



# Creating A Biodiesel Industry In Connecticut

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# Policy Context



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Governor Rell's *Connecticut's Energy Vision: 20% by 2020*

20% of all energy used and sold in the state will come from clean or renewable resources

The state will achieve a 20% reduction in electric-peak consumption

Fossil fuel consumption will be reduced by 20%

Commercial transportation fuels sold in the state will be required to include a mixture of 20% alternative fuels

All residential and commercial heating oil used in this state will contain a mandatory mix of 20% alternative fuels

# Fuel Diversification:

No single silver bullet solution to meet energy needs.



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Biofuel



Oil



N/G



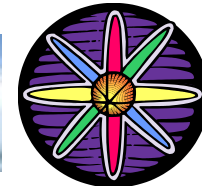
Fuel  
Cell



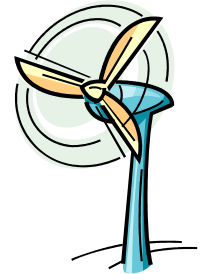
Solar



Wave  
&  
Tidal



Nuclear



Wind

Biodiesel is one promising renewable fuel source that has immediate market applications.

# Focus Efforts on Creating a Connecticut Biodiesel Production Industry



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## Biodiesel Potential:

- Positive Energy Ratio Balance
- Reduction in Particulate Matter, Carbon Monoxide, Sulfur Dioxide & Hydrocarbons
- Accommodated by Existing Technologies
  - Home Heating
  - Transportation
  - Industrial

# Potential Market

- Residential Heating Oil
  - ✓ 2005 Connecticut sales of 626.5 million gallons
  - ✓ Sales value of \$1.3 billion
- Transportation – Diesel Engine
  - ✓ 2005 Connecticut distillate sales of 317.5 million gallons
  - ✓ Sales value of \$792.1 million
- Industrial Commercial
  - ✓ 2005 Connecticut distillate sales of 165.4 million gallons
  - ✓ Sales value of \$317.4 million
- B20 Blended Bio-Petroleum
  - ✓ Potential market of 221.8 million gallons of B100 annually
  - ✓ Potential retail market value of \$97,812,000 annually (\$4.29/gal)
  - ✓ Potential for transportation sector growth

# Industry Outline



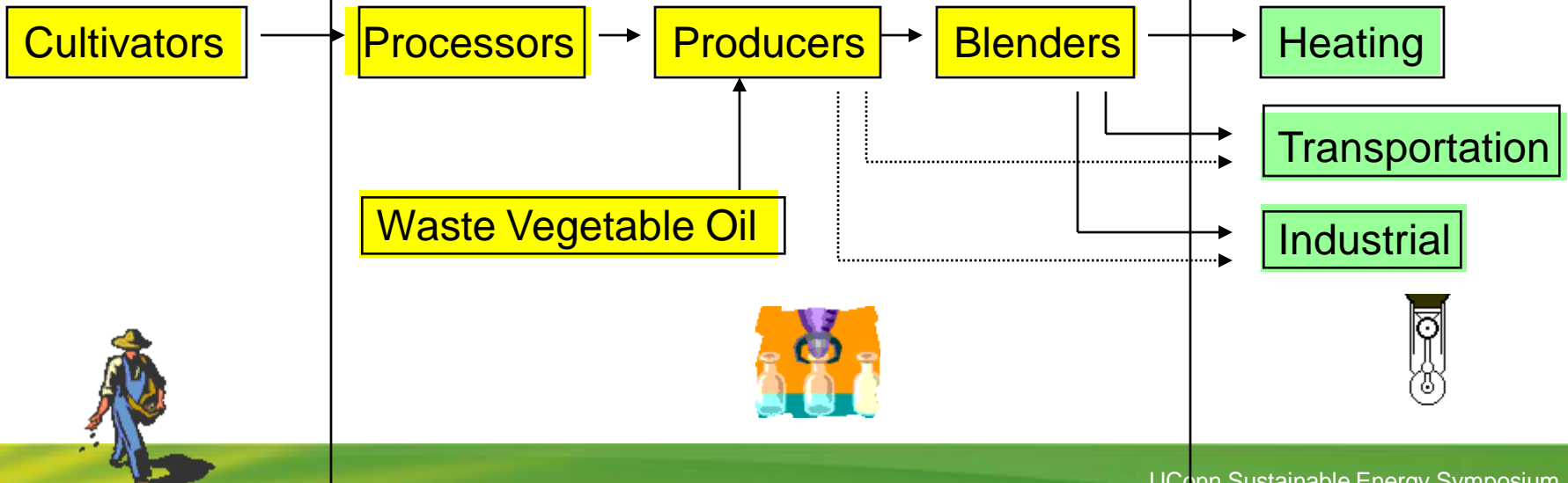
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**Supply** → **Demand**

Agricultural

Processing

Consumption



UConn Sustainable Energy Symposium

April 1, 2008

- Local cultivation of feedstock
  - ✓ Potential for cultivating % of biofeedstock
  - ✓ Commitment to farmland preservation
  - ✓ Continued research on high yield cultivars
- Waste Vegetable Oil (WVO)
  - ✓ U.S. produces 1.4 billion gallons of used cooking oil annually
  - ✓ Waste stream that will enhance local production
- Biodiesel Production
  - ✓ Regulatory issues - permitting, siting
  - ✓ Reliable supply and demand sources
  - ✓ Potential Locations – Re-utilize agricultural, industrial & brownfield sites
  - ✓ Academic/research projects

# Supply (Cont')



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## Supply Side State Policy

Incentives implemented during 2007 Legislative session to stimulate location of biodiesel production facilities in Connecticut included:

- Biodiesel Producers Grant
- Biodiesel Distributors Grant
- Research & Quality Control Grant
- Feedstock Incentives Grant
- DRS Ruling 2005-5 Gross Earnings Exemption for Bioheat

Other incentives being discussed during the 2008 Legislative Session

- Clarification that gross earnings on the first sale of biodiesel utilized for heating purposes is exempt from the gross earnings tax (SB 372).
- Additional funding for existing grant programs

# Demand



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- Guaranteed Sales

- ✓ State government most readily available demand market
  - State facilities heating needs
  - State vehicle fleets
  - Mass transit rolling stock
- ✓ Municipal Government

- Motivated Consumer Base

- ✓ Public Education
- ✓ Demonstration projects
- ✓ Corporate sector

# Demand (cont')



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## Demand Side State Policy

Mix of incentives and administrative actions to stimulate demand for biodiesel In Connecticut. May include:

- ✓ Income tax credit for use of biodiesel blended heating fuel (SB 372)
- ✓ State government contracts for heating fuels to require biodiesel blend
- ✓ State government vehicle fleet to include diesel, diesel/electric hybrids and utilization of biodiesel blend as fuel source

# Coordination



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**Supply** —————→ **Demand**

Agricultural

Processing

Consumption

**OPM Coordination**

Environmental Considerations/Permitting - DEP

Incentives/Promotion

Incentives/Promotion

Incentives/Promotion

**Loans**  
DECD

**Grants – DOAG**

**Research**  
UCONN  
DOAG  
AGR. EXP. STATION

**Grants, Loans, Business Development, Retention, Analysis and Promotion**  
DECD

**Research**  
UCONN/AES

**Tax Incentives**  
DRS

**Guaranteed Market**  
State Facilities – DAS  
Mass Transit – DOT  
Fleet Vehicles – DAS, DOT  
Corporate Contracts  
Industrial Contracts

**Education**

# State Agency Roles & Responsibilities



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## Office of Policy & Management

- ✓ Policy Development & Planning
  - Annual Strategic Plan for Energy Management in State Facilities
  - Coordinate state agency policy, planning & implementation efforts
  - Address potential barriers to entry
  - Legislative agenda
  - Facilitate Biofuels Working Group
  - Coordinate communication between state, research, academic and business communities
  - Develop and coordinate public education campaign

# State Agency Roles & Responsibilities



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## Department of Economic & Community Development

- ✓ Cost benefit analysis – economic/fiscal effects of tax policies and incentive programs
- ✓ Economic analysis to optimize biodiesel production & distribution
- ✓ Estimate job creation potential
- ✓ Coordinate industry connection with academic & research resources
- ✓ Industry development and retention
  - Review existing grant/loan/tax credit programs for applicability to biodiesel industry development
  - Utilize existing or new grant/loan/tax credit programs to incentivize industry development

# State Agency Roles & Responsibilities



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## Department of Environmental Protection

- ✓ Address environmental concerns associated with the production process
  - proper handling & disposal of chemicals, waste and emissions
- ✓ Clarify state siting and permitting process
- ✓ Coordinate with Municipalities to clarify local permitting requirements

## Department of Agriculture

- ✓ Development & implementation of farming grants for cultivation of biofeedstock
- ✓ Farmland preservation through the Purchase of Development Rights (PDR) program or other preservation incentives program

# State Agency Roles & Responsibilities



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## Department of Revenue Services

- ✓ Analysis and implementation of tax incentive programs

## Department of Administrative Services

- ✓ Contracting for biodiesel blended heating fuel for state facilities
- ✓ Purchase of diesel/diesel hybrid fleet vehicles

## Department of Transportation

- ✓ Contracting for biodiesel blended fuel for mass-transit rolling stock
- ✓ Purchase of diesel/diesel hybrid fleet vehicles

## Agricultural Experiment Station

- ✓ Research and development of fast growing high yielding cultivars
- ✓ Research and implement quality control measures





## University of Connecticut

- ✓ Agricultural, biological and chemical research and development
- ✓ Engineering and technology application research and development
- ✓ Demonstration projects (biodiesel production)
- ✓ Research and implement quality control measures
- ✓ Education and Training

# Keys to Unlocking Connecticut's Biodiesel Economy



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-  Mix of Supply & Demand Side Incentives
-  Comprehensive Coordinated Approach to Industry Development
-  Robust Industry Connection to Connecticut's Agricultural, Engineering and Technology Resources
-  Robust Consumer Education Program