

Stakeholder Update

August - September 2010

An Update on Clean Transportation Happenings and Opportunities

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Stakeholder Update

Dear Virginia Clean Cities Stakeholder,

Welcome to our latest update! We've had a very busy and productive end to the summer, and we're very excited to let you know what we've been up to over the past couple months.

In this update, you can read about:

- Congressman Wittman to Attend October 8th Alternative Fuel Station Opening in Hayes, VA
- VCC Hosts Clean Energy Odyssey Day Events at JMU and in Chesapeake, VA
- New Stakeholders!
- Luck Stone Begins 1st Repower Project in State
- Virginia Biodiesel Conference a Success!
- Request for Proposals: CNG Feasibility Study
- E85 Hopewell Meeting Results
- Edison2 E85 Vehicle Wins Progressive X-Prize \$5M
- Additional NGV and LPG Offerings
- Heavy Duty Vehicle Guide Now Available!
- Upcoming Events
- Project Updates
- Technical Question of the Month

Happy Reading!

Chelsea Jenkins
Director, Virginia Clean Cities

Congressman Wittman to Attend October 8th Alternative Fuels Station Opening and Alt Fuel Vehicle Display in Hayes, Virginia

Phillips Energy, Inc. and Virginia Clean Cities invite you to celebrate the growth of alternative fuels in Virginia at the Grand Opening of the new and open to the public Phillips Energy Fueling Station. This new public 24-hour fueling facility will include B20 biodiesel, E85 ethanol, and propane Autogas as well as gasoline and diesel.

Friday, October 8, 2010 10:00 am
2586 George Washington Memorial Highway, Hayes, VA
(Gloucester County)

[Map and Directions](#) | [RSVP](#)
[Download the Schedule of Events](#)

Enjoy E85 for only \$0.85/gallon from 11:30 to 1pm, an alternate fuel vehicle ride-n-drive, table-top exhibits from alternative fuel industry partners, and plenty of food and fun!

[Sponsorship Information](#)

October 15th - Virginia Clean Energy Odyssey Day

Please join us at one of VCC's two Odyssey day celebrations on October 15th! Virginia Clean Cities will be hosting these events in Harrisonburg and Cheseapeake as part of this nationwide celebration.

James Madison University Odyssey Day

When: October 15 - 2pm to 5pm
Where: James Madison University Memorial Hall
395 South High St.
Harrisonburg, VA 22801
Website: <http://www.hrccc.org/odyssey-2010-jmu/>

Hampton Roads Clean Energy Odyssey Day

When: October 15- 10am to 2pm
Where: Tidewater Community College
600 Innovation Dr.
Cheseapeake, VA 23320
Website: <http://www.hrccc.org/odyssey-2010-tcc/>

New Virginia Clean Cities Stakeholders!

Virginia Clean Cities is pleased to announce three new stakeholder members!

Baker Equipment - Diamond Sponsor & Strategic Partner

Baker Equipment has been around since 1919, and has distributed or sold every type of truck equipment imaginable from bulk feed bodies and school buses to aerial personnel lifts, digger derricks, pole and cable trailers, hydraulic tools and fire engines. Baker Equipment also utilizes BAF Technology and Baytech Corporation trained and certified technicians to convert OEM gasoline engines to run on compressed natural gas utilizing BAF's Calcomp engine systems and Baytech's CNG fuel injection systems. Most recently, VCC teamed with Baker Equipment on our Southeast Program Autogas Development Program to bring them on as the Virginia Certified Custom Installer. Baker will perform all Virginia-based project fleet conversions. Check out the blog to see pictures from the Secretary Vilsack visit hosted at Baker's Richmond location to kick-off the program.

For more information about Baker, please visit: <http://www.bakerequipment.com/Home/>

MSM Communications - Gold Sponsor & Strategic Partner

MSM Communications is leading the marketing and communications campaign for our [Southeast Propane Autogas Development Program](#). MSM is an Austin, Texas-based consultancy that develops long-term relationships with clients who are launching new initiatives, companies or products.

For more information, visit <http://www.msmcommunications.com/>

VMACS, Inc. - Gold Sponsor & Strategic Partner

[VMACS](#) is a veteran-owned small business located in Chesapeake, Virginia committed to providing products & services tailored to delivering safety, efficiency and productivity enhancing capabilities for public and private fleets. VMACS serves federal, state, and local government as well as private and public fleets, and owner operators. The company is an authorized distributor and service partner for Webasto Product North America, JBAR A/C, ProTech, PressurePro and Ram Mounts. The company offers new parts sales including complete systems, mobile repair service for authorized brands and others, complete custom system installations, and custom design & engineering services for OEM integration.

For more information about VMACS, Inc., please visit <http://www.vmacs.net>

Wholesome Energy - Coalition Stakeholder

Wholesome Energy is an affiliate of Wholesome Foods, Inc., (a family-owned company that was established in 1964). Wholesome Foods distributes poultry, beef, pork, deli items and Virginia's Best bottled water to restaurants and supermarkets in the Mid-Atlantic region. In the winter of 2008, Wholesome Energy started the construction of a biofuels facility which is when they linked up with Virginia Clean Cities. Wholesome Energy is also a fabricator and distributor of Nonox Emulsion Combustion Technology.

For more information about Wholesome Energy, please visit <http://wholesomeenergy.net/history.html>

Virginia Biodiesel Conference: New Meeting Format Helps Increase Dialogue

On September 29th, Virginia Clean Cities hosted the Virginia Biodiesel Conference at JMU's Festival Grand Ballroom. The conference utilized an open meeting style, and specifically focused on several topics including: tax credits, quality control, incentives and funding, market barriers, the debate of food vs. fuel, and legislation and policy. Attendees were able to create focus areas and participate in dynamic breakout sessions. Participants included representatives from state and local government, the biodiesel and petroleum industries, university representatives, vehicle fleet operators, biodiesel producers, and interested members of the general public.

[Conference Page](#) - Session results will be posted late this week

This event was preceded by a Biodiesel Webinar on September 17. The webinar featured a presentation by Richard Nelson, who is an Associate Professor in the Center for Sustainable Energy at Kansas State University. The webinar aimed to inform interested stakeholders on the subject of biodiesel and biodiesel use. Specific topics discussed include the state of the biodiesel industry, supply chain issues, use and implementation, niche markets such as mining and schools, quality control, and incentives/funding. The archived copy of the webinar can be found [here](#).

Request for Proposals: CNG Feasibility Study

Virginia Clean Cities, in cooperation with the City of Chesapeake, are seeking proposals from interested parties to determine the feasibility of using CNG to fuel City of Chesapeake trash collection vehicles.

To download the full request for proposals (RFP), [click here](#) or visit our [website](#).

Proposals are due by 5 pm EST October 22, 2010.

Questions shall be directed to:
Chelsea Jenkins
Director, Virginia Clean Cities
P: (757) 256-8528
cjenkins@hrccc.org

Please distribute to appropriate colleagues.

VCC, EPA, and Luck Stone hold Press Conference on September 16th to Celebrate a First in VA

Virginia Clean Cities and Luck Stone, which is based in Richmond and is one of the largest aggregate companies in the U.S., have partnered to carry out a project that will seek to lead by example in the area of diesel emissions reductions. Funding from the EPA National Clean Diesel Campaign to Virginia Clean Cities and James Madison University have helped launch the very first construction repower project in Virginia. A \$710,000 EPA Diesel Emissions Reduction Act grant, combined with \$1.1 million from Luck Stone, will be used to repower or replace older diesel engines in 11 off-road construction vehicles with new, more efficient diesel engines and generators.

The new engines will result in a 50% reduction in nitrogen oxides and 65% reduction in particulate matter for each piece of equipment. Annually, the project is expected to eliminate 30.85 tons of nitrogen oxide, two tons of particulate matter, 11.93 tons of carbon monoxide, and 2.74 tons of hydrocarbons at four Luck Stone plants in Virginia. "Putting clean diesel engines to use will bring cleaner, healthier air for the workers and neighborhoods surrounding these plants." said EPA mid-Atlantic Regional Administrator Shawn M. Garvin. In addition, the project is estimated to create approximately 20 jobs.

[Luck Stone Event](#) - [Luck Stone Construcion Repower Video](#)

E85 Stations in Hopewell

Virginia Clean Cities hosted a planning meeting in Hopewell to discuss E85 stations. This meeting was well attended by a variety of local stakeholders and illustrated a significant interest in E85 stations in the area. The group intends to pursue both a Fort Lee E85 pump and a public access station in the Hopewell area.

Protec fuels is willing to fund station upgrades through fuel purchase contracts. Growth Energy is providing \$2,500 to \$5,000 to install E85 and blender pump infrastructure throughout the country. This funding can be used in addition to Virginia Clean Cities grant funding and the 50% alt fuel federal tax credit that expires at the end of this year. For additional information contact Alleyn at aharned@hrccc.org.

Virginia E85 Car Wins \$5 million Through Progressive Automotive X-Prize

Lynchburg based Edison2 has won a \$5 million through Progressive Insurance's Automotive X-Prize. The goal of the Automotive X Prize is to spark the development of super-efficient cars that can be manufactured in large volume. "We wanted to incentivize the dreamers and the doers out there to take on an audacious act," said Peter Diamandis, X Prize Foundation chairman and chief executive. "This was not an easy competition by any means."

The competition was broken up into two classes: Mainstream, which was for four-seat vehicles, and Alternative, which had two divisions: two-seats side-by-side and two seats in a tandem, fighter-jet configuration.

Edison2 had entered two Very Light Cars in the Mainstream class, and they were the only two remaining cars in that class. While mechanically identical, each of the Very Light Cars recorded different results at the track, which the team attributed to variables like weather conditions. Sitting on a 100-inch wheelbase, the car has a chassis of welded steel tubing and a body that resembles a small helicopter, but the entire vehicle weighs just 830 pounds. A rear-mounted, single-cylinder motorcycle engine burns a blend of 85 percent ethanol and 15 percent gasoline to make about 40 horsepower.

ROUSH Micro Bird E-450 Debuts

Micro Bird launched the new G5, a new ROUSH liquid-propane powered E-450 Dual Rear Wheel (DRW) Cutaway vehicle, at the BusCon show on September 29 at the Navy Pier in Chicago. The Micro Bird G5 ROUSH LP-powered E-450 has a 25 passenger capacity and will be available exclusively through Blue Bird dealers nationwide beginning in the first quarter of 2011. This bus uses the Ford 6.8L, V-10 engine which runs on the ROUSH LP injection fuel system. The fuel capacity is 43 usable gallons which, depending on driving conditions, has a range of 320 miles.

Medium and Heavy Duty Vehicles Guide

The Clean Cities' Guide to Alternative Fuel and Advanced Medium- and Heavy-Duty Vehicles is now available from EERE. The 40-page, 4-color booklet describes vehicle technologies and truck construction for medium- and heavy-duty vehicles and includes 14 pages of alternative fuel and advanced technology trucks.

This booklet is designed for use in talking to fleet managers one-on-one and so supplies are limited to 25 copies. You can also order up to 5 copies from the EERE website at <http://www1.eere.energy.gov/library/default.aspx> in the box labeled Latest Additions. You can also view the pdf at that site.

Upcoming Conferences and Events

October 8, 2010: Grand Opening of the new and open to the public Phillips Energy Fueling Station. This new public 24 hour fueling station will include Biodiesel, E85, and Propane Autogas as well as gasoline and diesel. **\$.85 / gallon E85.** [RSVP here](#)

October 12-14, 2010: The Governor's Energy Conference is scheduled for October 12-14 in Richmond. This conference features technology innovations, economic development

approaches, and policy solutions to enhance Virginia's role in creating a secure clean energy future.

October 15, 2010: [National Alternate Fuel Vehicle Day Odyssey](#) is scheduled for October 15 at several locations throughout the Commonwealth including [Harrisonburg, Virginia at JMU](#) as well as [Chesapeake, Virginia at Tidewater Community College](#). These events will showcase alternative transportation technologies and educate a wide range of attendees. Sponsorship opportunities are available. For information about sponsorship, please contact Ryan at rcornett@hrccc.org.

October 18-19, 2010: Green Fleet Conference in San Diego, CA. To provide a Resource for Fleet Professionals to Learn to Save Money, Increase Efficiency, and Stay Up to Date with Their Eco-Friendly Fleets. More at <http://www.greenfleetconference.com/>

October 19-20, 2010: Clean Diesel 10 in Washington, DC will celebrate 10 years of cleaner air through the National Clean Diesel Campaign and the Diesel Emissions Reduction Program. Clean Diesel 10 is a two-day event to recognize contributions, create networking opportunities, and plan for the future. Alleyn and Ryan will attend.

SAVE THE DATE: *February 25, 2011:* Hydrogen Seminar at James Madison University. Virginia Clean Cities and JMU will host an informational seminar on hydrogen fuel cell technology.

VCC Project Related News

Luck Stone EPA Clean Diesel Project

Conversions and repowers are taking place now as part of the Luck Stone Construction Repower project. An announcement event was held on 9/16 in the Richmond area.

Get Ready - Electric Vehicles

The Virginia Get Ready workgroup has completed initial efforts on most of Virginia's Electric Vehicle Plan. Please stay tuned for a release of the initial Virginia readiness document. Questions or electric vehicle considerations can be sent to aharned@hrccc.org.

E85 Infrastructure

Virginia is opening the 5th public E85 station in Gloucester on October 8th. Later this year, we will open a station in Southwest Virginia. A 6th station has also opened in Ashburn Virginia.

Southeast Propane Autogas Development Program

The conversions have started for the program. The marketing for the program has also launched with a new website. Please visit <http://www.usepropaneautogas.com/> and <http://www.usepropaneautogas.com/blog/> to see project updates.

Virginia Public Fleets Clean Diesel Program

Spotsylvania County Public Schools has just put 4 new propane school buses in to service, increasing the number from 5 to 9 total propane school buses operating in the state. A press conference will be held in early November to celebrate this huge milestone - stay tuned!

Clean Cities Question of the Month

Question of the Month: What are the different categories of electric vehicle supply equipment (EVSE)?

Answer: The recent expansion of EVSE infrastructure (in preparation of upcoming launch of a number of new original equipment manufacturer electric drive vehicle models) has created some confusion about how to classify the different types of EVSE. To understand these categories, we first need to get back to the basics of electricity and review the following terminology:

Current type:

Alternating current (AC): Movement of electric current that reverses or alternates direction. AC is the form of current normally delivered by an electric utility to homes or businesses.

Direct current (DC): Movement of electric current that continuously flows in the same direction. DC is the form of current normally delivered through batteries.

Amperage: The amount of electrical current, which can be thought of as the rate of flow.

Amperage is measured in amperes, commonly referred to as amps.

Voltage: The electric potential energy per unit charge, which can be thought of as the force or pressure that drives the electric current. Voltage is measured in volts (V).

By multiplying amperage by voltage, you can find the unit of power, otherwise known as watts (W). There are 1000 watts in a kilowatt (kW). A standard residential three-prong outlet can supply 12 amps at 120V, or 1.44 kW based on the following equation:

$$12 \text{ amps} \times 120\text{V} = 1440 \text{ W} / 1000 = 1.44 \text{ kW}$$

Electric drive vehicle battery packs are measured in kilowatt hours (kWh). A kWh is a unit of energy that indicates the ability to provide a given power for one hour. In theory, a 24 kWh battery pack would take 16.7 hours to charge using a standard 3-prong outlet based on the following equation:

$$24 \text{ kWh} / 1.44 \text{ kW} = 16.7 \text{ hours}$$

Categories of EVSE

AC EVSE has been defined as follows:

Level 1- Amperage rated up to and including 20 amps.* Voltage up to 120V

Level 2- Amperage rated up to and including 80 amps.* Voltage up to 240V

Level 3-** Amperage rated up to 400 amps. Voltage above 240V.

* The actual amperage is based on the circuit ratings and is less than the maximums listed here. For example, Level 1 maxes out at 12 amps on a circuit rated at 15 amps and 16 amps on a circuit rated at 20 amps.

** Level 3 AC has not yet been defined by SAE International and is only provided for reference.

The industry is also investing in the development and deployment of DC fast charge EVSE. DC fast charge EVSE will charge a battery much faster than Level 2 EVSE. It is important to note that DC fast charge is not the same as Level 3. Level 3 uses an AC current, is still in development, and thought to be several years away from deployment; whereas, DC fast charging stations are being deployed in the near-term.

Codes and Standards

SAE International, an automotive industry group, is developing standards for on-board and off-board charging components based on the type of infrastructure (Level 1, Level 2, or DC fast charge). SAE standard J1772 (http://standards.sae.org/j1772_201001/), published earlier this year, addresses the overall physical, electrical, functional, and performance requirements of the EVSE connection in Level 1 and Level 2 charging. SAE is also in the process of developing many additional standards, including one for DC fast charging EVSE.

In addition to SAE standards, EVSE should meet federal, state, and local building and fire codes

and standards. For example, the National Electrical Code Article 625, Electric Vehicle Charging System, includes guidance for wiring, equipment construction, and ventilation of EVSE. The EVSE should also be listed by Underwriters Laboratories (UL) or a similar recognized national testing laboratory.