



# Biofuels: The Facts on Fleet Implementation

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# Presentation Overview

- Clean Cities Program
  - How It Started, Where It Is Today
- America's Dependence on Foreign Oil
  - Foreign Oil Consumption
  - Clean Cities Efforts to Displace Foreign Oil
- Biofuels
  - Biodiesel
    - What is it
    - How to implement into your fleet
    - How does it perform
  - Ethanol
    - What is it
    - How to Implement into your fleet
    - How does it perform
- Federal and State Incentives/tax credits
- Nation's First Biofuels Corridor Indiana Project Leader



# Clean Cities Program Celebrating 15 years

- **USDOE program developed to promote AFVs at the grass roots level**
  - **90+ Coalitions across the nation**
  - **Central Indiana Clean Cities Alliance**
  - **South Shore Clean Cities**
- **Working to lessen our nation's dependence on foreign oil and improve air quality in Indiana through:**
  - **Education**
  - **Project Development**
  - **Funding Guidance**
  - **Promotion**



# Our Nation Addicted To Foreign Oil

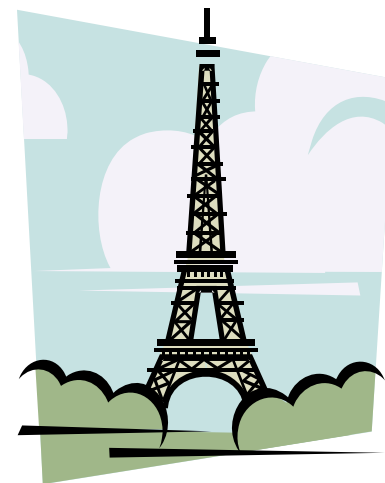
- Over 70% of our oil supply comes from a foreign source
- More than doubled since the 70's energy crisis
- Since Clean Cities began, displaced over 1.4 billion gallons
- More must be done





# Is Biodiesel New?

- The concept of using vegetable oil, as a fuel, dates back to 1895 when Dr. Rudolf Diesel built the first diesel engine to run on vegetable oil.
- Mr. Diesel demonstrated his engine at the World Exhibition in Paris in 1900 using peanut oil as fuel.





# Biodiesel Emission Reductions

|            | <b>HC</b> | <b>CO</b> | <b>PM</b> | <b>VOCs</b> | <b>NOx<br/>??</b> |
|------------|-----------|-----------|-----------|-------------|-------------------|
| <b>B2</b>  | 2.21%     | 1.30%     | 1.2%      | 1.3%        | +.2%              |
| <b>B5</b>  | 5%        | 3%        | 3%        | 3.3%        | +.3%              |
| <b>B10</b> | 10%       | 6%        | 6%        | 6.5%        | +.6%              |
| <b>B20</b> | 20%       | 12%       | 12%       | 13%         | +1.2%             |



# Who Can Fuel With Biodiesel?

- Any diesel engine can use biodiesel blends; B2 to B100
- EPA has found that B20 gets the most benefit in emission reductions; B20 is defined as an alternative fuel
- B2, B5 and B20 are available at retail level
- Manufacturers cannot automatically void your warranty for using Biodiesel blends



# Biodiesel; Quality is Key

- Biodiesel that meets the ASTM standard is key
- Biodiesel that does not meet standard WILL pose problems from storage to vehicle tank
- Biodiesel that does not meet ASTM IS NOT BIODIESEL
- Biodiesel that does not meet ASTM IS NOT ELIDGABLE FOR TAX CREDITS
- Demand a record of fuel standards test from fuel provider



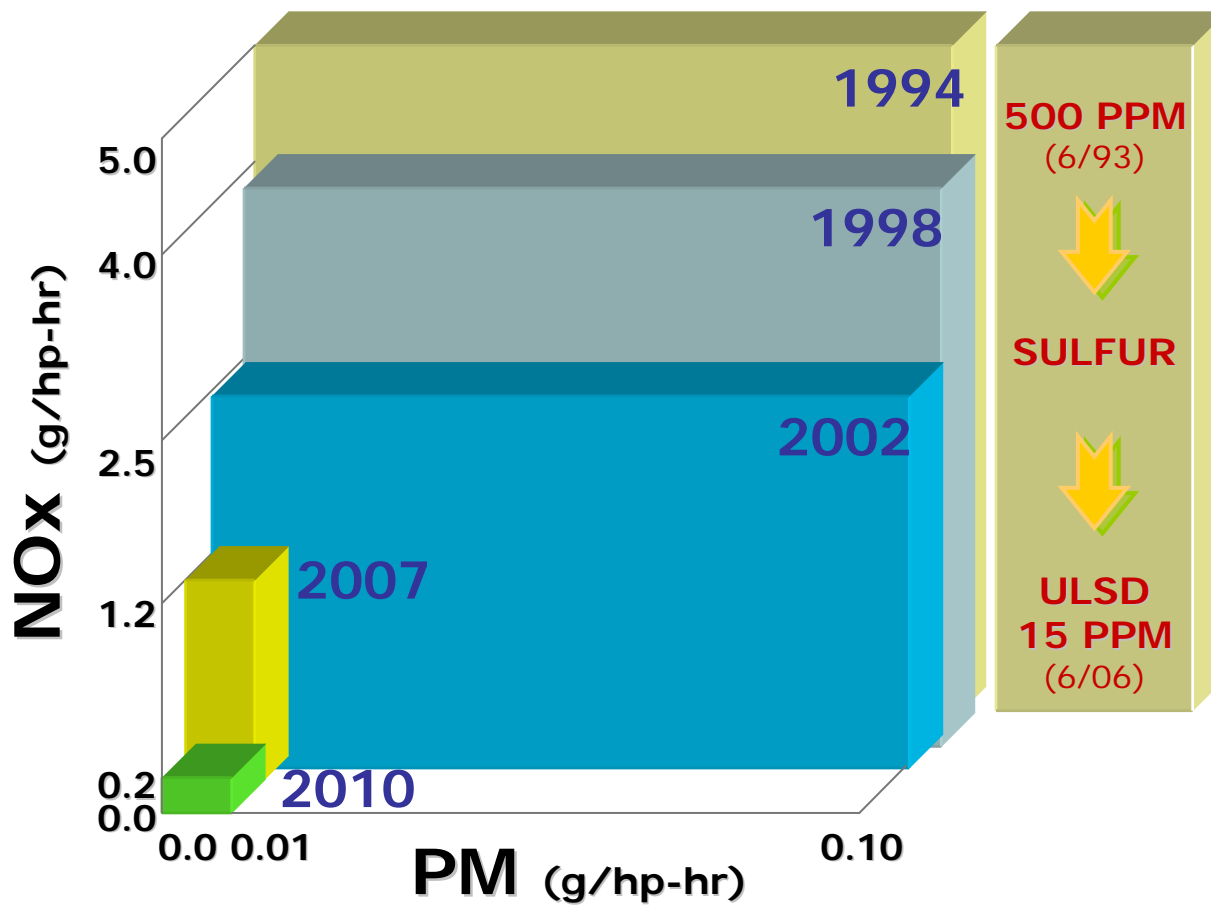
# Biodiesel Infrastructure

- Tank clean out is recommended
- No retrofits necessary to dispenser
- At the least, check for water in tank
- Depending on the type of prep and tank maintenance schedules, filters may need replaced more frequently initially



# Biodiesel Blends Management

- ULSD 15ppm sulfur
- Biodiesel blends and cold weather
- Underground tanks natural insulator
- Above ground need heated wraps or blends that can be managed





## E85 is...

- A blend of 85% ethanol and 15% gasoline
- Designed for use in flex fuel vehicles/FFVs
- American made from renewable sources
- High octane 105; Increased horsepower (=/-5%)
- Because of lower BTU content, mpg will be decreased between 10% and 30%



## E85....

- Seasonally adjusted for volatility to eliminate cold starting difficulties
  - E85 during summer
  - E70 during winter
- Ethanol is less toxic, reduces chemicals like benzene, toluene and xylene



# E85 Emission Reductions

|            | <b>CO</b> | <b>VOCs</b> | <b>Nox</b> | <b>PM</b> |
|------------|-----------|-------------|------------|-----------|
| <b>E85</b> | 40%       | 15%         | 10%        | 20%       |



# Dispensing E85

- **CLEAN STORAGE TANK**
  - STEEL OR DOUBLE WALL FIBERGLASS; new E85 compatible single wall fiberglass now available
- **TIGHT FITTING FILL CAPS**
- **DISPENSER RETROFIT; E85 COMPATABLE DISPENSER**
  - UL E5 Dispenser Certification Pending
- **TEFLON LINED DISPENSER HOSE**
- **NOZZLE AND FITTINGS**
  - STAINLESS STEEL OR NICKEL PLATED
- **ONE MICRON PRODUCT FILTER**
- Follow Checklist



## State and Federal Tax Credits and Incentives

- Energy Policy Act
  - Federal Tax credit – 30% of the installation cost up to a maximum of \$30,000 each installation
    - Each Installation
    - Public or Private
    - Any Alternative Fuel as defined by EPA
- <http://www.irs.gov/pub/irs-pdf/f8911.pdf>
- FFV Road Tax Credit
  - Must use 75% E85
  - Can Take up to \$2,000 life of vehicle
- Indiana Department of Agriculture Grant
  - Grant for E85 Installations
  - Up to \$20,000 per location
    - Municipalities, Towns, Cities, Counties



# CICCA = Fuel Neutrality

- CICCA supports the deployment of all alternative fuels
- Help fleets determine the alternative fuel and or technology that best meets your fleets operational needs
  - Compressed Natural Gas
  - Propane
  - Hybrids
  - Electric
  - After Treatment Technologies
  - Idle Reduction



# CICCA Members Receive Grant Writing Assistance

- **CICCA has secured more than \$3 Million in funding for Stakeholder Projects**
- **One stop shop for all your AFV questions**
- **AFV training opportunities**
- **Access to peer network with alt fuel experience**
- **Show your commitment to our communities our environment our nation**



[www.cicca.org](http://www.cicca.org)



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# E85/B20 for I65 and Beyond: Replicating Biofuels Successes from the Great Lakes to the Gulf of Mexico







# Project Overview

- Drive the I65 corridor and be no more than a quarter of a tank from nearest E85 station
- 886 miles of I65 from Lake Michigan to the Gulf of Mexico
- 31 public refueling stations:
  - 19 in Indiana
  - 3 in Kentucky
  - 3 in Tennessee
  - 6 in Alabama
- + Biodiesel blending facility



# Next Steps

- All infrastructure complete by Fall '08
- Marketing campaign
  - Corridor Media Event October, 2008
  - General Motors partnership
- Data collection until end of 2010