



Virginia Clean Cities



U.S. Department of Energy



Stakeholder Newsletter 2014

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Diamond and Platinum Level Stakeholders



Carter Machinery Company, Inc.



PERC Announces Autogas Maintenance Gains

Beyond fuel cost savings and reduced emissions, "It's equally important to consider the ease and operating costs before making the switch (to propane)," PERC says. "Parts, service, repairs, and garaging are important considerations that can have a big impact on ROI and a fleet's success." The association is circulating information about the maintenance advantages of propane autogas as experienced by three different school bus operators. "Each," PERC says, "found that maintenance with propane autogas has an advantage when compared with conventional and other alternative fuels that go well beyond the pump." PERC notes that the following data reflect each school district's personal experience, and that factors may vary when compared with other fleets.



Far Fewer Oil Changes, and No Additives

Compared with their diesel buses, Tippacanoe Schools Corp. has noticed significant cost savings with propane autogas on routine maintenance such as oil changes and fuel filters. Truck Technician Mark Fidler reports using 32 quarts of oil per oil change with their International and Cummins diesel engines versus only seven quarts with their Roush CleanTech propane autogas engines. In addition, diesel engines call for two fuel filters that cost \$40 each while propane-autogas-powered buses use a single filter that costs substantially less.

Simpler than the New Diesels

In order to meet stricter EPA and CARB emissions reduction standards, diesel engines require a number of things. Diesel particulate filters (DPF), complex emissions after treatment devices, are required for all diesel engines. In addition, Diesel exhaust fluid (DEF) is required for all selective catalytic reduction (SCR) diesel engines. According to Master Technician Bruce Thomas, the best thing about propane autogas is that it doesn't require any additional parts or maintenance to meet emission standards. And overall, the district couldn't be happier. "We've been pleased. It's only our second year, and I think the rest of the techs would agree that when it comes time to purchase more buses, propane autogas is a safe bet," Thomas said. "They're ideal on day-to-day routes, they're quiet, clean, and environmentally friendly — a hands-down winner. We're happy and looking forward to buying some more."





NAFA Fleet Learning Expo and Efficient Technology Symposium

The National Association of Fleet Administrators Old Dominion Chapter and Virginia Clean Cities are hosting the 2014 Fleet Learning Expo and Efficient Technology Symposium (FLEETS) on September 24-26th at the Virginia Beach Convention Center. The two-day event will attract fleet managers, technicians, and future customers from across the region to learn about vehicle technologies and products. The conference will include an opening reception, a ride and drive event, nine educational training sessions, and a golf tournament at Hell's Point Golf Course.

Fleet manager training will feature courses on shop safety with a VOSH inspector, fuel cards, a comprehensive driver safety program, an advanced course on alternative fuels, a course on data validation and exception reporting and how to avoid problems with leasing vehicles. Technician training will feature courses on school buses, alternative fuel vehicle diagnostics, and lift safety and certification. Sponsorships are available. For more information please visit www.nafa.org/chapters/chapter-list/eastern/odchapter/.

Virginia-Based Energy Company to Convert Energy Tobacco to Biodiesel



Tyton Bioenergy Systems, a Danville-based energy company is investing \$36 million in a 60 MMgy ethanol plant in Raeford, North Carolina. The plant will first use corn feedstock, but then transition to converting "energy tobacco" into ethanol. Energy tobacco cannot be smoked or chewed and is grown at a higher density than regular tobacco.

According to Tyton, energy tobacco has several advantages over corn as a biofuel feedstock. The first is it has a low lignin content which reduces cellulosic production costs. Tobacco also consumes less water than corn so it does not place pressure on agricultural and residential water supplies. This strain of tobacco also produces three times as much ethanol compared to corn and soy.

Tesla Releases All of Its Patents to the Public



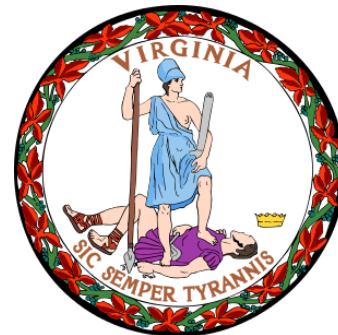
In a move that may shake up the electric vehicle market, Tesla announced on June 12th that it will allow anyone to use its patented technology on electric vehicles. CEO Elon Musk said "his company will not initiate patent lawsuits against anyone using Tesla's technology in good faith". Musk is seeking to grow the market for electric vehicles which currently represent less than 1% of all cars on the road. "Tesla motors was created to accelerate the advent of sustainable transportation. If we clear a path to the creation of compelling electric vehicles, but then lay intellectual property landmines behind us to inhibit others, we are acting in a manner contrary to that goal," Musk writes.

Musk also cites the open source movement, which says that companies should only use patents defensively. Of the 249 Tesla patents analyzed, 104 of them related to battery technology. Tesla has paved the way for the rest of the auto industry, but will they follow?

Governor Appoints Two VCC Members to State Energy Council

VCC is proud to report that Executive Director Mr. Alleyn Harned and Board-Treasurer Dr. Kenneth Newbold have been appointed to the Virginia Energy Council.

Governor McAuliffe signed Executive Order #16, which establishes the Virginia Energy Council. The Virginia Energy Council will assist in the development and implementation of a comprehensive, and aggressive energy strategy for Virginia and deliver recommendations for the Virginia Energy Plan, which will be submitted to the General Assembly on October 1, 2014. Secretary of Commerce and Trade Maurice Jones will chair the Council.



Nissan Delivers 50,000th LEAF in United States

Nissan is celebrating delivery of the 50,000th pure battery electric Leaf vehicle, to a family in Texas, and says that its worldwide sales number is almost 115,000, making it the world's top-selling electric vehicle. Registrations of LEAFs in Virginia have increased to 518 since 2012 and are experiencing 200% annual growth in the Commonwealth according to the DMV. Virginia has also seen a 78% increase in the number of electric vehicle charging stations since 2012, from 140 to 249. The growth in infrastructure to support these vehicles makes owning them easier and hastens their adoption. "Beyond the simple economics of not buying gas, we've been impressed with how well the LEAF drives," Todd Bolt of Southlake, Texas, driver of the 50,000th car. "When we show the LEAF off to family and friends, they're surprised that the car is so quiet and rides so well. The LEAF does everything we need day-to-day, and given the fuel cost savings, I don't know why we'd buy another gas car."



Washington D.C. is among ten launch markets for "No Charge to Charge," a promotion that provides two years of no-cost public charging to new LEAF buyers who take delivery of their car after July 1, 2014

EV Study Finds Per Vehicle Savings of \$16,000 over Seven Years

The study comes from British Columbia's Ministry of the Environment as part of its Plug-In BC program, and finds that short-range, affordable EVs not only have enough range to cover 94% of typical municipal or university fleet's needs, but can realize cost savings of \$16,000 per vehicle over seven years compared to traditional gasoline vehicles.

The study placed electronic data loggers on 123 vehicles and tracked the vehicles over 55,000 miles.

With tax credits included, each EV can save operators \$16,000 over the lifespan of the vehicles (7 years). Reductions were achieved in fuel costs and maintenance. This is because fleet vehicles spend 95% of their day parked. And when they are driven, 1/3 of that time is spent idling at red lights and stop-signs

The battery-electric vehicles with the lowest Total-Cost-of-Ownership for each application would have fully recharged overnight 81% of the time, using a basic Level 2 (240-Volt, 30-amp) charging station.

Hopewell Ethanol Plant Ramps-Up Production



An ethanol plant that opened in mid-April has been steadily ramping up production of ethanol from Virginia corn. "We've prepared this for a long time...it's just great to now see it running, operating reasonably smoothly," Peter McGenity, CEO of Vireol Bio Energy LLC, said. McGenity said the plant has been operating at about 60 percent capacity, but "we're now starting to inch up."

Once at full capacity, the plant will be producing 175,000 gallons of ethanol a day, or 60 million gallons a year. The plant will operate 24/7. "There's been no typical day so far, because we're in the middle of a start up situation with a very complicated, technically sophisticated plant," McGenity said.

In addition to producing ethanol, the plant aims to capture carbon dioxide. The captured carbon dioxide is used for other things, such as carbonated drinks.

"There's no waste in theory. Roughly a third of the corn goes to ethanol, a third goes to animal protein and a third is CO2," McGenity said.

Environment Virginia Publishes "Driving Cleaner" EV Report



Environment Virginia Research and Policy Center recently published a report entitled *Driving Cleaner: More Electric Vehicles Mean Less Pollution*. This report asserts that by 2025, the widespread use of electric vehicles (EVs), combined with a cleaner electricity grid, will reduce global warming pollution by 18.2 million metric tons per year, compared to conventional internal combustion engine (ICE) vehicles.

The switch to EVs could also save 2 billion gallons of gasoline per year which is equivalent to eliminating emissions from 3.8 million vehicles. Environment Virginia finds that 21% of all U.S. emissions come from gasoline-powered vehicles and that EVs are far less polluting than ICE vehicles. They recommend that federal and state governments adopt policies that increase the number of EVs on the road and mandate that 25% of all electricity come from clean, renewable sources. For the full report, visit www.environmentvirginia.org

Virginia Pilot Project Converts Landfill Waste Into Ethanol

In a development that lends credence to the old adage, “one person’s trash is another’s treasure,” Fiberight, an Iowa-based energy company, is starting a pilot project in Southside Virginia to turn garbage – and in other cases, corn stalks and wheat straw – into biofuel ethanol that can power vehicles.

It’s one of the most eagerly awaited technologies in alternative fuel and is expected to break into the mainstream this year. At Fiberight’s Lawrenceville, Virginia plant, the recyclables, used clothes, and the occasional dead animal are filtered out. About half of the remaining garbage will be turned into energy. A giant pressure cooker turns the rotten vegetables, paper, cardboard, and any other plant-based matter into a steaming mass of grey pulp which is the basis for ethanol.

“This is the good stuff,” Randy Garrett, plant manager, said. “This is what we’re after for our energy conversion.” That grey pulp is mostly composed of cellulose, a natural polymer that, under the right conditions and with the right enzymes, can be broken down into sugar. It’s then a simple job to turn that sugar into ethanol.

Other companies are exploring ways to use cellulose from crops grown specifically for energy like switchgrass or miscanthus, which would produce far fewer greenhouse gases than petroleum fuels.

Ethanol currently makes up about 10% of the U.S. fuel supply and is expected to continue growing. Since the majority of ethanol is made from corn, critics claim the increased demand for corn creates a competition between food and fuel. A successful pilot program that generates ethanol from landfill waste would decrease this competition.



Paper and Cardboard to be Processed into Ethanol

Thank You to Our New and Renewing Stakeholders!



City of Chesapeake is on the forefront of alternative fuels deployment and advocacy in the Commonwealth.

Chesapeake also serves as a leader in educating other fleets about the benefits of alternative fuels.



PHILLIPS ENERGY INC.

"Fueling Yesterday, Today and Tomorrow."

Phillips Energy, Inc. serves as a full energy service provider to commercial

and residential customers in the upper Tidewater area of Virginia with a focus on the Counties of Gloucester, Mathews, York and the City of Williamsburg.



Quarles is a fuel distributor, propane supplier, service station supplier, and fleet fuel site supplier. Quarles is a leader in advancing CNG and biodiesel along with traditional fuels.



James City County is a leader in alternative fuel deployment in the Commonwealth. The county has a commitment to clean, domestic fuels

and have chosen to deploy propane Autogas in several applications in their school division and fleet department.



Nissan North America is an automotive manufacturer committed to production and deployment of full-size electric vehicles. The Nissan LEAF is one of the most popular electric vehicles in North America.

Virginia Clean Cities counts on a diverse membership base to facilitate our mission. If you are considering becoming a stakeholder, please visit our membership page at:

www.vacleancities.org/get-involved/join-us.

Upcoming Events

7/10 - Natural Gas 201 Webinar - Delivering Options
8/13 - Dulles CNG Station Grand Opening
9/15-9/21 - National Drive Electric Week
9/24-9/26 - Fleet Learning Expo and Environmental Symposium and Golf Tournament, Virginia Beach, VA
10/22-10/24 - Southeast Alternative Fuels Conference & Expo, Raleigh, NC

Please visit www.vacleancities.org for the latest information about all Virginia Clean Cities events.

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