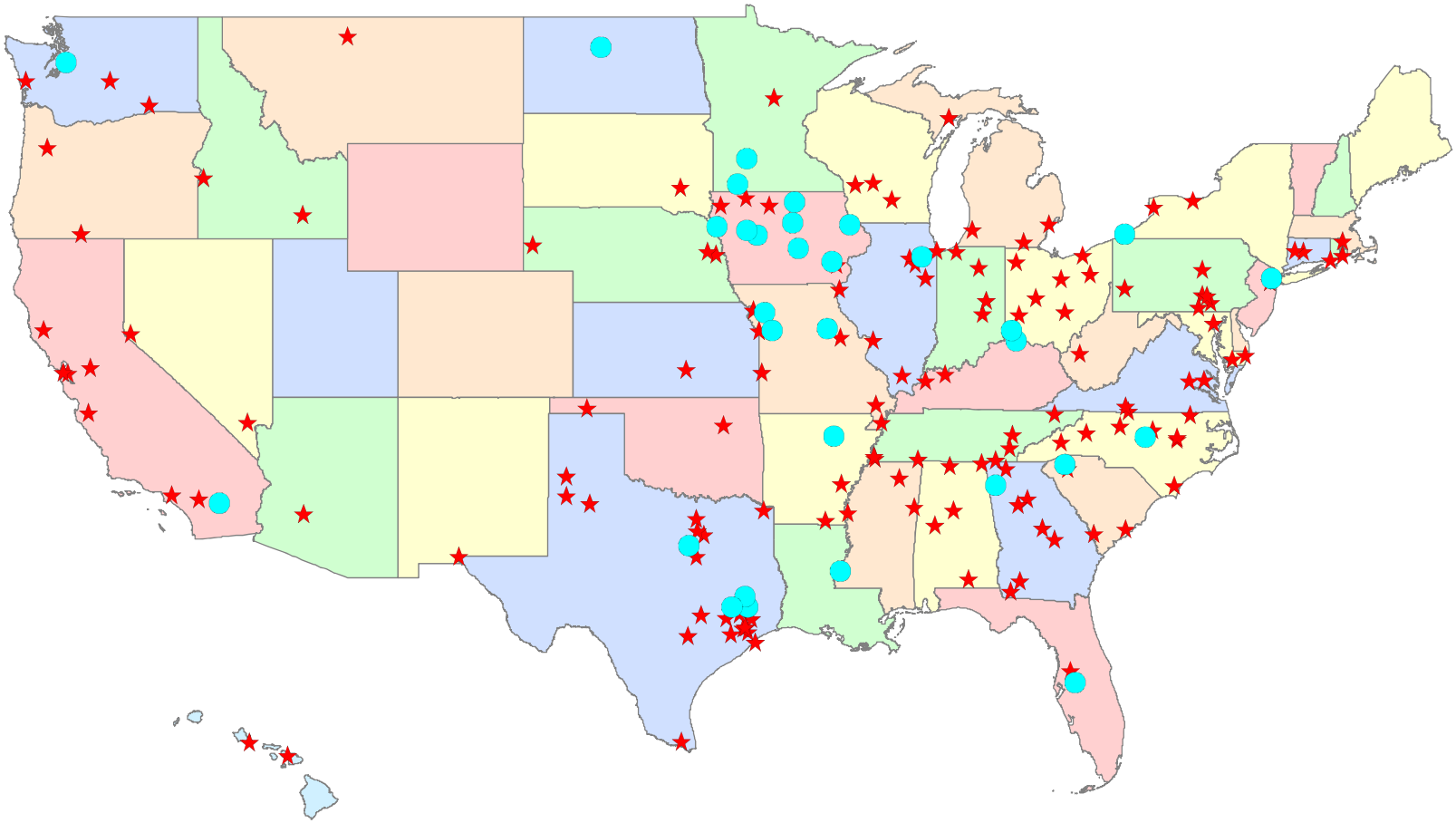
RFS2 is the Most Significant Biodiesel Industry Driver in Today's Marketplace

EISA Renewable Fuel Volume Requirements (RFS2) *(billion gallons)*	
Year	**Biomass-Based Diesel** *First Level of Compliance for Biodiesel Producers to Meet*
2011	0.8
2012	1
2013	1.28
2014	1+, TBD by EPA
2015	1+, TBD by EPA
2016	1+, TBD by EPA
2017	1+, TBD by EPA
2018	1+, TBD by EPA
2019	1+, TBD by EPA
2020	1+, TBD by EPA
2021	1+, TBD by EPA
2022	1+, TBD by EPA

RFS2 is the Most Significant Biodiesel Industry Driver in Today's Marketplace

EISA Renewable Fuel Volume Requirements (RFS2) *(billion gallons)*		
Year	**Biomass-Based Diesel** *First Level of Compliance for Biodiesel Producers to Meet*	**Advanced Biofuel requirement** *Additional Opportunity for Biodiesel to Meet AB Volume Goals as Other Technologies Develop*
2011	0.8	0.90
2012	1	1.33
2013	1.28	1.83
2014	1+, TBD by EPA	2.50
2015	1+, TBD by EPA	3.67
2016	1+, TBD by EPA	4.83
2017	1+, TBD by EPA	6.00
2018	1+, TBD by EPA	7.33
2019	1+, TBD by EPA	8.67
2020	1+, TBD by EPA	10.00
2021	1+, TBD by EPA	12.00
2022	1+, TBD by EPA	14.00

More Than 2 Billion Gallons of Production Capacity Registered with EPA to Meet RVO

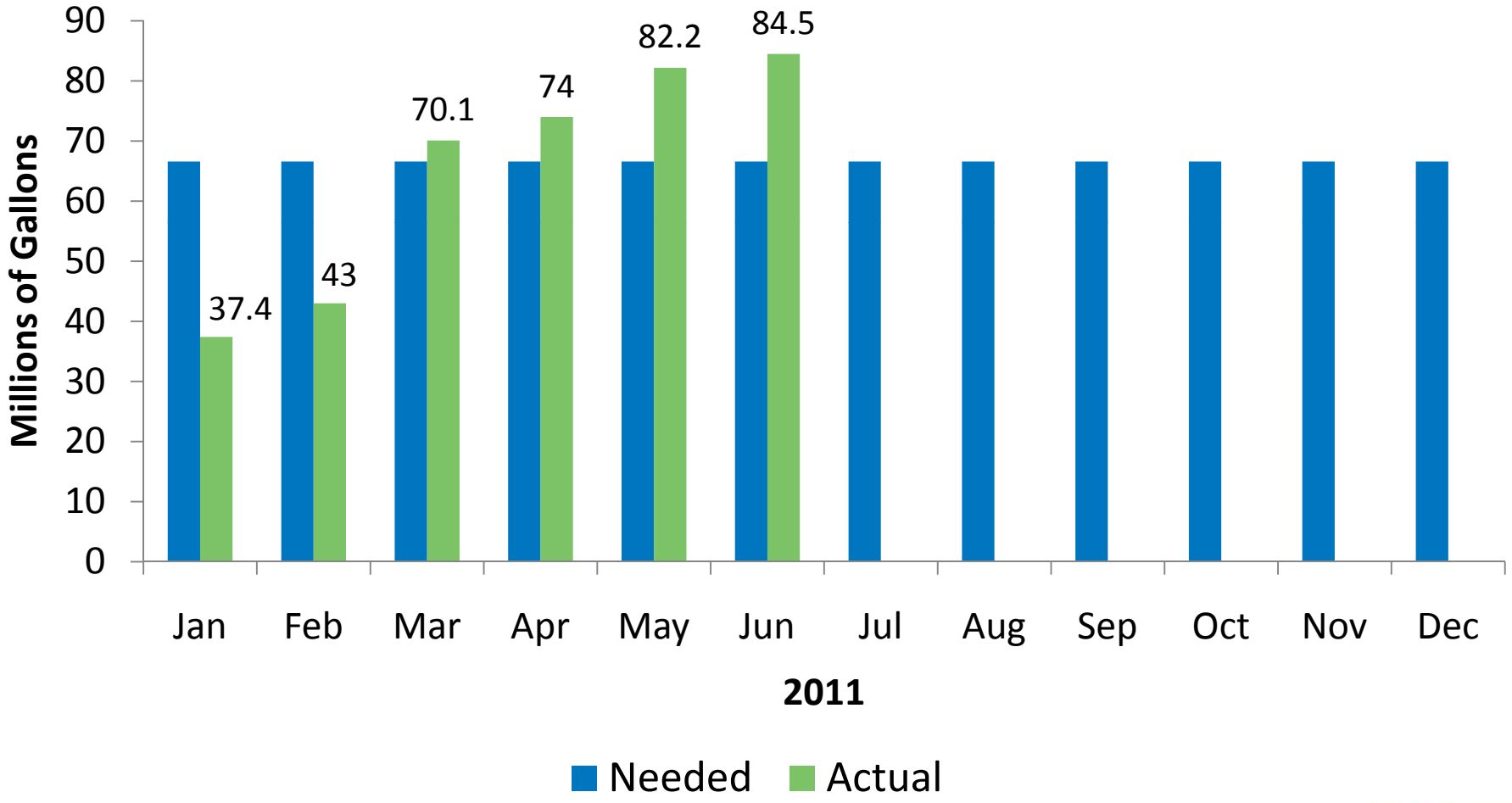


146 Plants

BQ-9000 Accredited Producers

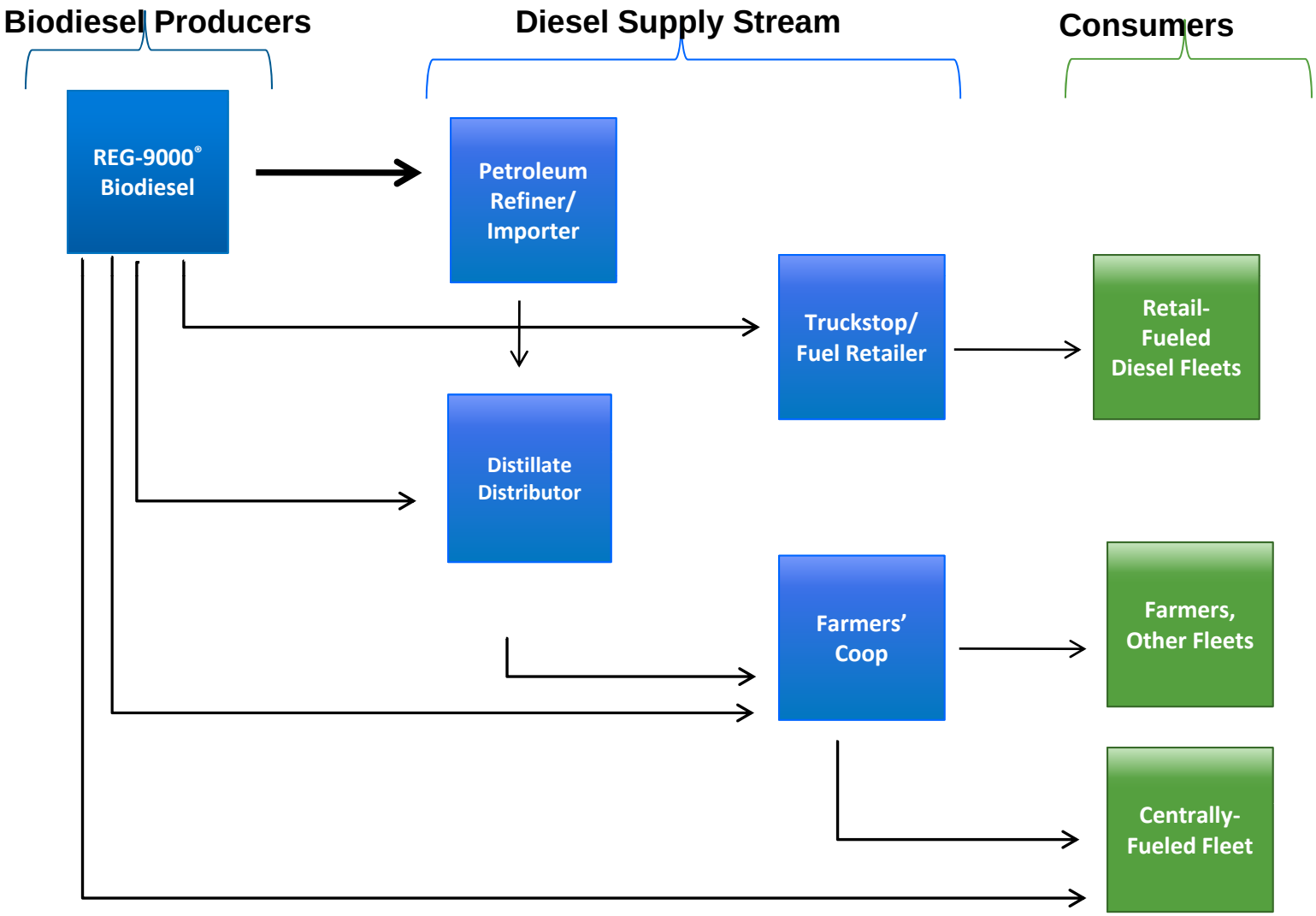
Source: National Biodiesel Board/EPA

U.S. Biodiesel Producers on Track to Meet 800 MMGY RFS2 Renewable Volume Obligations



Source: EPA EMTS Data July 26, 2011

Sales to Obligated Parties Increasing; Biodiesel Being Blended Upstream Vs. Mid-Stream as in the Past



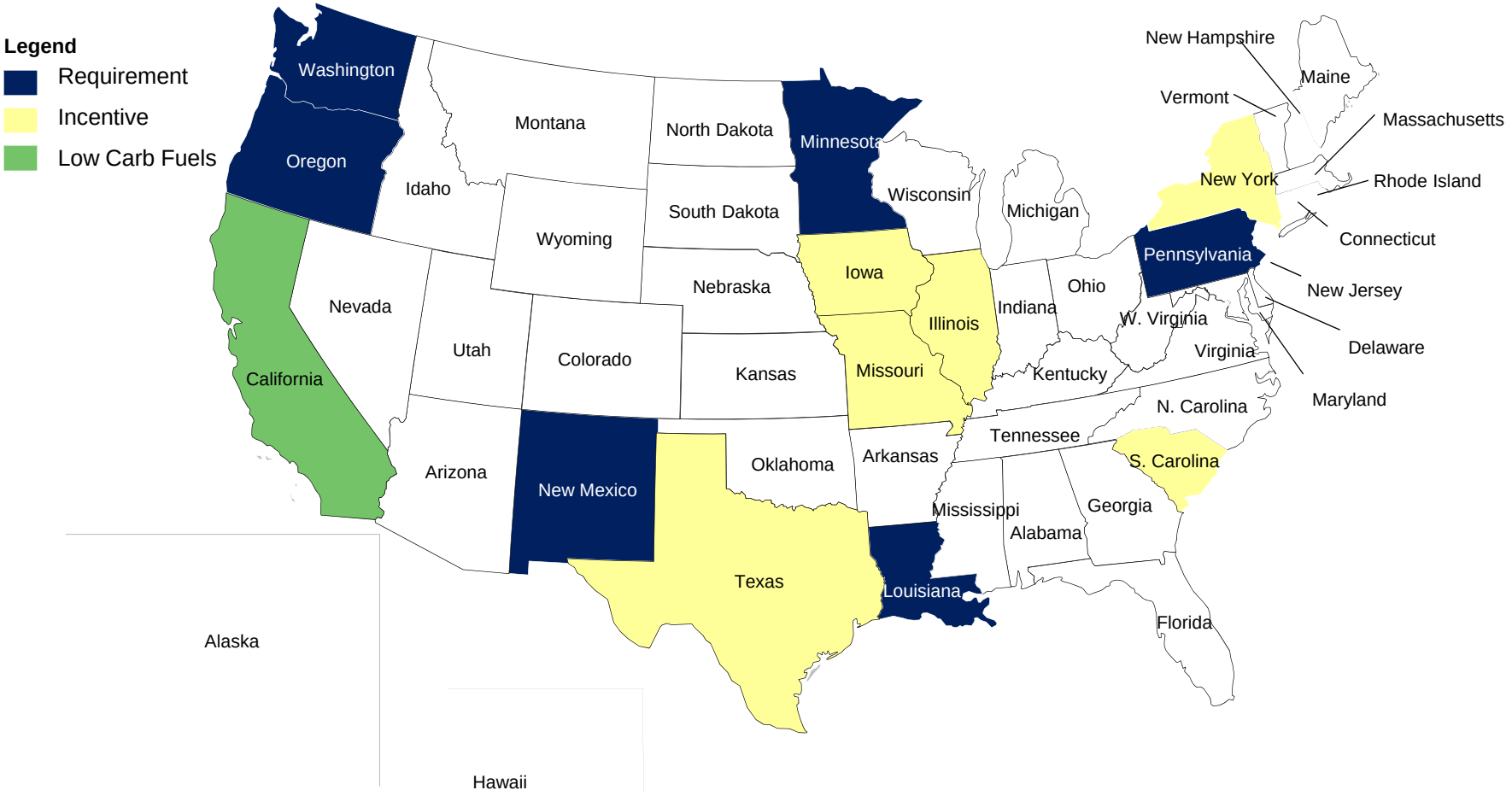
U.S. Distribution Capabilities for Biodiesel Blending Growing

- Pipeline shipment development increasing
- Available through direct shipment from over 1,459 petroleum distributors nationwide
  - Approximately 1,321 retail filling stations nationwide
  - 200 locations are semi-truck accessible
- Some 1200 terminals cover the U.S. landscape, 158 handle biodiesel nationwide, 75 automated for distribution
- Numbers expected to grow

Federal Biodiesel Blenders' Tax Credit

- Blenders Tax Credit
  - Expired December 31, 2009
  - Passed retroactively for 2010
  - Expires December 31, 2011
- Production Tax Incentive
  - Bill introduced in House and Senate today
  - Proposes
    - $1.00/per gallon to biodiesel producer
    - Would expire 2015 (three-year program)
  - Waiting to determine bills' next steps

Biodiesel State Policy Programs Drive RFS2 Blended Gallons, Infrastructure



Source: REG

Biodiesel State Incentives 2011

- Minnesota — B5 Mandate effective May 2009
- Illinois — Tax abatement on B11 biodiesel blends 6.25%
- Iowa — $0.03/gallon tax income tax credit on gallons including B2
- Oregon — B5 Mandate effective April 1st 2011
- Washington — B2 Mandate effective December 2008
- Pennsylvania — B2 mandate effective January 2010 for transportation fuel
- South Carolina — $0.25/gallon retailer incentive on B100
- Texas — $0.20/gallon tax abatement on B100
- New Mexico — B5 mandate for state fleets effective July 2010, all diesel July 2012
- Hawaii — Excise tax abatement of 25% on B100 gallons

Source: REG analysis

Biodiesel State Incentives 2011

- Louisiana — B2 Mandate once 15 mgy of production capacity
- Connecticut — B2 Heating Oil mandate
- New York — B2 Heating Oil mandate
- Ohio — Tax credit to retailers: $ 0.15 in year 1 and $ 0.13 in year
- Rhode Island — Biodiesel is exempt from excise taxes
- South Dakota — Reduced road tax rate for biodiesel blends
- Kentucky — Income tax credit of $ 1.00/gall of biodiesel blends
- North Carolina — Biodiesel is exempt form state sales and use tax
- North Dakota — Fuel suppliers entitled to a $0.05/gal credit for every gallon of B5 sold
- Missouri — $0.30/gallon production incentives for first 15m gallons, $0.10/gallon next 15m

Source: REG analysis

Summary

- Available supply to meet demand
- Made in America with American feedstock by Americans
- Proven fuel (performance, emissions benefits)
- Industry quality continues to improve
- Easily integrated into distillate supply stream

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