VIRGINIA CLEAN CITIES and the HAMPTON ROADS CLEAN CITIES COALITION

Stakeholders Update

A Bi-Monthly Newsletter

July & August 2008

Newspaper Reports Ethanol Plant Permit Approved

It looks like the way has mostly been cleared for Virginia's first ethanol plant. The Virginia Department of Environmental Quality (DEQ) will grant Osage Bio Energy LLC an air permit the company needed to begin construction of its proposed ethanol plant in Hopewell, according to a report that appeared Thursday, August 28, on the front page of the Richmond Times-Dispatch.

The newspaper reported that Osage still is seeking some city building permits, which it expects to obtain without difficulty. The plant would cost up to $160 million, produce about 68 million gallons of ethanol per year, provide 45 to 55 full-time jobs and an estimated $2.2 million in tax revenue to Hopewell, a city of about 23,000.

The company is headquartered in Glen Allen, VA, and was founded in January 2007 to pursue the development of the United States' first major barley to ethanol production facilities. Osage Bio Energy is the sister company of Osage, Inc. the largest independent distributor of motor-fuel grade ethanol in the Southeast, with current throughput of approximately 100 million gallons per year. Osage Bio Energy recently joined the Clean Cities Coalition as a sponsor and strategic partner.

John Warren, Director of Government Relations and Project Development, discussed Osage Bio Energy's approach and business model in a recent edition of Update. He said Osage is committed to operating as a sustainable, environmentally responsible company and will differentiate itself from traditional Midwestern corn-to-ethanol production companies in several key ways. The ethanol will primarily be produced from regionally grown barley and will be an Advanced Biofuel as defined by the Renewable Fuel Standard (RFS). Barley requires less fertilization and prevents nutrient runoff in winter months, and is a winter crop.

The company has an agreement with KATZEN International, Inc. for exclusive use of KATZEN technology capable of producing ethanol from barley within a 200-mile radius of a plant site. Warren said the Hopewell site selection provides significant energy balance advantages over a traditional corn-based ethanol facility. Osage is planning to use existing steam produced adjacent to the site and use its own waste products for energy, thus maximizing efficiency and environmental sustainability.

Osage estimates project completion around May 2010, according to the Times-Dispatch story. Construction is expected to being in early October.

The DEQ decided to grant the permit based on a review of public comments the agency received and an analysis of a modeling of pollutants. The agnecy determined that "the proposed ethanol facility in Hopewell would not cause or significantly contribute to a predicted violation of the applicable" National Ambient Air Quality Standards.

The plant is sited on a 55-acre plot of land in Hopewell, which was purchased in June. Hopewell is estimated to received $1 million for the 12 acres it owned.

Photo Source: Virginia Port Authority

Image Source: Red Birch Energy

Photo Source: Reco Biodiesel, LLC

Virginia Port Authority Serves as Leader in Innovation & Environmental Stewardship

The Virginia Port Authority (VPA) was awarded a $750,000 Environmental Protection Agency grant to demonstrate how a hybrid locomotives and two GenSet locomotives can help lower emissions and save fuel.

According to an EPA press release, the Genset "is an emerging hybrid technology that is substantially cleaner than a traditional switcher locomotive." The locomotive uses multiple diesel engine GenSets that are EPA Tier III Off-Road certified and is recognized by the California Air Resources Board as an Ultra Low Emissions Locomotive. Output is managed for each engine in order to reduce emissions, improve fuel consumption rates and manage "start/stop" functionality to minimize engine idling.

Because they are required to meet the EPA emission requirements set in 1997, conventional locomotives are relatively significant emitters of nitrogen oxides (contributes to smog) and particulate matter (contributes to heart and respiratory problems). A new rule, finalized by EPA in March 2008, should cut NOx and PM emissions from locomotive engines by as much as 80 to 90 percent.

The Port of Virginia has implemented other measures to reduce emissions and fuel consumption:

- Installed automatic idle shutdowns on late model year equipment with diesel engines to reduce idling to about 15 minutes per day.
- Switched to 15 ppm ULSD (July 31, 2007) ahead of the EPA required schedule (July 1, 2010)
- Purchased diesel-electric straddle carriers which dramatically lowered fuel consumption and emissions
- Initiated a voluntary diesel retrofit program with EPA SmartWay

Small is Beautiful

Red Birch Energy has implemented an example of a truly small-scale sustainable energy model. The Martinsville-based company purchases canola seed from Virginia and North Carolina farmers, extracts the oil from the seed using a small-mechanical press, and converts the oil into biodiesel. The resulting renewable, home-grown fuel is then sold at the Red Birch Truck Stop (Basset, VA) in the form of B20. At full capacity, the operation is capable of converting 10,000 gallons of canola oil into biodiesel, and storing 24,000 bushels of canola.

A member of the mustard family, canola is a winter crop that is a winter crop. It is typically planted during the middle of September to October in the Northern and Souther Piedmont region and mid-October to early-November in the coastal plain region of Virginia. One of the biggest draws of canola for biodiesel is the oil content more than doubles that of soybean - 44% versus 20%.

Despite the attractive qualities of canola, a lack of oil extracting or crushing facilities has been the largest hurdle to domestic production of canola. That old chicken or the egg dilemma arises. Crushing facilities lack the business case because there is not enough acreage of canola to justify the investment, and farmers do not have the incentive to grow canola without a crushing facility. Hopefully Dean Price's model will help encourage others to adapt similar models and slowly build the market for canola.

From the Chicken Fryer to the Fuel Tank

Reco Biodiesel, LLC, opened in 2006, and has experienced one of the toughest times the biodiesel industry has seen - soaring feedstock and input costs, high energy prices, and the media frenzy over food versus fuel. Despite these odds, they've stuck around long enough to work with a large grocery store chain to attempt to close the loop.

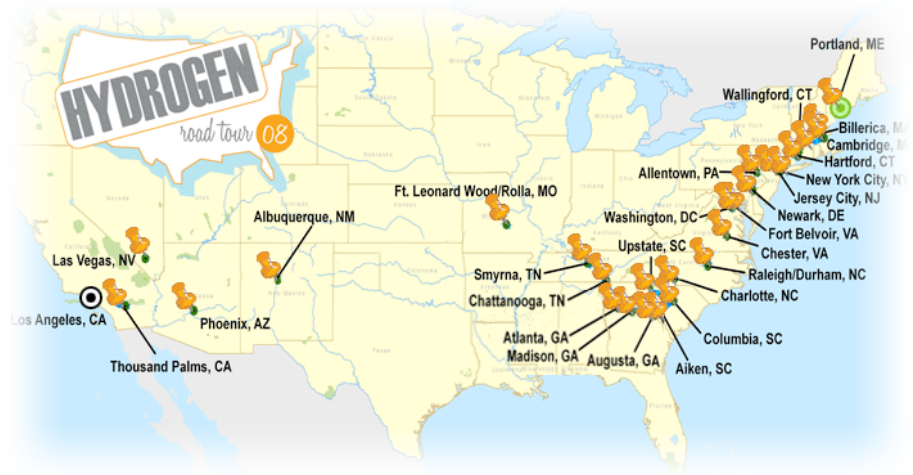
Ukrop'a and Reco have formed a partnership to get closer to this holy grail. Ukrop's Super Markets, Inc. is working with Reco Biodiesel to recycle the soy oil leftover from frying chicken at 11 stores into biodiesel for its fleet of 15 trucks and 45 refrigerated trailers. A B15 blend will likely be used, at an expected savings of $50,000 per year according to a June Richmond Times-Dispatch article.

250-gallon plastic containers behind the stores will be used by employees to dump used oil, which will be picked up from Reco. On an annual basis, the expected oil supply is up to 65,000 gallons per year, which would be converted to biodiesel at a similar ratio.

Reco's is capable of producing up to 5 million gallons or more of biodiesel annually. The plant uses a "Scully System" similar to those used at fuel terminals, which can load biodiesel at about 400 gallons per minute, according to their website.

When Reco isn't converting Ukrops used cooking oil into biodiesel, they utilize poultry fat or soybean oil as do the majority of the producers on the East Coast. All three feedstocks are capable and must meet the ASTM standards.

We went on a tour of the facility about a year ago, and one of the most impressive capability was the full-service laboratory which allows Reco to test every batch of biodiesel to the ASTM D6751 standard.



Hydrogen Road Tour '08

31 Cities in 18 States in 13 Days

Hydrogen Road Tour Makes Stop in Chester

The hydrogen road tour kicked off on August 11, 2008 to show Americans that a fleet of hydrogen vehicles are the "non-polluting cars of tomorrow and they are being demonstrated today on our nation's roads" according to a DOT press release.

The U.S. Department of Energy, California Fuel Cell Partnership, National Hydrogen Association, U.S. DOT and nine auto manufacturers sponsored the Hydrogen Road Tour to show that hydrogen vehicles and fueling technologies are approaching commercial availability.

U.S. DOT's Research and Innovative Technology Administrator said "The technology necessary to put these cars on the road, and keep them moving, exists today. The question is not if hydrogen powered vehicles will be available commercially, but when."

The tour made 31 stops, in 18 states from Maine to California, including Chester, Virginia at a Gateway Hyundai. BMW, Daimler, Ford, GM, Honda, Hyundai-Kia, Nissan, Toyota, and Volkswagen all showcased hydrogen vehicles along with Air Products and Chemicals, Inc. and Linda mobile refueling hydrogen stations.

Toyota FCHV

READ MORE ABOUT THESE VEHICLES AND THE TOUR AT THE H2 ROAD TOUR WEBSITE

Hyundai Motor Company FCEV

Honda's FCX Clarity

General Motors Equinox

General Motors HydroGen3

Daimler "F-Cell" FCV

Volkswagen's Touran HyMotion

Ford EDGE with Hyseries Drive

Nissan

Colonial Williamsburg Foundation CNG Success Story

AUGUST 2008 VIRGINIA CLEAN CITIES WWW.HRCCC.ORG

The Colonial Williamsburg Foundation started using natural gas in 1995 as a way to reduce smoke in the Historic Area

Natural Gas Good Fit for Historic Area

Over the years, The Colonial Williamsburg Foundation has operated 10-25 buses to serve the Historic Area in central Williamsburg. Buses were introduced when the current Visitor Center was constructed in 1957, because it was a short distance away from the Historic Area in order to minimize the intrusion of private vehicles and was a bit too far removed to permit all guests to walk the distance. In 2007 2,258,779 passengers rode some or all of the routes.

The use of natural gas buses dates to 1995 when a decision was made to reduce the smoke emissions generated by the diesel bus fleet. Virginia Natural Gas assisted the Foundation in starting up the program and constructing a Compressed Natural Gas fueling station for the buses on Foundation property. The existing fueling station was subsequently relocated to the new Automotive Services facility built in 2004-2005. The station consists of a gas meter at the point where a gas line enters the station, a dryer that removes condensation from the gas to ensure that the compressors are not damaged by moisture, 4 Bauer compressors that increase the pressure of the gas before it is transferred into tanks on the buses, and 8 twin fill posts with hose connections that attach to the buses. The 4 compressors are able to fuel up to 16 buses simultaneously.

"It costs about 30 to 35 cents per mile for natural gas and 3 cents per mile for electricity to fuel the transit-size buses"

The Foundation currently operates 20 transit-size natural gas buses on regular routes and has several diesel-powered minibuses that are usually used for special assignments outside of the regular routes. The fueling station is a "slow fill" facility that operates at night to take advantage of off-peak rates for the electricity used to run the compressors. The CNG fueling station has no storage tanks of any kind. The buses have sufficient on-board fuel capacity to make it through the day's operation. The refueling process takes 5-8 hours. Installation of a single compressor in an existing CNG station with a concrete pad, gas meter, dryer and electrical service already in place costs in the neighborhood of $100,000.

"The fueling station is a "slow fill" facility that operates at night to use off-peak electrical rates to run the Bauer natural gas compressors"

Costs of fueling for the natural gas transit-size buses are in the vicinity of 30 to 35 cents per mile for the gas itself and about 3 cents per mile for the electricity used to run the compressors. The Foundation no longer has up-to-date cost data for running diesel-powered transit-size buses, but information related to the minibuses suggests that the cost would be about double for a diesel-powered transit-size bus compared to natural gas.

Kurt Reisweber, Colonial Williamsburg Fleet Administrator, KReisweber@CWF.org

STAKEHOLDER SPOTLIGHT

Clean Cities is a government-industry partnership designed to reduce petroleum consumption in the transportation sector by advancing the use of alternative fuels and vehicles, idle reduction technologies, hybrid electric vehicles, fuel blends, and fuel economy. Virginia Clean Cities is one of almost 90 coalitions across the U.S. that help meet the objectives of improving air quality, developing regional economic opportunities, and reducing the use of imported petroleum.

Sponsors & Strategic Partners

Department of Energy · United States of America

Virginia Department of Mines Minerals and Energy

OSAGE BIO ENERGY

Clean Vehicle Education Foundation

NGVAMERICA
Natural Gas Vehicles for America

Coalition Stakeholders

Domestic Fuels & Lubes

cleanest on earth
CIVIC GX

Clean Energy
North America's leader in clean transportation

James City County
Jamestown 1607

Virginia Soybean Association

Northrop Grumman
Defining the Future

PAPCO

BAUER COMPRESSORS

James River Petroleum

Griffin Oil & Propane

Virginia Natural Gas
An AGL Resources Company

PHILLIPS ENERGY, INC
Keeping You Comfortable is Our Business!

JOIN US! Visit http://www.hrccc.org/joinus.html

Calendar of Upcoming Events

Alternative Fuel and Advanced Technology Vehicle Related Events

2008 Commonwealth of Virginia Energy and Sustainability (COVES) Conference

and

Hydrogen: Promising Energy Security

September 17-19, 2008
Greater Richmond Convention Center, Richmond, VA
www.hrccc.org
Test drive the GM Equinox Fuel Cell Vehicle!

HRAEE 5th Annual Environmental Education Conference
September 11, 2008
Virginia Aquarium
Email Holly Carson at holly.carson@norfolk.gov

Algae Biofuel Summit 2008
September 17-19, 2008
New Dehli, India
www.algaebiofuelsummit.com/

Woody Bioenergy in Virginia: Rural Focus
September 4, 2008
Abington, VA - South West Virginia Higher Education Center
Agenda and registration available online http://www.cnr.vt.edu/woodybioenergy/RegistrationForm.html

Northern Virginia Community College AFV Day Odyssey
September 20, 2008
NOVA's Alexandria Campus
11 am - 3 pm
Email Heather Neikirk form more information at hneikirk@nvcc.edu

National Hydrogen Association Fall Forum: Hydrogen from Renewables
September 22-24, 2008
Golden, Colorado
http://www.hydrogenassociation.org

Virginia Environmental Assembly
September 26 & 27, 2008
Virginia Commonwealth University, Richmond, VA
http://www.vcnva.org/vea/2008veassembly.html

Woody Bioenergy in Virginia: Urban/Suburban Focus
September 29, 2008
Petersburg, VA - VSU
Agenda and registration available online http://www.cnr.vt.edu/woodybioenergy/RegistrationForm.html

31st World Energy Engineering Congress Conference and Expo
October 1-3, 2008
Washington, DC
http://www.energycongress.com

Winchester Sustainability Festival
October 4, 2008
Email Jon Turkel
jturkel@co.frederick.va.us

Green Living Expo
October 5, 2008
Norfolk, Virginia
Email Donna Agresto-Seavey at donna@sinclairstations.com

Dragon Run Day
October 11, 2008
10 am - 4 pm
Gloucester, Virginia
Thousand Trails Campground

TAFMA Meeting sponsored by VA Clean Cities - Topic TBD
October 15, 2008

NAAEE 37th Annual Conference
October 15-18, 2008
Wichita, Kansas
www.naaee.org/

Biofuels and Sustainability Conference
October 21-22, 2008
University of Illinois
http://www.istc.illinois.edu/BiofuelsConference/

Green Living and Energy Expo
November 7-8, 2008
Roanoke, Virginia
http://www.aecp.org/Expo/overview.shtml

Electric Drive Transportation Association Conference & Expo
December 2-4, 2008
Washington DC Convention Center
http://edta.orchidsuites.net/sites/conf2008/

2009 National Biodiesel Conference & Expo
February 1-4, 2008
Moscone Center West, San Francisco, CA
http://www.biodieselconference.org/2009/default.asp

If there is an event our readers may enjoy, please send an email to Chelsea at cjenkins@hrccc.org so we can add the event to our calendar and our website.