



# Alternative Fuels Policy

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# **This Presentation**

- ~ Who we are**
- ~Current Policies- a select review of what's worked**
- ~ Neighboring State Policies**
- ~ Policy Recommendations for North Carolina**



# Who are we? NC Solar Center

- Part of the College of Engineering at NC State University,
- Created in 1988 & serves as focal point for information, training, technical assistance deployment, demonstration and applied research
- Example programs: solar, wind, biomass, sustainable building, combined heat and power, and ***clean transportation***





# NC Solar Center/NCSU Clean Transportation Program

Clean Fuel Advanced Technology 2006-09 **Three year project \$2M funded by NCDOT, DAQ, SEO focused on reducing transportation related emissions in 24 NC counties that do not meet national air quality standards:**

- **\$1.4 M Funding for transportation related emission reduction projects**
  - ~ annual call for projects resulted in 31 project awards including E85 & biodiesel infrastructure projects, hybrid-electric buses & utility trucks, natural gas fueling & vehicles, diesel retrofits, neighborhood electric vehicles and truck stop electrification
  - ~ funding has gone to public and private sector including: local governments, national park, fuel distributors, service station owners and technology providers

**\$1 M for CFAT 2010-2012 education, outreach & emission reduction sub awards. Current call for project closes March 15. Guidelines and application under Funding at [www.cleantransportation.org](http://www.cleantransportation.org)**



# Education, Outreach, Recognition & Partnerships

- **Workshops, Fact sheets & Technology Options Information**
  - Hosting 4<sup>th</sup> annual Mobilizing NC conference May 26, in Raleigh [www.NCMobileCARE.org](http://www.NCMobileCARE.org)
  - Organizing 48 alternative fuel workshops across the US with US DOE funding
  - Info and educational materials posted at [www.cleantransportation.org](http://www.cleantransportation.org)
- **Mobile Clean Air Renewable Energy ( CARE)**
  - an statewide initiative to recognize exemplary efforts to accelerate use of alt fuels & advanced transportation technologies.
  - annual awards for Individual, Fleet, Technology Provider & Policy Categories
- **Technical Assistance Program (TAP)**
  - Presentations & individual consultations about transportation technology options
- **Partner with NC Clean Cities Coalitions for education and outreach**
  - Serve as the longstanding Policy Chair for Triangle Clean Cities
- **Partner with the State Energy Office on state policy implementation**





# NC policies that are making a difference

- 2007 creation of the NC Biofuels Center
  - Plan development provides a focus for research, demonstration and deployment through 9 Strategies including developing appropriate and targeted incentives
- 2004-05 State Fleet Petroleum Displacement Plan Requirement
- 2004-05 EPA Act Credit Banking and Selling Program



# State Petroleum Displacement Plan

## Session Law 2005-276

- All State agencies, universities, and community colleges that have State-owned vehicle fleets shall develop and **implement plans to achieve a twenty percent (20%) reduction or displacement of the current petroleum products consumed by July, 2011.**
  - A State-owned vehicle fleet consists of more than 10 motor vehicles, designed for highway **EXCLUDES SCHOOL BUSES**
  - Specialty vehicles, that are used for educational or emergency purposes are subject to ten percent (10%) reductions.
  - Agencies report annually by September 1<sup>st</sup> to the State Energy Office on efforts undertaken to achieve the reductions with annual reporting by Nov 1 to the Joint Legislative Commission on Governmental Operations.



## State Vehicles in the '08-'09 PDP count

- Current total = 28,995

- Fleet increases since FY 04-05
  - FFVs: 2,204
  - Diesels: 641
  - Elec: 148
  - Hybrid: 59

Vehicle Types	FY 2004-05 Baseline yr	FY 2008-09	
	#	#	% change
Gasoline	10,816	10,229	-6%
Hybrid	78	137	75%
Flex-fueled Vehicles	4,752	6,956	46%
Comp Natural Gas	14	9	-36%
Diesel	4,498	5,139	14%
Propane	192	145	-24%
Emergency/Ed (10%)	6,007	6,219	2%
Electric	13	161	1238%
<b>Total</b>	<b>26,370</b>	<b>28995</b>	<b>6%</b>



### Success!!

- Total petroleum use in FY 2007-08 was 21.4M gallons of petroleum compared to (adjusted baseline) 26.1M gallons displacing 4.76 M gallons of petroleum. Goal was -17.5%, achieved -18.2% displacement.
- ✓ Fleet size is up 6% yet mileage is down by 2.7%
- ✓ 3.5 % was displaced through E10 use
- ✓ 4.3 % was displaced through biodiesel use
- ✓ 7.7% *may* have been through conservation and efficiency (reduced idling, observing speed limits, properly maintained tire pressure, use of more efficient vehicles)



# EPAct Credit Banking & Selling Program

- Federal Energy Policy Act (EPAct) State and Alternative Fuel Provider Rule requires that 75% of North Carolina State Government new LDV acquisitions must be AFVs.
- In 2005 NC Legislation passed allowing state to sell excess EPAct credit earned through DOT use of B20 and MFM use of E85
- 2007 Rule making process established an Alternative Fuel Revolving Fund for accruing and distributing funds
- On behalf of the State Energy Office the NCSC organizes meetings of the NC Alternative Fuel Consortium ( primarily state agencies & Clean Cities reps) & Credit Selling Work Group ( agencies that generate credit) to discuss and prioritize distribution of funds;
- Fund distribution is prioritized based on maximizing benefits to the State for the purchase of alternative fuel, related refueling infrastructure and AFV purchases;



# EPAct Credit Banking & Selling Program

- Tradable credits are accrued through the use of E85 in FFVs, NCDOT biodiesel credits help support EPAct requirements allowing for MFM to generate tradeable credits
- Credits were traded through a credit broker as well as direct sales
- To date over 700 credits have been traded and over \$700,000 has accrued to the Alternative Fuel Revolving Fund



# North Carolina Alternative Fuel Incentives

- Biofuels Industry Development
  - From NC Green Business fund for small businesses
- Biofuel Production Facility Tax Credit
  - 25% of the cost of constructing and equipping the facility
- Renewable Energy Property Tax Credit
  - 35% of the cost of the property
- Biofuel Fueling Infrastructure Tax Credit
  - 15% of the cost of construction and installation of the dispensing facility
- MSERG & Idle Reduction Grants
  - From DENR Division of Air Quality
  - Mobile Source Emission Reduction Grant annual solicitation from 1995-2008

### **NORTH CAROLINA-41 stations**

- 27 biodiesel stations
  - 14 ethanol stations
- Production facilities:**  
\* 6 biodiesel, 1 ethanol under construction

\* Data from the Alternative Fuels and Advanced Vehicle Data Centers, the Renewable Fuels Association, the National Biodiesel Board & NC Solar Center



## South Carolina Alternative Fuel Incentives

- **Biofuels Retail Incentive**
  - E70+ fuel: \$0.05 incentive payment per gallon sold; B100: \$0.25 incentive payment for each gallon sold (resulting in at least a B2 blend)
- **Alternative Fuel and Advanced Vehicle Tax Credit**
  - 20% income tax credit
- **Biofuels Production Tax Credit**
  - \$0.20-\$0.30 per gallon credit depending on feedstock
- **Biofuels Research and Development Tax Credit**
  - 25% of qualified research and development expenditures
- **Biofuels Distribution Infrastructure Tax Credit**
  - 25% of the purchase, construction and installation costs
- **Biofuels Production Facility Tax Credit**
  - 25% of the cost of constructing or renovating a building and equipping the facility
- **Hydrogen Infrastructure Development Grants**

### **SOUTH CAROLINA-83 stations**

- 7 biodiesel stations
- 76 ethanol stations
- Production facilities:**
  - \* 4 biodiesel

\* Data from the Alternative Fuels and Advanced Vehicle Data Centers, the Renewable Fuels Association, and the National Biodiesel Board



# Virginia Alternative Fuel Incentives

- Biodiesel Production Tax Credit
  - Credit of \$0.01 per gallon
- **Biofuels Production Grants**
  - For producers of advanced biofuels (derived from any cellulose, hemicellulose, or lignin that is derived from renewable biomass or algae); \$0.125 for each gallon
- High Occupancy Vehicle (HOV) Lane Exemption
  - Vehicles with the Virginia Clean Special Fuels license plate are exempt from HOV restrictions
- Alternative Fuel Job Creation Tax Credit
  - Businesses involved with the manufacture of components for alternative fuel vehicles (AFVs), AFV conversions, or the production, storage, or dispensing of hydrogen as a vehicle fuel are eligible for a job creation tax credit for up to \$700 per full-time employee

### **VIRGINIA-13 stations**

- 9 biodiesel stations
- 4 ethanol stations

### **Production facilities:**

- \* 5 biodiesel, 1 ethanol under construction

\* Data from the Alternative Fuels and Advanced Vehicle Data Centers, the Renewable Fuels Association, and the National Biodiesel Board



# Tennessee Alternative Fuel Incentives

- Biofuels Fueling Infrastructure Grants
- Alternative Fuel Innovations Grants
- **Biodiesel Production Incentive**
  - \$0.20 per gallon produced and sold to TN companies
- Infrastructure Development Program
  - Funds from the FastTrack Infrastructure Development Program can be used for alternative fueling infrastructure improvements
- High Occupancy Vehicle (HOV) Lane Exemption
  - Vehicles that are Inherently Low Emission Vehicles or Low Emission and Energy-Efficient Vehicles (determined by the EPA) and have a decal from the TN Department of Revenue are exempt from HOV lane restrictions

### **TENNESSEE-60 stations**

- 35 biodiesel stations
- 25 ethanol stations

### **Production facilities:**

- \* 3 biodiesel, 2 ethanol

\* Data from the Alternative Fuels and Advanced Vehicle Data Centers, the Renewable Fuels Association, and the National Biodiesel Board



## H1079 Energy Efficient State Motor Fleet Sponsors Harrison, Martin, Tillison, Samuelson. **Status: Ratified by 2009 General Assembly**

***Summary: Requires that every RFP for new passenger motor vehicles to be purchased by the Department to state a preference for vehicles that have a fuel economy for the new vehicle's model year that is in the top 15% of its class of comparable automobiles.***

- *Awards will be based on the Department's evaluation of the best value for the State, taking into account fuel economy ratings and life cycle cost*
- *Must report number of new passenger vehicles purchased, savings or costs for purchase of vehicles to comply and the quantity and cost of fuel saved for the previous fiscal year by October 1 of each year to the Joint Legislative Commission on Governmental Operations and the Environmental Review Commission. **Excludes vehicles used in law enforcement, emergency medical response, and firefighting.***

• **Motor Fleet Management did not purchase any vehicles in 2009. Currently has over 1800 vehicles with 90,000 miles with request to purchase: 915 FFVs, 50 HEVs & 490 gasoline only**



# 2010 General Assembly –

## Short Session Recommendations for action on existing bills

- **Senate Bill 1066 Tax Credit for Alternative Fuel Facilities/Vehicles** Sponsors: Senators Albertson; Atwater, Davis, Dorsett, Goss, Jenkins, Kinnaid, Purcell, Stein, and Weinstein. Referred to Finance
- **House Bill 906 Alternative Fuel Infrastructure & Vehicle Tax Credit** Sponsors: Representatives Bryant, Harrison, Tolson (Primary Sponsors); Faison, Fisher, Glazier, Insko, Martin, McLawhorn, and Wray. Status: Favorable report from Energy and Energy Efficiency; now assigned to [Finance Committee](#).
- ***Summary: Provides a 30% tax credit for refueling infrastructure for biodiesel, ethanol (E85), propane, natural gas and electricity for motor vehicles.*** Sellers to tax exempt entities may take credit and presumably pass on benefit to purchaser.
- ***A \$2,000 tax credit is provided for vehicles that operate on natural gas, propane and electricity.*** Electric vehicles must be less than 14,000 pounds, charged from an external source and have a battery capacity no less than 4 kWh. Sellers to tax exempt entities may take credit and presumably pass on benefit to purchaser.



## H906 Fiscal impact

- Draft estimate completed at request of Rep Bryant
- With little fiscal impact this bill could provide a BIG signal to Alt fuel related business ( especially emerging EV industry) of NC's support

FISCAL IMPACT (\$ Millions)					
	Yes (X)	No ( )	No Estimate Available ( )		
	<u>FY 2009-10</u>	<u>FY 2010-11</u>	<u>FY 2011-12</u>	<u>FY 2012-13</u>	<u>FY 2013-14</u>
<b>REVENUES:</b>					
<b>General Fund</b>	(\$0)	(\$0.90)	(\$1.06)	(\$1.33)	(\$1.40)
<b>PRINCIPAL DEPARTMENT(S) &amp; PROGRAM(S) AFFECTED:</b> Department of Revenue					
<b>EFFECTIVE DATE:</b> Effective for taxes imposed for taxable years beginning January 1, 2010					



# 2010 General Assembly –

Short Session Recommendations for action on existing bills

## **H902 Up B-20 Biodiesel Purchases for**

**School Buses** Sponsors Representatives Harrison; Current and Glazier Status: Referred to energy & Energy Efficiency, if favorable then Education.

***Summary: Increased percentage of B20 from 2% to 5% of fuel used by NC School buses with reporting requirement to State Board of Education***

*(Note: In 2009 bill effectively dead, DPI did not support because of increased cost of B20)*



# Additional incentives to help NC competitiveness

### Biofuels Incentives

- Biodiesel discount allowance for biodiesel distributors equal to the tax times the percent biodiesel. Discount is claimed monthly and funds will be transferred from General Revenue so as not to impact Highway Trust Fund.
- Tax E85 at 71% of motor fuels tax to take into consideration the lower BTU content of the fuel. Ethanol has less BTU content than gasoline, requiring more fuel to go the same distance as the same vehicle operating on gasoline.

### Biofuels Producers Incentive

- Provide a producer payment of \$. *Xx per gallon* up to a specific cap for biofuels produced in North Carolina using NC feedstock

in NC and improves air quality



# Example incentives for NC ( cont)

**A Mobile Source Emission Reduction Program would establish variable motor vehicle registration fees based on vehicle's pollution and fuel economy score to generate funds for public and private sector use of alternative fuel and advanced transportation technologies.** Funds would be distributed through the State Energy Office for transportation projects that support clean air renewable energy objectives.

### **Benefits:**

- Funds raised in direct proportion to the effect on the environment - the “polluter pays principle”
- Source of revenue to support public and private projects that address transportation emissions
- Supports development of clean technology industries



# Statewide grant program

- Currently no statewide grant program to accelerate the adoption of alternative fuels and advanced transportation technologies
- Incentives are essential to get fleet managers and individuals to make a change to “business as usual”
- Grants be paid for by a carbon “surcharge”
  - . Carbon funds could also be distributed to NC citizens as a dividend an



# Executive Orders

**Establish an Governors task force/ cabinet level/interagency team to coordinate current efforts, remove barriers and accelerate clean transportation ( low carbon) technologies and practices**

- ~ **Establish an annual recognition program among state fleet drivers to increase eco-driving and alt fuels**
- ~ **Require that all state AFVs use alternative fuel**
- ~ **Update MFM rules to encourage conservation and expanded use of AFVs and hybrid electric vehicles: ie-allow agencies to purchase their own HEVs, replace older less efficient vehicles even if they have lower mileage**
- ~ **Require E10 and B20 use for agencies that operate their own fueling sites, and require agencies that do not operate their own sites to fuel at DOT sites (which all have E10 and B20).**



# Clean Transportation Options

NC State University  
North Carolina Solar Center

## Questions & Comments?

