



**Public Act 06-53 (Section 6)**  
**Ethanol Report**

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# Ethanol Report to General Assembly

- An Act Concerning Protection of Public Water Supply Resources: Public Act 06-53 Section 6.
- Due on December 31, 2006.
- DEP to study effect on Connecticut's air quality of using ethanol in gasoline.
  - Effect on emissions and attainment of NAAQS
- DPH to study health implications.

# Ethanol Study Report Requirements

- Analysis of NESCAUM/NEIWPC reports.
- Analysis of whether to continue use.
- Effect on air quality.
- Update on other states' actions.
- Recommendations for alternative or supplemental emission reduction opportunities.
- Must be completed within available resources, no funding appropriated.

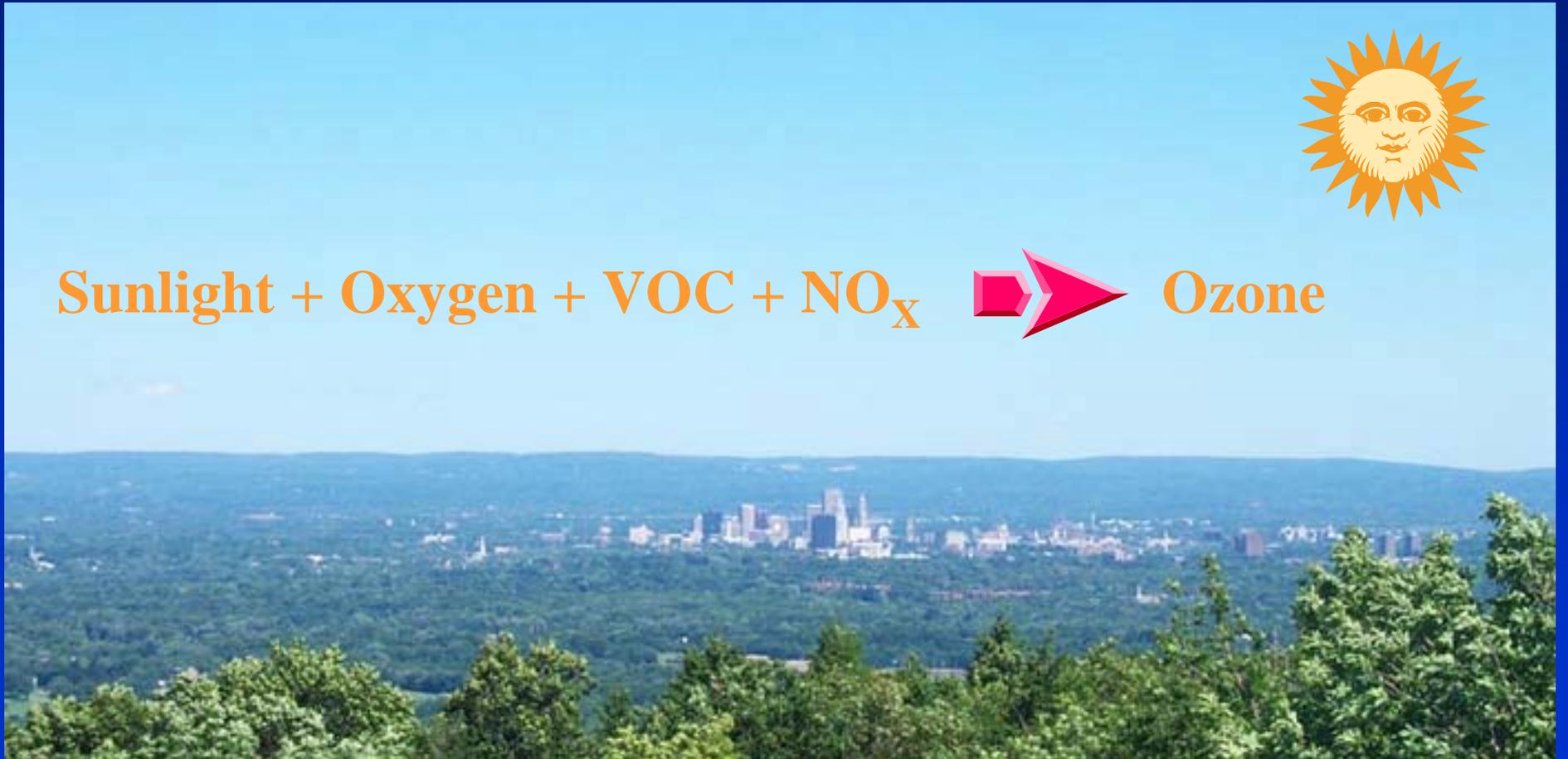
# Why We Have Ethanol in Connecticut

- Originally MTBE used as octane enhancer.
- 1992: Served as a CO control measure.
- 1995: Suppliers added MTBE to meet the 2% RFG oxygenate requirement.
- Concerns with groundwater contamination.
- January 1, 2004 statutory ban prohibiting sale of MTBE as a gasoline additive: Public Act 03-122.
- Ethanol was only viable option to meet oxygenate requirement.

# Simplified Photochemistry of Ozone Formation



Sunlight + Oxygen + VOC + NO<sub>x</sub>  Ozone



# Ethanol in Connecticut Gasoline

- 5.7% ethanol by volume complies with 2.0% oxygen
- Refiners choose to blend ethanol at 10% by volume (3.5% oxygen by weight).
  - Federal Tax Incentives of \$0.51/gallon of ethanol
- RFG used in CT and NY, is currently blended with 10% ethanol.
- CT consumption of gasoline 1.65 billion gallons for 2005

# NESCAUM and NEIWPC 2001 Report

- Continue to monitor ambient air for ozone precursors.
- Evaluate monitoring data to assess any changes in air quality attributable to this use of ethanol.
- Recommendation to phase out use of MTBE.
- Recommendation to waive the RFG oxygenate requirement.

# Energy Policy Act of 2005

- Signed into law August 8, 2005.
- Eliminated RFG 2.0% oxygen by weight requirement.
  - Effective May 6, 2006
- Eliminated oxygenate requirement waiver process.
- Introduction of Renewable Fuels Standard (RFS).
  - Designed to reduce dependence on foreign oil
  - Limits ability of states to adopt or initiate boutique fuels

# Renewable Fuels Standard (RFS)

- 2.78% of fuel sold in 2006 must be from renewable sources (4.0 billion gallons).
- EPA's proposal to increase to 3.71% for 2007 (4.7 billion gallons).
  - November 11: comment period closed
  - Final rule expected in February
- By 2012, RFS increases to 7.5 billion gallons.

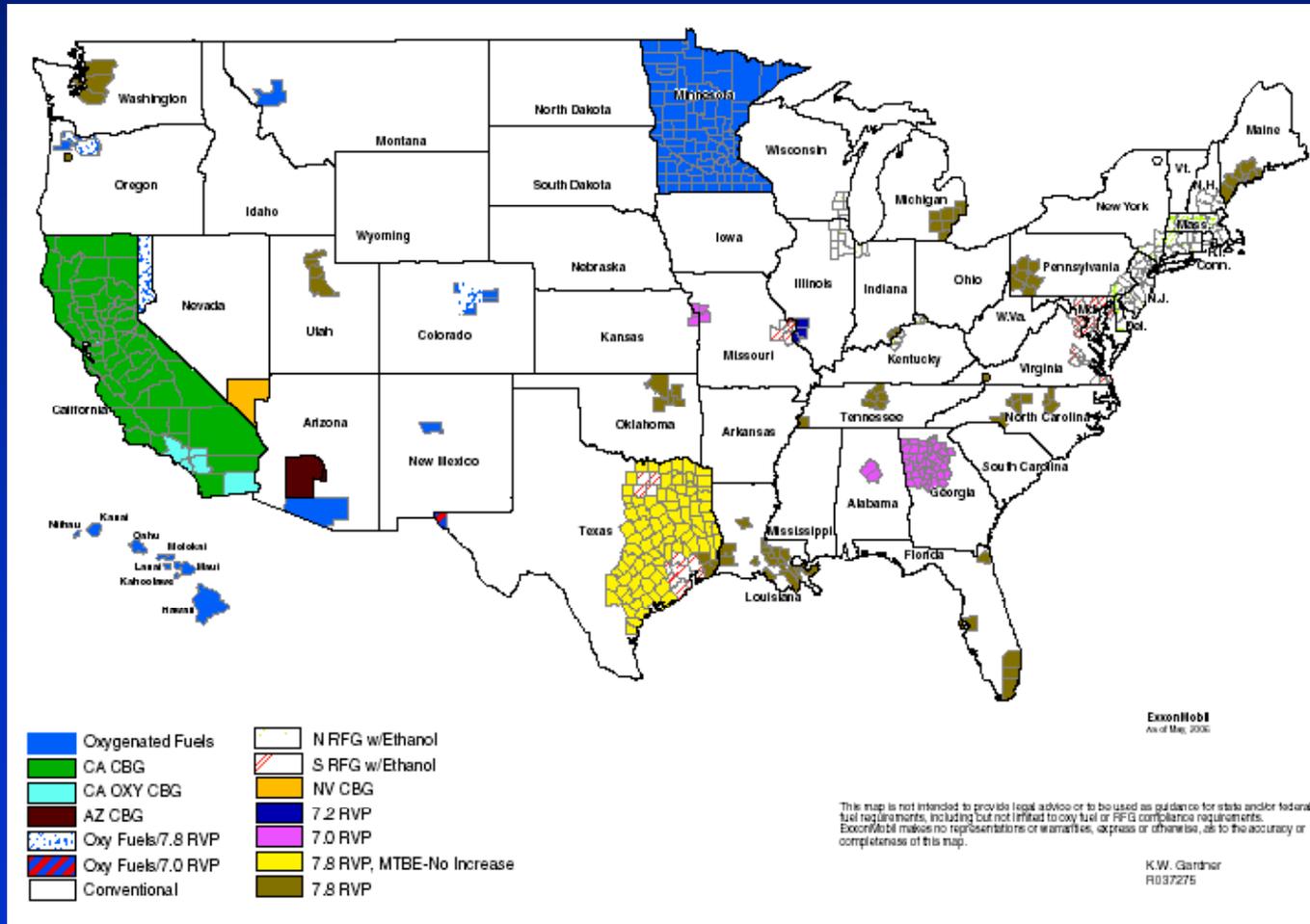
# Boutique Fuel Issue

- Banning ethanol use in RFG would create a new boutique fuel.
- Future strategies need to consider the issue of creating a boutique fuel.
- Ultimately, there are hurdles under EPA Act that will be difficult to overcome.

# Ethanol Actions by Other States

- Regulatory
  - **California** regulations limit ethanol to 5.7% by volume with exemption provided for fine particulate matter control
- Non-Regulatory
  - Incentives
  - [http://www.eere.energy.gov/cleancities/ccn/progs/story.php/WHATS\\_NEW/635/0/A](http://www.eere.energy.gov/cleancities/ccn/progs/story.php/WHATS_NEW/635/0/A)

# 2006 US Gasoline Standards



**ExxonMobil,**  
May 2006

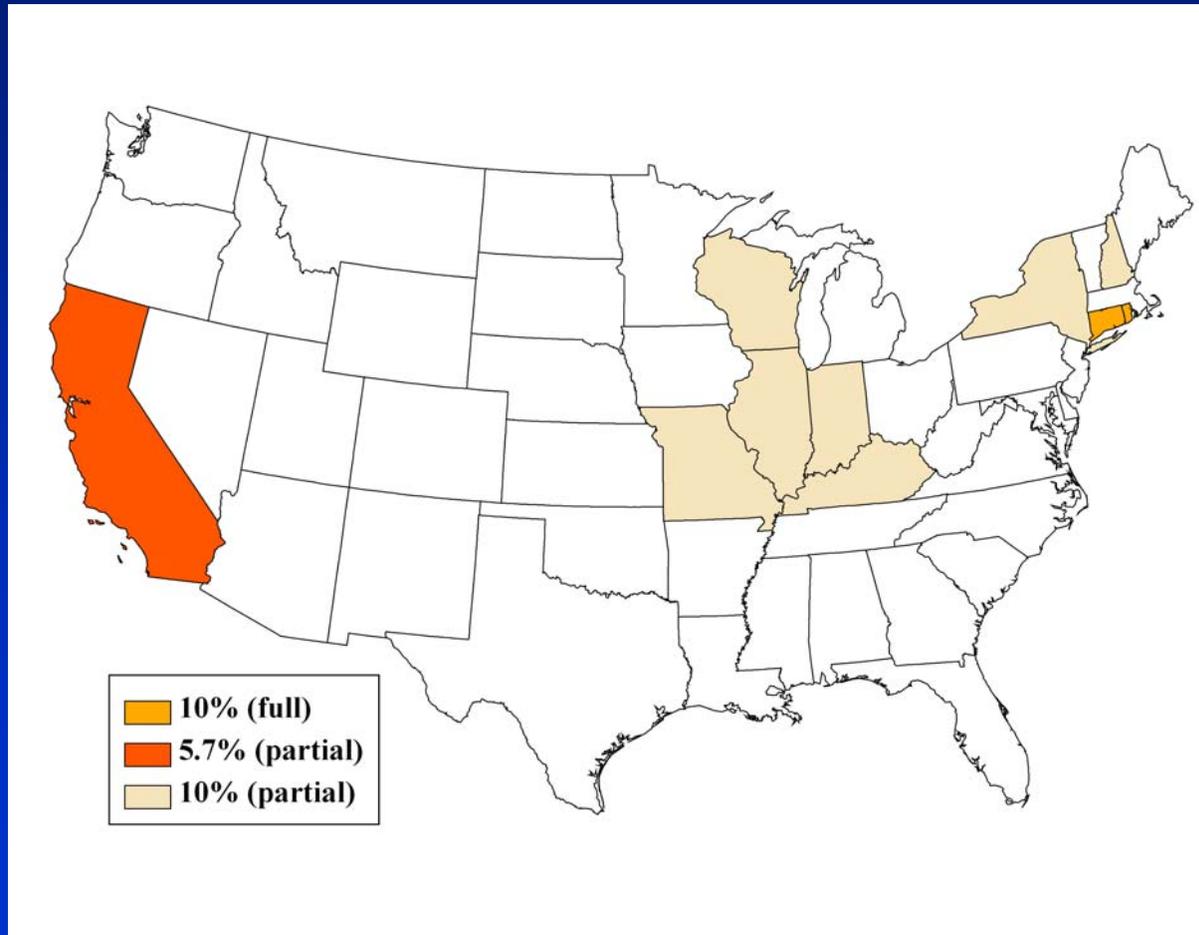
# States with MTBE Bans



**ACE STATUS 2006:  
State by State  
Ethanol Handbook**

# RFG States with MTBE Bans

## Volume Percent of EtOH Blends



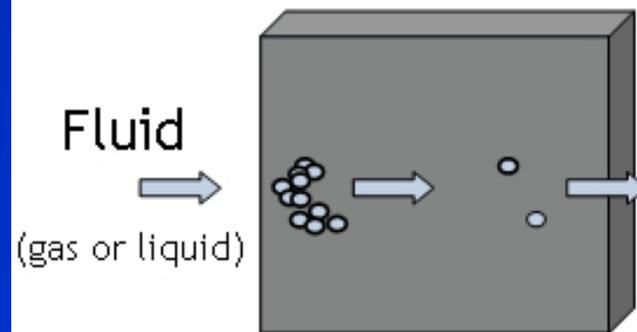
# Existing Studies for Consideration

- Efforts focused on existing studies
- Several studies by CARB and Coordinating Research Council (CRC)
- Emissions
  - Evaporation: Venting/leakage and permeation
  - Exhaust
- Permeation is diffusion of fuel through rubber and plastic components of fuel and fuel vapor systems.

# Fuel Permeation



## Permeation



# Preliminary Findings

- Quantification of specific changes not possible based upon available data.
  - Published reports based upon California fuel blends and temperature profiles
  - Fuels utilized to test air toxics are not representative of fuel parameters sold in Connecticut
  - Uncertainty in extrapolating to Connecticut.

# Preliminary Findings (cont.)

- Cal LEV II Program
  - Implementation and fleet turnover will achieve significant emission reductions and provide for evaporative controls.
  - PZEV standards will achieve zero evaporative emission
  - Reduction of exhaust emissions
- Ongoing CA research suggests
  - Permeation dependent on fuel blend, temp, vehicle design and year
  - Exhaust emission levels are sensitive to fuel parameters in newer cars (TIER I and newer) .

## Preliminary Findings (cont.)

- EPAct eliminated the need to request a waiver from the oxygenate requirement in RFG.
- EPAct includes restrictions and hurdles for states to adopt new “boutique fuels”.
- Ethanol in gasoline does not result in the emission of new air toxics.
- Results from new studies will be factored into attainment planning.

# Preliminary Findings (cont.)

- **Benefits**

- Use of ethanol is integral to reducing the state's dependence on fossil fuels.
- Greenhouse gas reductions from displacement of 165 million gallons of gasoline.

# Draft Report

Available at:

<http://www.dep.state.ct.us/air2/siprac/2006/sip06.htm#sept>



# Comments

by

**Monday, December 18**

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