

A wide-angle photograph of a vast field of yellow canola flowers in full bloom. The field stretches to the horizon under a clear, bright blue sky. In the distance, a few green trees are visible on the horizon line. The overall scene is bright and open.

Opportunities and Barriers for Carinata

Dan Geller, Ph.D
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University of Georgia

Renewable Energy Options

Solar

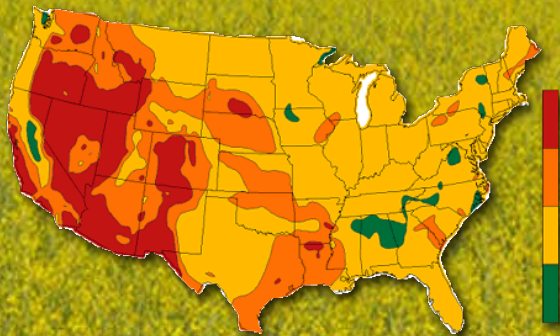
ANNUAL



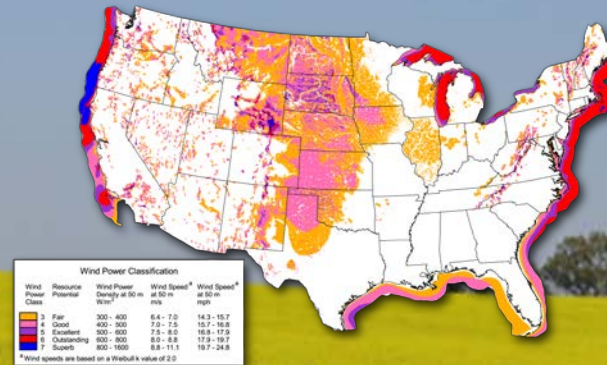
North-South Axis Tracking Flat Plate



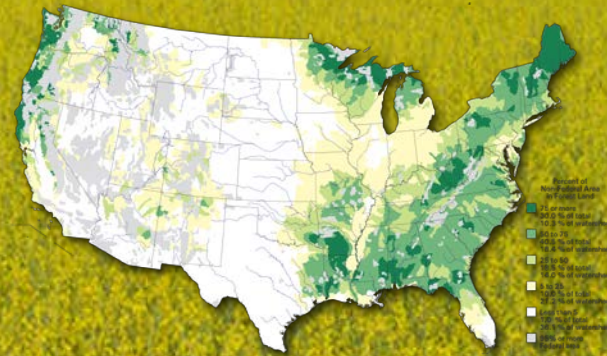
Geothermal



Wind



Biomass



Biofuel Technologies

- Current Generation
 - Biodiesel
 - Ethanol
 - Biomass Combustion

Biofuel Technologies

Next Generation(s)

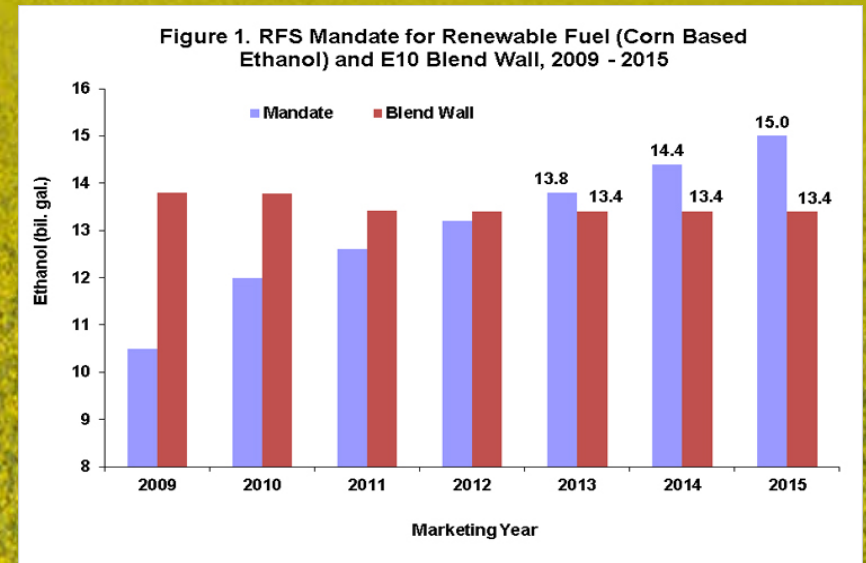
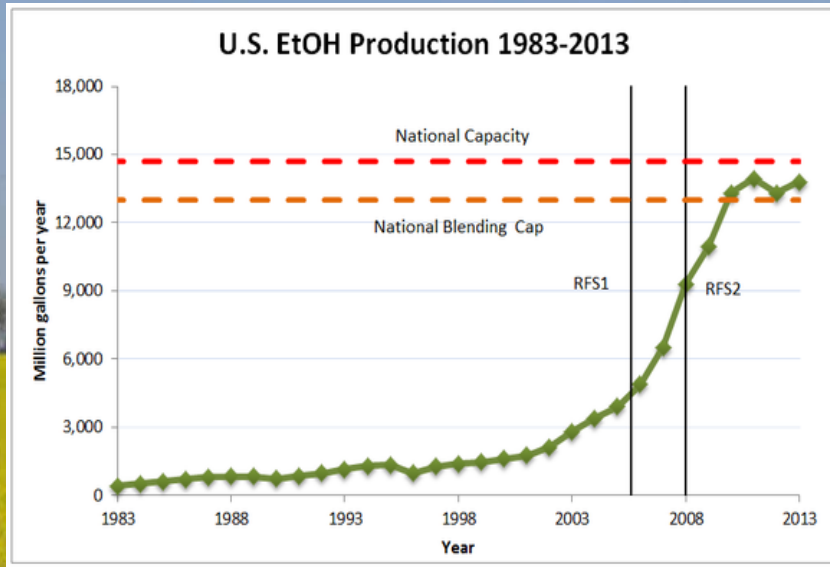
- Cellulosic Ethanol
- Gasification
- GTL
- Pyrolysis
- Bio-oil
- Algae

Biofuel Technologies

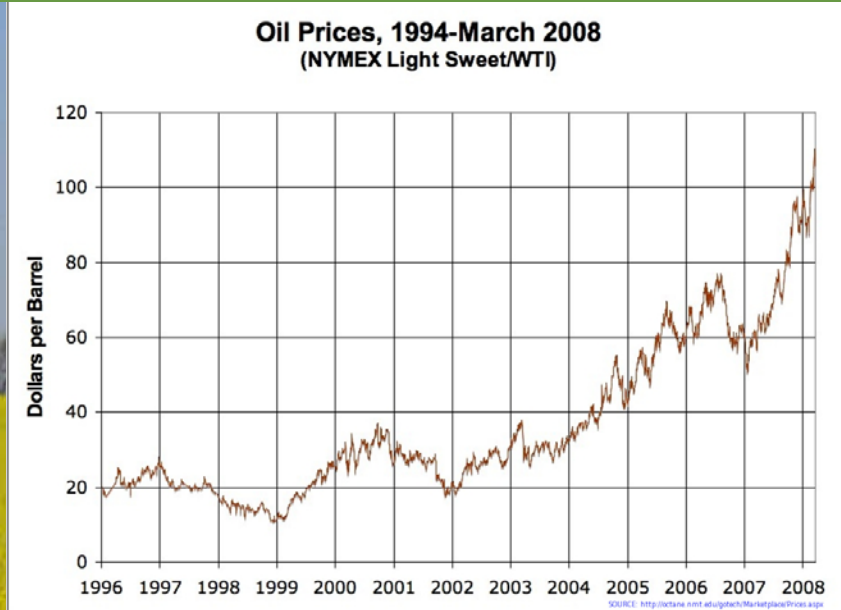
Drop-in Replacements

- Bio-Crude
- BioJet
- Green Diesel
- Green Gasoline

Limits on Markets – The Blend Wall



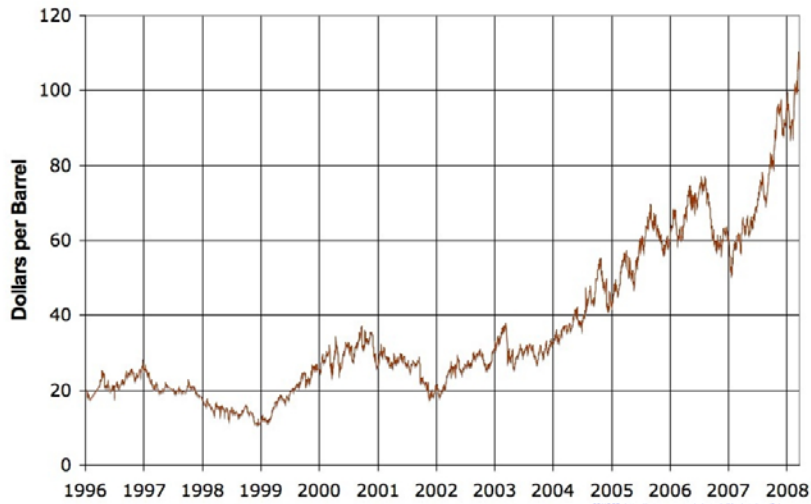
Commodity Markets and Futures



Petroleum Price 2X

Commodity Markets and Futures

Oil Prices, 1994-March 2008
(NYMEX Light Sweet/WTI)



Petroleum Price 2X

Soybean Oil Price 3X



Biodiesel Barriers and Incentives

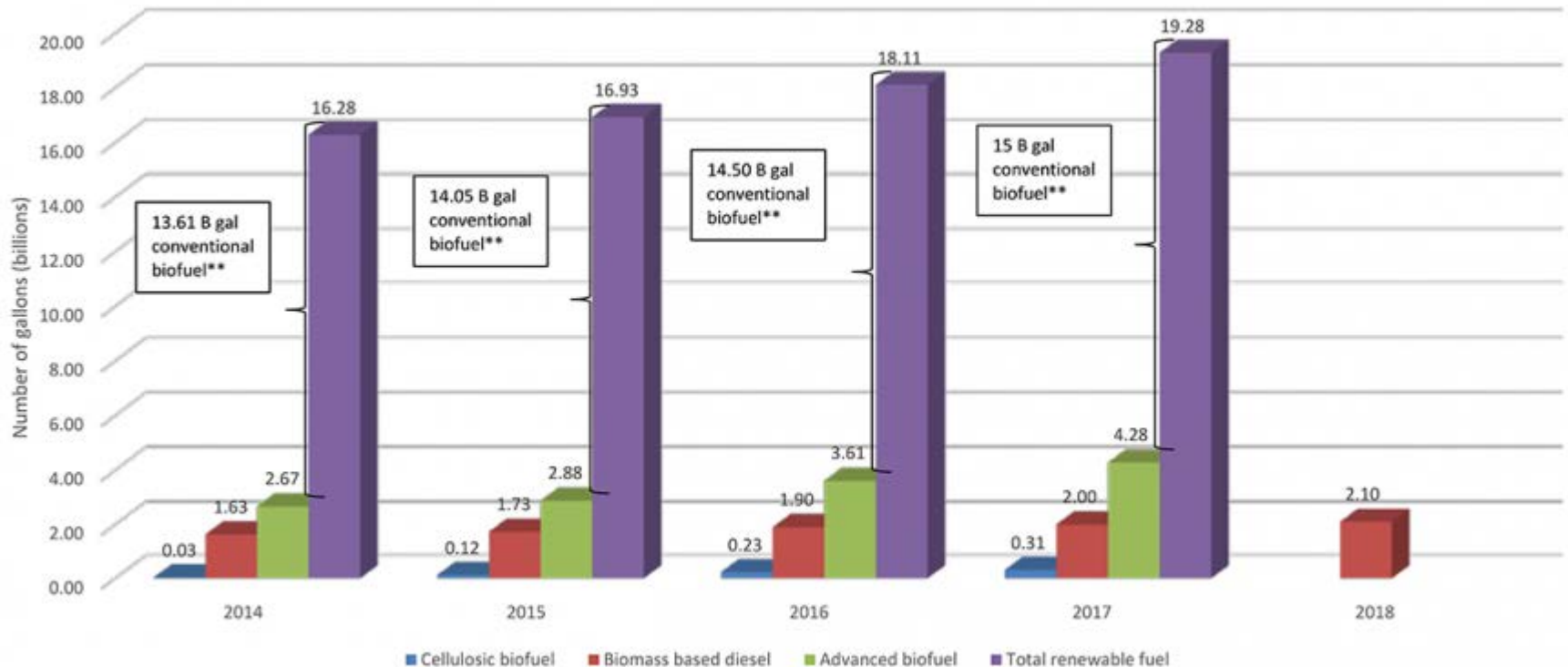
- Intermittent tax credits
 - US Federal tax credit of \$1.00/gal to BLENDER
- Renewable Fuel Standard 2 (RFS 2) Mandate
 - Escalating biodiesel mandate
 - Incorporation of biodiesel into advanced biofuels standard
 - Current Mandate 2.18 billion gallons per year
 - Enforced through RINs

Renewable Identification Numbers (RINs)

- 1 gallon biodiesel = 1.5RIN
- Can be separated from fuel after it is blended with petroleum
- Obligated Parties are required to “use” certain amount of renewable energy
- Values for RINs have ranged from a few cents to over \$2.00/gallon

Renewable Fuel Standard

Final Renewable Fuel Volume Standards



*2018 Biomass Based Diesel Standard is Final

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Economic Forces - Market Changes

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- Jan 1, 2017: \$1 federal tax credit expires

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- 2017 New Bill proposes \$1 retroactive tax credit to PRODUCER

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- 2018 Feb Budget Extension provides \$1 retroactive tax credit to BLENDER

Viability Systems without Subsidies

Municipal Production

- Municipal oil collection combined with on-site production of biodiesel from used oil
- Reduces incidence of sanitary sewer overflows (SSO)
- Model Example: Hoover, AL
- Recent: Canton, GA



Viable Systems without Subsidies

On-site Food Processing Facility Production

- Food processing operations can collect oil before it has been degraded or sold to renderer
- On-site collection, conversion, utilization
- Can access RINs and credits through creative accounting



SPARC Extension Objectives



- Establish Carinata Community of Practice with early adopters



SPARC Extension Objectives



- Establish Carinata Community of Practice with early adopters
- Develop Extension Tools

SPARC Extension Tools



Extension fact sheets

Webinars

eLearning Modules

Nutrient Guides

Extension Publications

Apps

Grower's Guide

Field Days

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- Carinata Field Days

SPARC Carinata Field Days



Jay, FL Tuesday February 27th

Quincy, FL Thursday March 29th

Milstead, AL Thursday, April 5th

Tifton, GA Tuesday, April 17th

Quincy, FL Saturday, June 9 - FAMU Extension Center

WWW.SPARC-CAP.ORG

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- Establish Carinata Community of Practice with early adopters
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- Carinata Field Days
- Stakeholder Needs Assessments

Contact



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