

State Policies for Development of Biofuels Technology

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Biofuels in Virginia - Outline

- **Production**
 - Ethanol, Biodiesel, Green Diesel
 - Manufacturing, Self production/cooperatives
 - Environmental standards
 - Grants, Tax credits
 - Policy
 - Research & Development
- **Sales and Use**
 - Ethanol blends, Biodiesel, Green Diesel
 - Assistance
- **Ongoing Issues**

Biofuels in Virginia - Production

- **Sources**

- Corn, soy, barley, algae, woody material, warm season grasses, agricultural wastes, waste greases & animal fats, imported oils (palm, jatropha, other), municipal solid waste

- **Ethanol**

- Osage, Hopewell, Chase City under consideration

- **Biodiesel, Green Diesel**

- Virginia Biodiesel, West Point
- Reco, Richmond
- Chesapeake Custom Chemicals, Ridgeway
- Renroh Environmental, Vernon Hill
- Synergy Biofuels, Pennington Gap
- Red Birch, Bassett, Martinsville
- Piedmont Bioproducts, Gretna
- Greenlight Biofuels Holding, Charlottesville
- Revnova Biofuels, Fairfax Station

- Self Producers - examples

- Novabiodiesel.org
- Green Guild Biodiesel Co-op
- Prince George High School
- James Madison University
- Shenandoah Valley Biodiesel Co-op
- Individual farmers, others

Biofuels in Virginia - Production

- **Environmental Standards & Permitting**
 - Air, water, waste, hazardous materials
 - Local land use/zoning
 - Transportation – highway access, rail
 - Other
 - Virginia Biodiesel Environmental Compliance Primer
 - Dept. of Environmental Quality, Dept. of Mines, Minerals and Energy
 - <http://www.deq.virginia.gov/osba/new.html#biodiesel>

Biofuels in Virginia - Production

- **Grants, Loans, Tax Credits**

- Biofuels Production Incentive Grant Program
 - § 45.1-393, 45.1-394. \$ 0.10/gal or prorated if insufficient funds
 - Minimum production at 2 million gallons per year
- Biodiesel and Green Diesel Fuels Producer Tax Credit
 - § 58.1-439.12:02. \$ 0.01/gallon up to \$5,000 each year for three years
- Grants to support new and emerging crops
 - § 3.1-14.5 (§ 3.2-108 effective October 1, 2008). VDACS to encourage production of alternative crops and bioenergy feedstocks for energy generation and transportation
- Virginia Alternative Fuels Revolving Loan Fund
 - § 33.1-223.3. Commissioner of Transportation to assist localities convert to alternate fuel systems
- Literary Loan Funds
 - § 22.1-146. Loans or interest rate subsidies for equipping school buses or constructing fueling facilities for DNG or alternate fuel use

Biofuels in Virginia - Production

- **Grants, Loans, Tax Credits**
 - Virginia Resources Authority
 - § 62.1-198. Loans to localities for energy conversion or energy efficiency projects
 - Clean fuel vehicle and refueling property tax credit
 - § 58.1-438.1. Up to 10% of allowable federal deduction for CNG, LPG, hydrogen, and fuel with at least 85% methanol
 - Multi-fuel heating stoves
 - § 58.1-609.10. Sales and use tax exemption for residential use of multi-fuel heating stoves burning alternative fuels
 - Energy conversion generating and cogeneration equipment
 - § 58.1-3662. Locality may exempt or partially exempt from tangible personal property tax value of equipment converted from oil or natural gas to coal, wood, wood bark, wood residue, or other alternate energy source used for manufacturing or cogeneration with manufacturing

Biofuels in Virginia - Production

- **Policy**

- § 67-101. Energy objectives

- 12. Increasing Virginia's reliance on biodiesel and ethanol produced from corn, soybeans, hulless barley, and other suitable crops grown in the Commonwealth that will create jobs and income, produce clean-burning fuels that will help to improve air quality, and provide the new markets for Virginia's agricultural products needed to preserve farm employment, conserve farmland, and help pay for agricultural best management practices to protect water quality.

- § 67-102. Commonwealth Energy Policy

- 9. Support efforts to reduce the demand for imported petroleum by developing alternative technologies, including but not limited to the production of synthetic and hydrogen-based fuels, and the infrastructure required for the widespread implementation of such technologies;
 - 10. Promote the use of biodiesel and ethanol produced from agricultural crops grown in the Commonwealth;

Biofuels in Virginia - Production

- **Policy**

- § 67-501. Use of biodiesel and other alternative fuels in vehicles providing public transportation – Commonwealth Transportation Board to encourage
- § 10.1-1308.1. Expedited air permitting for small electricity generators using renewable biomass
- § 10.1-1322.4. No additional air permit modifications required for use of alternative fuels if owner demonstrates emissions will be
- § 56-232. Exempts small power producers (7.5 megawatt or less) using a renewable or non-depletable primary energy source from SCC regulation
- § 56-585.2. Biomass eligible as an energy source used to meet an investor-owned utility renewable portfolio standard, with a limit on use of no more than 1.5 million tons of certain wood sources
- § 56-585.1. Utilities are provided an enhanced return for renewable-powered generation facilities (also nuclear and carbon-capture compatible clean coal)

Biofuels in Virginia - Production

- **Policy**

- § 46.2-1089.1. Signs and markings on school buses using alternative fuels
- § 46.2-1179.1. Board to adopt clean alternative fuel fleet standards for motor vehicles; penalty (air quality based)
- § 58.1-2200. Virginia Fuels Tax Act, provisions for tax on alternative liquid fuels
- § 59.1-167.1. Labeling of motor fuels; notification to reseller
- Executive Order 48 – Maximize use of ethanol and biodiesel
- Virginia Energy Plan – Expand indigenous clean fuel production
- Note: Not included in definition of clean special fuel vehicle
 - Clean fuel vehicle job creation tax credit
 - § 58.1-439.1. \$700/full time job created for up to three years involved in manufacturing of clean special vehicles, components, conversion kits, or hydrogen fuel components
 - § 46.2-749.3. Special license plates for clean special fuel vehicles
 - § 33.1-46.2. High-occupancy vehicle lane use

Biofuels in Virginia – R&D

- **Virginia Coastal Energy Research Consortium**
 - Algae to diesel – led by Old Dominion University; Partnership with Hampton Roads Sanitation District, Algal Farms, Inc; others
 - Research at ODU, UVA, JMU, VIMS
- **Virginia Tech**
 - Ethanol from cellulose; Partnership with Biomethods
 - Biodiesel from pyrolysis of cellulose, poultry waste, other; Partnerships with Piedmont Bioproducts, poultry farmers, others
 - Woody materials & grasses – cultivation & handling
 - Ag lands, Abandoned mined lands
 - Seed development
- **James Madison University**
 - Biodiesel systems and production, training (with VT, VSU, DMME, other)
- **Virginia State University**
 - Seed development, cultivation of oil seed crops

Biofuels in Virginia – Sales and Use

- **Ethanol**

- E-10

- Reformulated gasoline required in ozone non-attainment areas (Northern Virginia, Hampton Roads, Richmond regions)
 - Allowable elsewhere
 - Revised fuel quality specifications at VDACS

- E-85

- Limited availability
 - Central state motor pool
 - Arlington
 - Other sites in development
 - Barriers
 - Market
 - UL pump listing
 - Corrosion of underground tank and pipes

Biofuels in Virginia – Sales and Use

- **Ethanol**

- E-20, other blends
 - Under testing
 - EPA approval needed
- State vehicles
 - Executive Order 48 – Maximize alternate fuel use in vehicles
 - All future gasoline purchase under VDOT contract to be E-10

Biofuels in Virginia – Sales and Use

- **Biodiesel**

- Available at growing number of stations throughout Virginia; B-5 to B-20
 - Locations on National Biodiesel Board web site
 - <http://www.biodiesel.org/buyingBioDiesel/retailfuelingsites/>
- Fleets
 - UVA, JMU, Blacksburg transit; GRTC; Commercial fleets
 - VDOT pilot in Hampton Roads

- **Green diesel**

- Different specification from biodiesel
- Highway use, boiler fuel, combustion turbine for electric generation

- **Assistance**

- Virginia Clean Cities and Hampton Roads Clean Cities Coalition
 - Grants – Vehicle conversions, VA, MD, DC E-85 Infrastructure
 - Training
 - Technical assistance
 - <http://www.hrccc.org/>

Biofuels in Virginia

- **Ongoing Issues**

- Retail availability
- Fuel quality
- Highway taxes for self-producers, small volume sales
- EPA fuel approvals for use in on-road vehicles
- Vehicle manufacturer warranties
- Fuel mix requirements – expand use of alternative fuels, diversity of supply, fuel island
- Cost differential to gasoline, petroleum diesel
- Storage life, viscosity at low temperatures
- Pollution potential – NO_x, SO_x, Particulates, Water
- Economic development potential