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Clean Energy Fuels

U.S. natural gas vehicle fueling leader expects a strong 2011 but sees even greater market pickup in 2012 as new OEM models become available and fueling infrastructure is improved – in large part by Clean Energy itself.

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300 Hydraulic Hybrids for New York City

Bids to Be Sought for Up to 300 Hydraulic Hybrid Garbage Trucks, Crane Delivers LET 2s with Eaton HLA to Chicago and New Haven
The New York City Department of Sanitation is to request bids for as many as 300 hydraulic hybrid garbage trucks this month, with the vehicles to be purchased over the course of three years.

New York has tested hybrid electrics as well as hydraulic hybrids (both technologies on chassis from Crane Carrier), but for this buy it wants hydraulics.

Hydraulics Seen as More Mature

For heavy vehicles like garbage trucks, the technology appears to be more mature, says mechanics supervisor Spiro Kattan. He notes that Crane and Mack Trucks are the only firms on his department's pre-approved bidding list.

Crane has meanwhile commenced deliveries of LET 2 trucks with Eaton's HLA hydraulic launch assist parallel drive to the City of Chicago and to New Haven, Conn. The HLA system, shown on a Crane for the first time at HTUF 2010 late this past September in Michigan (*F&F*, October 4), is also available on Crane COE 2 models, says VP Glenn Pochocki.

"The cost of this technology has come down significantly in the last two
more on page 2



Crane LET 2 with Eaton HLA was unveiled at HTUF 2010



The Whole Propane Package

Alliance AutoGas expands its network of bi-fuel vehicle upfit shops – and fuel providers – as founding partner Blossman works on a dedicated liquid LPG injection system.

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Trillium USA for WMATA's CNG

Trillium USA will announce today that it's taken over compressed natural gas fueling and maintenance for the Washington Metropolitan Area Transit Authority at bus yards in Maryland and Virginia.

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LNG Trucks & Fueling for Connecticut

Bridgeport-based Enviro Express is deploying 18 new Kenworth T800 tractors fueled by liquefied natural gas, and has established a public access fueling facility (by Northstar), offering CNG too, said to be the 'the first one of its kind east of the Mississippi River.' Clean Cities anted half of the \$6.2 million cost.

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Hydraulic Hybrids

New York Seeking 300 *(continued)*

years, making it more economically feasible for fleets to get return on their investment,” Pochocki says.

“I’d say three years,” he told *F&F* last week.

New York City is already operating Crane trucks with a parallel hydraulic hybrid system from Bosch Rexroth dubbed HRB, for hydrostatic regenerative braking. The drive is said to improve fuel efficiency by up to 25%.



New York City has tested Crane trucks with hydraulic drives by Bosch Rexroth

One of the Bosch Rexroth-drive Crane trucks in New York is fueled by compressed natural gas.

Autocar pledged last summer (*F&F*, August 23) to take a CNG version of its E3 hydraulic hybrid garbage truck commercial this year. Autocar favors a series hydraulic drive by Parker Hannifin.

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Electric & Hybrid Vehicles

Eaton Celebrates 100 Million Miles

Operators of vehicles with hybrid drivetrains by Eaton have logged more than 100 million miles, and in doing so have saved some 4 million gallons of fuel and pared harmful emissions by 40,000 metric tons, Eaton says.

More than 4,500 Eaton hybrid drives are in service on vehicles including city buses, school buses, package delivery trucks, beverage delivery trucks, refrigerated delivery trucks, refuse and recycling trucks, and utility vehicles.

Eaton offers both electric and hydraulic drives in both series and parallel. It has also launched a line of electric vehicle chargers.

Broad Market Scope

The company reports “major hybrid milestones” for 2010, delivering to customers in Australia, Belgium, Canada, China, Egypt, France, Germany, India, Japan, Korea, Mexico, the Netherlands, Poland, Qatar, Russia, Singapore, Taiwan, the UK and the U.S.

OEMs either selling or readying Eaton drive vehicles include Crane Carrier, DAF, Daimler, Freightliner, Ford, International, Iveco, Kenworth, and Peterbilt for trucks, and BCI, Foton, Heng Tong, JNP, King Long, Shen Long, Solaris, Tata, YoungMan, Yutong and Zhongtong for buses.

“Eaton’s leadership in hybrid power is expanding, and we’re seeing proven acceptance of hybrid technology among global truck and bus manufacturers as well as fleet owners and operators,” Eaton hybrid power VP Dimitri Kazarinoff said in a release.

“The early adopters of the technology are returning to place orders for hundreds of trucks and buses, and a record number of new customers are starting to step forward and experience the benefits of our proven technology.”

Kazarinoff is on the board of the National Truck Equipment Association’s new **Green Truck Association** (page 8).

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China’s O’Cell for Lithium Iron Phosphate

Following up on its appearance at November’s EVS-25 world electric vehicles meeting in Hong Kong-neighborhood Shenzhen, O’Cell Technology is promoting its LiFePO₄ lithium iron phosphate batteries as a “total energy solution.”

New product spec sheets are available from Jacky Jiang of the O’Cell Technology sales team in Shenzhen.

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O’Cell Technology offers lithium iron phosphate batteries for electric vehicles

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Hybrid & Electric Vehicles

ISE Bids Due Next Monday

Would-be buyers of San Diego electric drive specialist ISE Corp have until **January 10** to submit their bids — and their plans to take the firm out of Chapter 11 — to the U.S. Bankruptcy Court for the Southern District of California.

ISE announced layoff of some 45 people in July and “filed a voluntary petition to reorganize its business under Chapter 11” in August.

“Over the past 10 years,” the firm said then, “ISE has sold over 300 hybrid systems that have demonstrated reliability and performance in over 13 million miles of fleet operation.”



Long Beach Transit helped deploy gasoline buses with ISE's series hybrid electric drives in California

Advanced Battery Packs

ISE has specialized in series hybrid drivetrains, and pioneered the return of gasoline as a fuel for full-size transit buses (gasoline is a recognized alternative fuel for transit buses in California).

The firm has emphasized power electronics and controls, and developed a wide variety of energy storage systems, using ultracapacitors where warranted.

Siemens has been a principal supplier and New Flyer a key customer, and ISE has supplied series hybrid electric drives for refuse truck testing in New York City.

Numerous interested parties have toured ISE's facilities in Poway and are expected to make proposals.

There has been interest from as far afield as Germany (Voith) and China.

ISE, president Rick Sander, rsander@isecorp.com; isecorp.com

Electrovaya Revenues Up 33%

Canada's Electrovaya (Toronto:EFL) last week reported fiscal year 2010 revenue of \$5 million, up 33% over fiscal 2009. Fourth fiscal quarter revenue of \$1.7 million marked a 21% gain.

Electrovaya said it's begun shipments of battery packs for Chrysler's plug-in hybrid electric pickup truck, and that road tests have begun.

They feature Electrovaya's SuperPolymer brand lithium ion cells and proprietary battery management system, “including its hardware and software, all thermal and mechanical systems along with power electronics and interface to the vehicle.”

“Fiscal 2010 was a year of tremendous accomplishments and increasing momentum as we established ourselves as a key supplier to a major OEM in the automotive sector,” chairman and CEO Dr. Sankar Das Gupta said in a release. Among those joining the Electrovaya board in 2010 was former Chrysler CEO Tom LaSorda.

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Smith U.S. Buys Smith UK

Kansas City-based Smith Electric Vehicles U.S. has purchased a controlling interest in its parent, Britain's Smith Electric Vehicles, for \$15 million. The UK's Tanfield retains a 49% stake in the American unit, “subject to dilution as Smith raises additional equity capital.”

“The market for affordable, sustainable commercial fleets is fertile,” Smith U.S. CEO Bryan Hansel said in a release. “Unification,” he said, “will create operational efficiencies and market synergies.”

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Azure Sees ‘Banner’ Year – and Better

“We expect 2011 to be a banner year for our company and we expect 2012 to be even better,” Azure Dynamics (Toronto:AZD) said last week, recounting 2010 as “a solid year of technology advancements, sales growth and improved awareness of our products and the benefits they offer in this increasingly green-conscious world.”

“Johnson Controls' \$6.3 million equity investment... during the second quarter and the \$4 million credit facility we obtained in the third quarter are strong endorsements of our strategy and product portfolio and will help provide added muscle to fund our working capital requirements going forward,” Azure said, pointing too to a “product, partners and people emphasis.”

Sales Totals for 2010 to Reflect 100% Gain

Azure claims nearly 150 orders for its AM General-upfitted battery version of Ford's Transit small utility van, the Transit Connect, and has transitioned its Balance Ford E-450 parallel hybrid to JCI-Saft lithium ion batteries. A plug-in version of the Balance E-450 is in the works.

“Revenues will be in excess of \$20 million for 2010, more than double the previous year,” Azure said, naming AT&T, FedEx Express, Purolator Courier, SoCal Edison, the New York Power Authority, Cintas, Canada Post, and the U.S. Post Office among its 2010 customers, as well as “a slew of municipalities, universities and health care organizations” for the Balance E-450 shuttle.

“The stars are aligning and our promises are becoming deliverables,” Azure said. “We're almost there.”

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\$184 Million from DoE

The Department of Energy said last month that as much as \$184 million will be available for advanced vehicle R&D over three to five years, targeting technologies ranging from advanced fuels and lubricants to better fleet management. Vehicle Technologies Program proposals are due **February 28**.



Fleets Tweets

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Gaseous Fuels

Ohio and the West

Alliance AutoGas Adds Fuelers and Converters And Is Developing a Dedicated-Propane System

Alliance AutoGas is adding bi-fuel gasoline-propane conversion partners, and fueling capability, in Ohio, Oregon and Washington State, as it develops a dedicated-propane liquid injection product with American Alternative Fuel/Prins.

Cincinnati's Auxier Gas will provide fuel for propane vehicles. Cleveland's Xtreme Performance (owner Steve Ali) will provide certified AutoGas vehicle conversions.

Emphasis Is on Fleets

The Alliance and its West Coast partner Blue Star Gas have added

John's Auto Care of Medford, Ore. as a certified conversion center, as well as World Alt Fuels, the new beyond-compressed-natural-gas division of Seattle's WorldCNG (*F&F*, December 20).

"Alliance AutoGas is wholly committed to strengthening the national AutoGas fueling infrastructure through collaboration with our nation's fleets," Alliance president Stuart Weidie said in a release. "Working with fleets fosters balanced market growth, where AutoGas consumption and fueling infrastructure grow in tandem," he said.

Weidie is also president and CEO of North Carolina's Blossman Gas, a founding partner of Alliance AutoGas with Prins bi-fuel vehicle hardware supplier American Alternative Fuel.

Police and Emergency Response

"The expansion of national alternative fueling networks and increasing the wealth of technology that fleets can access locally, are critical components to a growing AutoGas market," Weidie said.

In Oregon, John's has already converted ten or so vehicles, including Ford SUVs and a police interceptor, says partner Dan Young.

Blue Star is targeting emergency response vehicles that are exempt from California Air Resources Board requirements that, for now at least, effectively preclude the sale of bi-fuel propane systems in the state.



Alliance AutoGas partners provide propane conversions and vehicle fuel



The Prins VSI system uses injectors from Japan's Keihin

Alliance AutoGas is also talking up its business with Denver Yellow Cab, a Veolia Transportation company it says has converted some 50 vehicles

Trillium for WMATA CNG Bus Facilities

Salt Lake City-based Trillium will today announce a contract from the Washington Metropolitan Area Transit Authority to provide operations and maintenance support at compressed natural gas bus facilities in Bladensburg, Md. and Alexandria, Va. (Four Mile Run).

Together, the two fuel more than 460 CNG buses per night, Trillium told *F&F* last week.

Effective from January 1, the two-year base contract includes options for three additional years, says Trillium VP Bill Zobel.

Trillium will supply locally based service technicians for each facility and support WMATA's operations with 24/7 remote monitoring and service.

WMATA may opt for such capital improvements as the installation of new compressors as well. Trillium says it "can improve CNG station performance and reliability, while allowing normal use of the fueling station during the upgrade period."

The contract "marks an important expansion for our company, because it broadens our operations on the East Coast," says Trillium president Mark Barton.

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to propane and will convert another 50 this year.

Blossman is working with Prins Autogassystemen of the Netherlands on a dedicated-propane, liquid-injection system to augment its current Prins VSI (for vapor sequential injection) bi-fuel offering, says energy programs manager David Finder. Separately, Blossman is going forward with research into a propane-diesel dual fuel product (*F&F*, June 28).

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LNG Vehicles

Pioneering Connecticut

Enviro Express Hauling Ash with Kenworth T800s, Clean Cities Backs NorthStar Fueling Station Too
 Bridgeport-based Enviro Express is deploying 18 new Kenworth T800 tractors fueled by liquefied natural gas, and has established a fueling facility said to be “the first one of its kind east of the Mississippi River.”

Clean Cities New Haven anted nearly half of the \$6.2 million cost for the trucks and NorthStar public access LNG fueling station as part of a four-year, \$29.8 million Connecticut Clean Cities Future Fuels Project program. The new Bridgeport station offers compressed natural gas too, with AT&T among its CNG customers, says Lee Grannis of Clean Cities.

135,000 Miles Per Year

Enviro Express is using the new Kenworth trucks to haul ash in frameless dump trailers from a municipal garbage incineration plant in Bridgeport to a regional landfill 110 miles away in Putnam, Conn.

The vehicles make two trips per day, with each running about 135,000 miles annually, Kenworth says.

The LNG is trucked from Everett, Mass. – about 160 miles. Grannis says he expects LNG tractors to be used for that task too.

The trucks were supplied by MTC Kenworth of Ridgefield Park, N.J. They include a five-year, 500,000-mile warranty, says sales rep Doug Ryder. Kenworth says it's the first truckmaker to offer LNG as a Class 8 factory-installed option. The trucks feature the 15-liter, 450-hp Westport GX engine. MTC Kenworth

50 Westport Peterbilts for Vedder

Westport Innovations (Toronto:WPT; NASDAQ:WPRT) is spreading the word that the Vedder Transport Group of Abbotsford, B.C. has issued a purchase order for 50 liquefied natural gas-fueled Peterbilt 386 trucks with Westport HD engine systems.

The new trucks “will be used on routes within southern British Columbia primarily servicing the bulk food grade industry such as the British Columbia dairy producers and other liquid or dry state world wide agricultural organizations, making Vedder Transport Ltd. one of the world's most environmentally clean transporters servicing these markets,” Westport said.

The order “further demonstrates that natural gas is rapidly becoming a mainstream fuel solution for the trucking industry in Canada,” Westport HD division president Clark Quintin said in a release.

“Adding natural gas trucks to our fleet will help us reduce transportation-related emissions... improving air quality while reducing fuel management expenses,” said Vedder Transportation Group president Fred Zweep.



Clean Cities helped Enviro Express field 18 LNG-powered Kenworth T800s, helping establish the clean-burning fuel in the Eastern U.S.

held a three-day training session for the fleet's service technicians and drivers prior to deployment.

“We're doing our part to make our country a little less dependent on imported oil, since the fuel these Kenworths will run on comes from America,” Enviro Express president Bill Malone says in a Kenworth release. “An added benefit is that LNG fuel typically may cost an estimated \$1 per gallon less than the diesel fuel equivalent,” the manufacturer said.

LNG fueling station builder NorthStar is being acquired by Clean Energy (*F&F*, December 20; [page 9](#)).

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NorthStar, owner Mark Oldham or John Reynolds, 307-789-5088; newbacon@aol.com; northstarlng.com

Clean Cities (Washington), Mark Smith, 202-287-5151; mark.smith@ee.doe.gov; www.eere.energy.gov

Terasen Gas will fuel the Vedder fleet through a planned LNG station in Abbotsford, expected to be built in 2011. Separately, Terasen has received British Columbia Utilities Commission approval to process biogas to pipeline-grade biomethane (*F&F*, December 20) and to offer the fuel to residential customers for a premium of about \$4 per month.

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Natural Gas Vehicles

Methane Breakthrough – Cheaper NGVs?

A “landmark” change in the way Europe regulates methane emissions could make it significantly cheaper to build and convert natural gas vehicles, reports consultant Jeff Seisler.

“The NGV industry in Europe has lobbied continuously since 1994 to change the total hydrocarbon regulation into a non-methane hydrocarbon emissions limit,” he says, reporting that the European Commission’s Directorate General (DG) for enterprise and industry has now taken a “first step,” and may recommend dropping the total HC approach and regulating methane separately.

“The change could have a dramatic impact on NGV retrofit system suppliers and likely reduce costs for car manufacturers to install methane catalysts on their NGV products,” Seisler says, explaining

NGV tailpipe emissions typically exceed the regulatory limits for total hydrocarbons (THC) because of the amount of unburned methane in the exhaust. Still, NGVs emit approximately 80-85% less *reactive hydrocarbons* than petroleum-fuelled vehicles; those hydrocarbons that contribute to ozone and smog at lower levels in the atmosphere. As long as a THC regulation at its current value remains in place (currently there is a 100 mg/km THC and an NMHC for light duty vehicles) expensive methane catalysts have to be installed to ensure the vehicles comply with the THC.

The methane catalysts cost large OEMs as much as 200 euros (nearly \$270 U.S.) each and upfitters as much as 500 euros (\$670), Seisler says. The proposed language in Regulations 715/2007/EC could eliminate these costs. The change would automatically affect United Nations regulations too, he notes. But, “the legal and administrative process remains complex and time-consuming, involving two readings (reviews and approval) of Parliament and the European Council as well as an impact analysis.”

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Capstone CNG C30 Turbine Certified

California’s Capstone Turbine (NASDAQ:CPST), last week reported U.S. and California Air resources Board certifications for its 30-kilowatt C30 microturbine fueled by natural gas, citing NOx emissions of 0.05 grams – one fourth of today’s stringent limit. “The C30 CNG microturbine is the only engine certified to this standard with no exhaust aftertreatment,” sales and marketing VP Jim Crouse said in a release. Aftertreatment hardware adds cost and weight and can hurt efficiency, he noted.

Capstone’s C30 is certified for diesel too, Crouse says, and certification of the 65-kilowatt C65 is in process. “We can meet the limit with no problem,” he told *F&F*.

Also according to the release, “Capstone microturbines incorporate lean premix combustion technology, which offers clean burning exhaust emissions operating on gaseous and liquid fuels. To achieve the emissions improvements, Capstone’s team of engineers developed new fuel injection and controls methods that resulted in significantly lower emissions.”

Capstone, VP Jim Crouse, 818-407-3634;

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Worthington Buying 60% Nitin India Stake

Worthington Cylinders is buying a 60% interest in Nitin Cylinders Ltd of Visakhapatnam, India, giving it strong entree into a compressed natural gas vehicles market that’s expected to become the world’s largest.

Worthington manufactures Type I steel CNG cylinder in Tilbury, Ont., Type I and Type II steel hooped-wrapped tanks in Kienberg, Austria, and lightweight carbon-on-aluminum cylinders in California at Structural Composites Industries, which it acquired in late 2009.

“We will have the complete gamut of all three cylinders there for the Indian market,” says Worthington sales and marketing VP Dusty McClintock.

“This is a pure CNG play for us,” he told *F&F*, noting that Worthington is the world’s largest manufacturer of pressure vessels, with the best name recognition.

“The joint venture will help Nitin Cylinders benefit from the global experience and technical capabilities of Worthington Cylinders and should better position the business to grow CNG both domestically and in international markets,” Nitin Group chairman Nitin Shah said in a Worthington release. Besides India, Nitin sells cylinders in the United Arab Emirates, Pakistan, Bangladesh, Britain, Singapore and Malaysia.

Columbus, Ohio-based Worthington Industries describes itself as a leading diversified metals manufacturing company with 2010 fiscal year sales of approximately \$1.9 billion, “North America’s premier value-added steel processor, and the global leader in manufactured pressure cylinders.” The company, founded in 1955, employs some 6,500 at 65 facilities in 11 countries.

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Nitin offers CNG cascades

CNG for Kazakhstan

The European Bank for Reconstruction and Development is providing a \$35.2 million loan for 200 compressed natural gas buses in Almaty, Kazakhstan.

KGP Almatyelectrotrans, one of 19 transit companies there, is to deploy low-floor CNG vehicles built by China’s



Zhengzhou Yutong with Cummins Westport CGE4 280 (8.3-liter Euro 4 C Gas Plus-type) engines.

“Currently the majority of buses used for passenger transport in the city are in poor technical condition, out-dated and highly polluting vehicles running on diesel,” states an EBRD release. EBRD is looking to back a CNG bus buy in Burgas, Bulgaria, too.

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Hydrogen

More H2 Fueling for California

California is about to get a bevy of new of hydrogen fueling installations as projects bankrolled by the California Air Resources Board are getting ready to open.

Separately, the California Energy Commission has designated nearly a dozen stations for funding.

The new stations will help automakers as they seek to place more fuel cell vehicles with everyday drivers. Honda, for example, placed three of its FCX Clarity cars last month for a total of 26 through 2010, and pledges to pick up the pace this year. Fuel cell bus operators will be helped too, notably Oakland's AC Transit, which has received five of its 12 new Van Hool hydrogen buses and stands to get new fueling options in Northern California.

All of the new hydrogen fueling stations will be able to handle 5,000- and 10,000-psi vehicles. Air Products and Linde are the main industrial partners.

Among the standout stations backed by CARB is a Fountain Valley facility, hosted by the Orange County Sanitation Department, that later this year is to be based solely on municipal waste-derived biomethane.

CEC will help pay for a new public access station for the California Fuel Cell Partnership and public customers in West Sacramento.

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Hydrogen in Washington Next Month...

February 13-16, Fuel Cell and Hydrogen Energy 2011, formerly the NHA Hydrogen Conference & Expo. Gaylord National Hotel & Convention Center in Washington, D.C.

Organized by FCHEA, the Fuel Cell and Hydrogen Energy Association resulting from the merger of the Nat'l Hydrogen Association and the U.S. Fuel Cell Council.

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...and Fuel Cell Buses in San Francisco

February 23-25, 7th Int'l Fuel Cell Bus Workshop, hosted by the U.S. Federal Transit Administration at a location to be determined in San Francisco, Calif. Organized by the Northeast Advanced Vehicle Consortium.

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More Meetings Listings on Page 8

Biofuels

CEC Backs Biomethane...

The California Energy Commission has approved three grants that could lead to more biomethane-fueled vehicles in the state. The agency plans to award

- \$1,499,000 to Mendota Bioenergy to try converting sugar beets and such agricultural waste as almond orchard prunings into several kinds of transportation fuel, including biomethane;
- \$1,315,800 to Sacramento-based Clean World Partners to divert organic waste from landfill disposal and convert it into biomethane for Yolo County buses; and
- \$1,229,966 to Canada's G4 Insights, Inc. to test the feasibility of creating pipeline-quality natural gas from forest waste in league with Placer County.

CEC, Peter Ward, CEC, Peter Ward, 916-654-4639;

pward@energy.state.ca.us; www.energy.ca.gov

...and Aries Gets Algae Go-Ahead

Santa Barbara-based Biodiesel Industries is talking up an \$887,000 grant from the California Energy Commission to advance the Aries line of mobile biodiesel production facilities with Gencorp-Aerojet for algae feedstocks.

Aries stands for automated real-time, remote, intelligent integrated energy system. Under the CEC grant, "the system will be adapted to fully integrate algaculture, anaerobic digestion of waste products, and self-generated combined heat and power," Biodiesel Industries says.

"This unique approach will enable the production of biodiesel to be self-sustainable, produce excess renewable energy and substantially reduce greenhouse gases."

Biodiesel Industries, president Russ Teall, 805-683-8103;

rteall@biodieselinindustries.com; biodieselinindustries.com

Biodiesel Challenges Remain

The biodiesel industry has gotten its \$1-per-gallon tax credit back, which means that idles plants will be starting back up. Operators should take care: "While restarting a plant may prove more financially attractive now, such restarts carry significant risks if done with improper planning." That's the word from Wayne Lee, principal owner of the Lee Enterprises biodiesel consulting group in Little Rock, Ark.

'Buyers Demand a Comfort Level'

U.S. EPA paperwork requirements have gotten trickier, Lee says, as have safety requirements. Quality is another concern, as "The biodiesel buying world has gotten much more demanding," Lee says. "Buyers demand a comfort level that the product is going to be of superior quality on a consistent basis." His organization can assist with setting up a quality assurance program.

"We have specialists covering virtually every area of the biodiesel universe and we know the pitfalls," Lee says.

"In the final analysis, good consultants will always save clients more than they cost."

Lee Enterprises, principal Wayne Lee, 501-833-8511;

wlee52@yahoo.com; www.lee-enterprises.com

Events

NSA This Week in Palm Desert



The National Sheriffs' Association is holding its 2011 Winter Conference **January 5-8** at the JW Marriott Desert Springs Hotel in Palm Desert, Calif. NSA's annual meeting is slated for **June 18-22** at the Cervantes Convention Center in St. Louis.

NSA, *Karen Killpack*,

703-838-5331; kkillpack@sheriffs.org; www.sheriffs.org

Propane in Atlanta in April

April 16-18, National Propane Gas Association's Southeastern Convention & International Propane Expo. Georgia World Congress Center in Atlanta.

NGPA, *Erin Carraghan*, 202-466-7200; fax 202-466-7205; ecarraghan@npga.org; www.npgaexpo.com

Natural Gas & Propane in Istanbul



March 17-20, Gas Turkey Fair 2011, the 4th international exhibition for natural gas and propane-LPG vehicles. CNR Expo Fairground in Istanbul. Organized by Senexpo International Fairs Inc.

Senexpo (Istanbul), Mr Ahmet Bakis

or *Ms Dondu Karabiyik*, +90-212-224-6878;

fax +90-212-224-8558; abakis@senexpo.com.tr;

dkarabiyik@senexpo.com.tr; www.gasturkey.eu

EDTA 2011 in Washington in April

April 19-21, EDTA 2011 Conference & Annual Meeting. Walter E. Washington Convention Center in Washington, D.C. 'An Earth Week event.'

Sponsorships available.

Electric Drive Transportation Association,

Amy Babcock, 585-473-3220 or 202-408-0774, ext 333;

ababcock@electricdrive.org; www.electricdrive.org

NAIAS: The Big One in Detroit This Month

The North American International Auto Show — located again at Cobo Center in Detroit — opens to the press one week from today, on **January 10**.

An industry preview is slated for **January 12-13** and the show goes public **January 15-23**. It is the 23rd year for NAIAS as an international event. www.naias.com



SAE 'Charging Forward Together' in April



Charging Forward Together is the decidedly electric theme of the SAE 2011 World Congress **April 12-14**, also at Detroit's Cobo Center.

General Motors is the host company for SAE this year, and Chevy Volt lithium ion battery supplier LG Chem is a Tier One strategic partner.

Sessions on electronics, powertrains and propulsion and materials planned.

SAE, *Lorie Featherstone*,

248-273-4098; lfeather@sae.org; www.sae.org/congress

NGV Training Discounts Until January 17

Discounts of up to \$420 for Natural Gas Vehicle Institute training **February 8-10** in Downey, Calif. expire **January 17**.

CNG and LNG course registration closes on **Jan. 31**.

NGVi (*Las Vegas*), *Leo Thomason* or *Kristi Maston*, 702-254-4180 or 800-510-6484; kmaston@ngvi.com or ngvittraining@ngvi.com; www.ngvi.com

Concrete and Biomethane This Month

January 17-21, World of Concrete at the Las Vegas Convention Center in Las Vegas, Nev. (exhibits **Jan. 18-21**).

Organized by Hanley Wood (Irvine, Texas).

World of Concrete, *Steven Pomerantz*; 972-536-6423;

spomerantz@hanleywood.com; www.worldofconcrete.com

January 19-20, 14th LMOP Annual Conference and Project Expo, organized by the Landfill Methane Outreach Program of the U.S. EPA. At the Hilton Baltimore in Baltimore, Maryland. *EPA/LMOP*, *Rachel Goldstein*, 202-343-9391; goldstein.rachel@epa.gov; www.epa.gov/lmop

Green Trucks in March

"We see a combination of all the elements of the industry coming together," says Doyle Sumrall of the National Truck Equipment Association and NTEA's new affiliate division, the Green Truck Association, as his team and Calstart's gear up for the Green Truck Summit **March 7-8** in Indiana.



The Green Truck Summit will cover clean fuels and drive technologies, as well as weight reduction techniques and renewable materials. GTS takes place immediately prior to NTEA's no-nonsense Work Truck Show **March 8-9**.

The Work Truck Show is expected to draw 8,000 fleet professionals to the Indiana Convention Center in Indianapolis. It will include a green truck ride-and-drive. Stay tuned for advance word on new CNG vehicles there.

NTEA, *Kathy Swartzentroyer*, 248-489-7090, ext 108;

kathy@ntea.com; www.ntea.com

NTEA/Green Truck Ass'n, *Doyle Sumrall*, 330-283-2176;

doyle@ntea.com; www.greentruckassociation.com

Calstart-Green Truck Summit, *Susan Romeo*, 626-744-5600;

sromeo@calstart.org; www.calstart.org

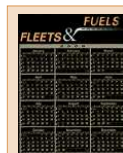
ACT Expo in Long Beach in May

May 4-6, ACT Expo 2011, the Alternative Clean Transportation Expo. Long Beach Convention Center in Long Beach, Calif.

Organized by Gladstein, Neandross and Associates. Sponsors include the South Coast Air Quality Management District, Clean Energy Fuels, Freightliner, the Propane Education & Research Council, Trillium USA, and Westport Innovations.

GNA, *VP Anne Hellwig*, 310-573-8558;

anne@gladstein.org; www.actexpo2011.com



Meetings!!

Click here for instant access to a complete listing of upcoming meetings and conferences courtesy *Fleets & Fuels*

Strategies

Clean Energy Fuels

U.S. NGV Fueling Leader Expects Strong 2011 But Sees Even Greater Market Pickup in 2012

Clean Energy Fuels (NASDAQ:CLNE) expects a strong 2011 but sees even greater market pickup in 2012 as new OEM models become available — ranging from light to heavy duty — and fueling infrastructure is improved — in large part by Clean Energy itself.

The emergence of domestic shale gas in greater commercial quantities will help, as the diverging prices of liquid petroleum fuels and natural gas diverge even further.

That's the view of Andrew Littlefair, Clean Energy president and CEO, who took the former Pickens Fuels public in 2007.



Clean Energy founder Boone Pickens & CEO Andrew Littlefair, as the firm rolls its own LNG at Boron, Calif.

Volumes Up in 2010

"We can save them a dollar a gallon," Littlefair says of fleet operators who switch to methane.

That's why he expects Clean Energy volumes to be up 25% when 2010 tallies are in (through the third quarter, the increase is better than 27% compared to the first nine months of 2009).

In 2009, Clean Energy acquired BAF Technologies,

and BAF's big contracts for converting Ford vans to dedicated-CNG operation for AT&T, Verizon and other fleets. AT&T alone now has more than 2,000 BAF vans, and more customer announcements are expected.

Last year Clean Energy acquired IMW, yielding a strong position in fueling stations, and market access as far afield as China. The \$125 million buy "positions Clean Energy strategically in the forefront of the rapidly growing natural gas vehicle industry worldwide," Littlefair said in September.



Clean Energy

Later in 2010, Clean Energy moved to buy NorthStar, a specialist in LNG fueling equipment. IMW and NorthStar will help Clean Energy realize its plans with Pilot Flying J to realize a network of LNG-offering truck stops (*F&F*, Oct. 25).

LNG expert Greg Roche is heading up the infrastructure effort. Littlefair says he hopes to see two dozen strategically located LNG outlets either pumping fuel or close to it by the end of 2011.

Big Name Shippers Will Be Targeted This Year

In order to have more trucks to fuel, Clean Energy will this year target the name-brand companies that hire most of the nation's trucks, urging the famous firms to require their haulers to use natural gas. Clean Energy veteran Jim Harger has charge of that new effort, Littlefair told *F&F*.

"There's great potential with a lot of the big shippers," Littlefair says. "I think that's going to be the story of 2011 and going into 2012."

Clean Energy Fuels at a glance

Headquarters: Seal Beach, California

Products: Compressed and liquefied natural gas for vehicle fueling, CNG vehicle conversions, turnkey NGV fueling facilities.

Facilities: LNG liquefaction plants for up to 35 million gallons per year outside Houston and 60 million gallons per year in Boron, Calif.

Key Suppliers: Southern California Gas, San Diego Gas & Electric and other utilities for pipeline natural gas, Williams Gas Processing and others for LNG.

Key Customers: AT&T, LA Metro, Republic Services, Verizon, Waste Management (as well as scores of municipal and other government, airport shuttle, taxi, transit, waste and other fleets)

Clean Energy by the Numbers

(in millions of dollars and millions of gasoline gallon equivalents)

	2007	2008	2009	thru Sept. 31 2010	extrapolated 2010
Sales	\$117.7	\$125.9	\$131.5	\$114.7	\$152.9
Net income (loss)	(\$8.9)	(\$44.4)	(\$33.2)	(\$16.3)	(\$21.7)
Fuel volume	75.3	73.5	101.0	91.0	121.3

Clean Energy Fuels (NASDAQ:CLNE) provides natural gas for more than 20,000 vehicles at more than 200 fueling stations

Key Contacts at Clean Energy

Boone Pickens, founder and Chairman Emeritus

Andrew Littlefair, president & CEO

Mitchell Pratt, COO; mpratt@cleanenergyfuels.com

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IMW, Steve Steinebach,

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