

FLEETS & FUELS SHOW TIMES

ALTERNATIVE FUELS & VEHICLES NATIONAL CONFERENCE + EXPO

TUESDAY, APRIL 21, 2009



An AF&V 2009 First

Today's ride-and-drive is the first for the 2010 model Prius — new diesel vehicles too, and the CNG Dixie Chopper. —Page 3

A Million Hybrids

That's just in the U.S. as Toyota maintains its leadership. —Page 4

Honda GX, FCX, Peterbilt

Honda is here with its dedicated-CNG Civic GX car as placements of the hydrogen fuel cell Clarity FCX continue, and a Class 8 hybrid truck with Eaton drive is deployed for parts deliveries. —Page 5



Putting Diversity to Work

A wildly varied constituency and a host of technical and political issues challenge the National Biodiesel Board. —Page 6

GESI Gets Bigger, Bigger

CNG station-builder has new products, people, and locations: it's expanded from its California base to the Midwest. —Page 7

Trillium Maintains Focus

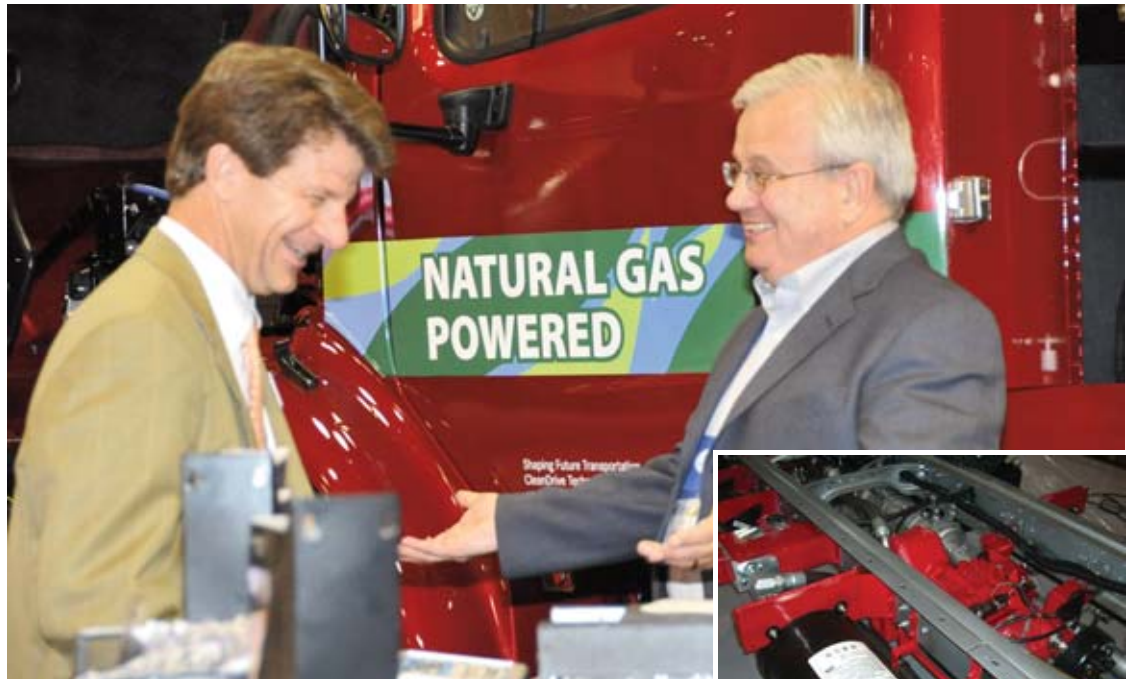
CNG provider still concentrates on large-volume installations. —Page 9

Don't Forget Training

AFVi's own "dean" of the industry welcomes NGVs' dramatic resurgence in the U.S. but warns that a current shortage of qualified technicians may well get worse — with potentially serious, even catastrophic consequences. —Page 10



CONVENTION & TRADESHOW NEWS



The OEMs and Their AFVs

Automakers are taking a beating this year but they're still making progress in alternative fuels. And, say what you will about the OEMs, they've got the factories and the engineers, the networks of dealers and the brands, that make both professionals and consumers buy.

Jim Harger of natural gas provider Clean Energy Fuels (above left) shares a laugh with Bob Carrick of Freightliner. They're happy because the new CNG-fueled Freightliner is making its first appearance anywhere here this week. It's got a Cummins Westport ISL G engine meeting 2010 emissions limits and fuel system by Fab/AFV with tanks by Lincoln Composites. An LNG version with Chart/NexGen tanks is entering production first. Lincoln also supplied the accumulator shells for Freightliner Custom Chassis Corp hydraulic hybrid (inset), with series drive by Parker-Hannifin.



Boone Pickens accepts the AFVi's "Green Giant" award from AFVi chief Annalloyd Thomason.

A Green Giant, He Is

Boone Pickens accepted the Alternative Fuel Vehicle Institute's new "Green Giant" award from AFVi chief (and AF&V 2009 hostess) Annalloyd Thomason at the Clean Energy-hosted breakfast here yesterday.

His Pickens Plan, she noted, has brought natural gas as a transportation option to the notice of the public and policymakers alike. Natural gas has been recognized as an important part of the battle to wean America from petroleum dependence, she said, and "Transportation is at the heart of it."

Among many other observations, deploying 350,000 natural gas trucks, Pickens said, could alone reduce oil imports by 5%.

Growth Energy for Ethanol

"America needs a new ethanol approach," says Growth Energy, which has come on the scene as "a new, proactive group committed to the promise of agriculture and growing America's economy through cleaner, greener energy." The Washington-based group wants to see "smart policy reform." It's organizing a new grassroots push and has come to AF&V 2009 as a gold level sponsor (Booth 326).

Growth Energy's Jennifer Powell with Gilbarco Veeder-Root dispenser and 'Edgar.'



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Booth 536



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Got a Question? The Answers Are Here

Dear AF&V 2009 Attendees:

What a difference a year makes. Think of what has happened in a few short months. An unprecedented hundreds of millions of dollars were allotted in the Federal stimulus bill for the advancement of alternative fuels, vehicles and technologies. The Environmental Protection Agency is expected to rule favorably this spring on California's request for a waiver from federal requirements that allows them to set tailpipe emissions standards higher than the federal governments. The Clean Air Action Plan at the Ports of Los Angeles and Long Beach has unleashed unprecedented financial opportunities for the replacement of old trucks. And, 2008 marked the year that "alternative fuels" became the widely accepted societal lexicon for low carbon fuels and clean vehicles.

When Peggy Noonan was the speech writer for President Ronald Reagan, she had a very candid, three-



Annalloyd Thomason

part reaction to working in the White House.

Stage One: I hope nobody figures out how stupid I am.

Stage Two: after few months in the White House: Hey, I'm as smart as everyone else.

Then a few months later came *Stage Three:* Oh my God, we're in charge?

And to us, "in charge" means being part of a rich community driven by passion and smarts. Look around at the people, companies and

products that are part of this conference. We've got Jerome Webber, representing AT&T, the company that soon will deploy a staggering 15,000 alternative fuel vehicles. Richard Lowenthal, the head of Coulomb Technologies, figuring out smart charging for electric vehicles. The Honda FCX Clarity was recently named the "World Car of the Year," and Toyota is launching their next generation 2010 Prius at this show. Westport Innovations is experiencing unprecedented growth with their natural gas engines, and dozens of U.S. Department of Energy Clean Cities coordinators are here, busily growing the program with their many stakeholders.

The "take charge" prowess of our government and industry leaders is impressive. Just as impressive are the decision-makers on the front line who have to navigate this ever-changing terrain. Here are the questions we've heard in the past year through our fleet training and consulting work:

• How do you decipher and land on

the right fuel, vehicle, or technology choice?

- Who will tell me the real life cycle cost of the vehicle?
- What are the maintenance and servicing training needs?
- How do you solve the infrastructure problem?
- How do I learn about and access government funding?;
- How do you compare and document emissions benefits?;

Today is Fleet Day, and our goal is to answer those questions and no doubt raise some more. Today's sessions include product rollouts, the Ride-and-Drive, sessions on infrastructure, funding, emissions, and the business case.

Whether you are interested in biodiesel or hybrids, the *Who's Who* of the industry is on hand to make your drive down the alt fuels road a smooth one. Henry Ford said, "Coming together is a beginning. Keeping together is progress. Working together is success." Here's to continued success.

—Annalloyd Thomason

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Disney Rides You Can Drive Tuesday Afternoon Ride-and-Drive

To participate in today's groundbreaking ride-and-drive, simply bring your valid driver's license and sign up at the appointment scheduling desk, located adjacent to the AF&V 2009 registration counters.

You'll receive a set appointment time for each vehicle you would like to experience. Then, on Tuesday from 1:30 to 5:00 p.m., the auto-makers await your arrival.



Fun, no? Darren Hughes on the new CNG-fueled Dixie Chopper XCaliber.



2010 Toyota Prius makes world debut at a ride-and-drive event today.

Ride-and-Drive Vehicles Scheduled

American Honda Motor Company

- Civic GX (CNG)

Bosch

- BMW X5 (Diesel)
- Mercedes Benz ML320 (Diesel)
- Volkswagen Jetta (Diesel)

CT&T Florida/e-zone

- e-zone (Electric)

Dixie Chopper

- XCaliber Mower (CNG)

Ford Motor Company

- Escape (Hybrid)
- Fusion (Hybrid)

Global Electric Motorcars

- e4 (Electric)
- eL XD (Electric)

National Biodiesel Board

- Volkswagen Jetta (Biodiesel)

Renewable Fuels Association

- Flex Fuel Vehicle

Toyota Motor Sales USA, Inc.

- Camry (Hybrid)
- Highlander (Hybrid)
- Prius (Hybrid)

ZENN Motor Company

- 2008 ZENN (Electric)



April Smith, Marvene Christopherson, Sean Lenihan, Ed La Rocque and the 2010 Prius.

Toyota Tops a Million U.S. Hybrids, Says Its 2010 Prius 'Raises the Bar'

Toyota, which launched its foray into hybrid vehicles by offering the first-generation Prius in Japan in late 1997, says that sales of its half a dozen Toyota and Lexus hybrid models in the U.S. have now topped one million units. Toyota said it's accounted for three quarters of the U.S. market.

"One million hybrids in less than nine years indicates how quickly American consumers have accepted this important technology," said Toyota Motor Sales president Jim Lentz. "With 10 new hybrid models between now and 2012 in various global markets, we plan to sell one million gas-electric hybrids per year, worldwide, sometime early in the next decade."

Cumulative worldwide sales of Toyota and Lexus hybrids have exceeded 1.7 million vehicles. The Prius total is more than 1.25 million.

Toyota has provided the 2010 model Prius for the AF&V 2009 ride-and-drive. The new vehicle "raises the bar for hybrid vehicles," the automaker said.

"Prius will once again set new standards" — including EPA-estimated fuel efficiency rating of 50 mpg.

A larger and more powerful 1.8-liter Atkinson-cycle, four-cylinder engine will produce 98 horsepower at 5,200 rpm in the new Prius, Toyota says (combined net horsepower, with electric motor, is 134). The increased power and torque means the engine can run at lower RPM, saving fuel.

Toyota says that the 2010 version of the car's Hybrid Synergy Drive is 90% new. "The system blends the best of parallel hybrid and series hybrid designs to achieve the ability to operate on the electric mode alone, and to charge the batteries while the car is running," the company said. The car's inverter has a new direct cooling system to reduce size and weight. Aerodynamic improvements contribute to the 2010 mileage gains too.

Toyota will continue to use nickel metal hydride batteries in the 2010 Prius.

Looking ahead, Toyota is working on a hybrid version of the compact Yaris.

A CNG-fueled Camry Hybrid was shown as a concept car at the Los Angeles Auto Show late last year.

Toyota's Ed La Rocque is hosting breakfast this morning.

Hybrids and Biodiesel Both

Impartial energy observers agree that to replace oil, the U.S. will need a host of solutions. The Florida Power & Light utility is a pioneer in both hybrid work trucks and biodiesel, having led a pooled procurement of so-called HTUF work trucks with Eaton electric drives — which it has proceeded to fuel with biodiesel.

Accordingly, George Survant of FP&L will speak at two AF&V 2009

sessions this afternoon: *In High Gear: Electrification of Medium- and Heavy-Duty Transportation Technologies* in **Swan 9/10**, followed later by *Homeland Security: Growing Domestic Fueling Solutions with Biodiesel* in **Mockingbird**. Also to participate are representatives of exhibitors Dueco-Odyne for hybrids (**Booth 335**) and the National Biodiesel Board (**Booth 410**).

Eaton is at **Booth 449**.

SNAPSHOTS

Clean Energy Claims an Idaho First

Clean Energy (**Booth 334**) yesterday reported a contract with Republic Services and the City of Boise to build and operate a compressed natural gas (CNG) time-fill station and provide fuel for Republic's planned deployment of a new CNG refuse truck fleet that will be the first in Idaho. Republic has an exclusive contract with the City of Boise to provide all solid waste and recycling services to more than 68,000 residential and commercial customers in the Greater Boise area, Clean Energy said.



A GEM of a Chrysler

"We are coming off of the best year in our history" says Global Electric Motorcars president Rick Kasper, seen here with regional sales manager Lenny Szabo (left). Will sales at least be flat this year? "The year is young," Kasper told *ShowTimes*. GEM is at **Booth 452**.



CleanFuel Propane School Buses

Curtis Donaldson of CleanFuel USA and Ron Smith of Blue Bird will be releasing new information about propane school buses in Southern California and elsewhere tomorrow at the Propane Education and Research Council **Booth 506**. "This uptick in sales has pushed beyond initial forecasts, making propane the go-to alternative fuel option for most school transportation fleet managers today." The Vision bus with liquid injection 8.1-liter GM engine meets both EPA and California standards for 2010.



Beyond the ISL G – the X2G?

Natural gas vehicle proponents are hoping that Cummins Westport, Inc. (**Booth 234**) will launch a spark-ignition, dedicated-methane variant of Cummins's new 11.9-liter engine for big buses and Class 8 over-the-road trucks. Don't expect word until much later in the year, however, as even the base diesel version of the large new engine — tentatively dubbed the X2 — has not been formally announced. Meanwhile CWI's current "flagship," the 8.9-liter, lead-burn stoichiometric ISL G, already meets 2010 emissions limits, doing so with exhaust gas recirculation (EGR) and three-way catalyst. CWI reported late last year an order for 260 ISL G engines for 45-foot Compo-Buses by North American Bus Industries. The NABI 45C vehicles are for LA Metro in Los Angeles, which holds an option for 740 more of the lightweight, high-capacity buses. Fab Industries/AFV is installing the buses' CNG systems using Type IV all-composite fuel cylinders from Lincoln Composites (**Booth 546**). CWI meanwhile confirms that its 5.9-liter B engine will not be offered for 2010 compliance.





Tim Bannon of Macnab Transit Sales with Cliff Clare, and VP Jared Schnader of Foton.

Foton Forges Ahead: Economical CNG Bus with Chinese Chassis

Foton America is showing its Chinese-built CNG transit bus with enough U.S. componentry — including ISL G engine from Cummins Westport (Booth 234) and U.S.-made fuel cylinders — to satisfy Buy America requirements for federally supported agencies.

“This city bus is fully customizable and is priced to effectively eliminate all diesel incremental cost concerns,” Foton says.

Foton, which made its debut at AF&V 2009 in Las Vegas, will offer a CNG bus for roughly the same price as a diesel bus.

A production-ready vehicle, with fuel system by AFV/Fab Industries and initial fuel cylinders from Lincoln Composites (Booth 546), is to arrive for FTA Altoona testing in September.

Eaton Hybrid for Honda

Honda says it's the first in its industry to introduce a Class 8 hybrid diesel electric truck, deploying a Peterbilt 386 with Eaton (Booth 449) parallel drive for dealer deliveries from its parts center in Alpharetta, Ga. The Honda truck fleet operated by UPS Freight Truckload “typically travels 300,000 miles per day,” Honda says. The hybrid will be tested in a hilly route in Tennessee and a relatively flat one in Georgia to evaluate fuel economy under various conditions. Honda will alternate the hybrid with a standard diesel and will collect data using engine telematics to compare performance.



Testing and evaluation will take place over the next year. Honda says it will be adding Peterbilt Class 7 medium duty hybrid trucks at its parts centers in Alpharetta and Irving, Texas “soon.”

GX Still Only U.S. NGV by an OEM

When it comes to U.S. passenger cars, there's still only one natural gas vehicle from an OEM: the Civic GX from American Honda. And while production is limited to about 2,000 units per year, Honda says that recent events — the financial crisis and the drop in gasoline prices — vindicate decisions last year not to radically increase output of the dedicated-CNG sedan.

Separately, Honda last month began sales of its all-new 2010 Honda Insight with an MSRP of \$19,800 for the Insight LX. The five-passenger car has a 1.3-liter engine and 10-kilowatt electric motor for an EPA-estimated city/highway fuel economy rating of 40/43 miles per gallon.



Elizabeth Munger & Eric Rosenberg at Booth 428.

Honda is forging ahead with its commercialization of hydrogen fuel cell passenger vehicles too, affirming plans to place triple-digit numbers of its state-of-the-art “Star Garnet Metallic” (red) FCX Clarity with the driving public.

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Biodiesel Board: Can Its Diversity Prove a Virtue?

The National Biodiesel Board represents a broad swathe of alternative fuel advocates: drivers of converted vehicles running on recycled vegetable oil, growers of conventional (food) and new (non-food) oil-producing crops, algae developers, the refiners who process the oils, hard-nosed jobbers offering the renewable for strictly economic (including marketing) reasons, and purveyors of filters and additives.



Joe Jobe

NBB itself works technical, political and market issues. The tax implications of the new ASTM biodiesel standard is a current focus, as is best use of the BQ-9000 quality assurance program, and training. A recent effort covers cold soak filtration issues.

NBB just filed a formal response to the European Commission's provisional duties on U.S. biodiesel — and assailed the EC's "arbitrary procedural conclusions and inaccurate market assumptions."

The association is wrestling with the broad fuel-vs-food issue, and the implications it has for new regulatory structures like the Low Carbon Fuels Standard in California.

Missouri-based NBB (Booth 410) launched a sustainability website at its annual meeting in San Francisco earlier this year (next year's will be held



NBB faces challenging OEM issues, too.

at the Gaylord resort outside Dallas February 7-10), urging scientists to endorse a Sustainability Declaration: "Biodiesel can reduce dependence on petroleum, help address climate change and boost domestic economies," it states.

"We're here, now, we're getting better all the time, and we represent the future, not the past," association chief Joe Jobe said, calling on his industry to "leverage its diversity."

While an auto industry in transition and a new president represent opportunity, biodiesel is under attack from petroleum industry and other forces wishing to preserve the status quo.

"As oil prices have retreated," Jobe said, "once again alternatives are being suffocated out of the markets."

"Sound, stable, long-term energy policy is necessary," he said.

Biodiesel fleet operators including Bruce Chesson of the nearby Kennedy Space Center, Nina Hoffert of Lakewood, Colo., and George Survant of Florida Power & Light will speak at the *Homeland Security: Growing Domestic Fueling Solutions with Biodiesel* session in *Mockingbird* this afternoon.

NBB technical chief Steve Howell will be there, as well as at an earlier afternoon session on 2010 diesel engine requirements, also in *Mockingbird*.

UTC, Dynetek on Oakland Buses

UTC Power (Booth 314) is supplying its PureMotion brand 120-kilowatt ambient-pressure fuel cell units to power 16 new hydrogen buses by Belgium's Van Hool for Oakland, Calif.-based AC Transit.

The vehicles will have Siemens electric drivetrain hardware (with lithium ion batteries for regenerative braking), and roof-mounted, Type III, carbon-on-aluminum hydrogen fuel tanks by Canada's Dynetek Industries (Booth 245).

AC will own, maintain and operate

12 of the buses in revenue service for itself and other San Francisco Bay Area agencies. Four will go via UTC to Connecticut Transit in Hartford, AC says.

UTC notes that its zero-emission fuel cell power units are in use in Spain, Italy and Belgium too, and that the fuel economy of hybrid fuel cell buses powered by the PureMotion Model 120 "is nearly two times better than a diesel-powered bus."

Mike Tosca is transportation program manager at UTC.



SNAPSHOTS

Denver's FuelTek for Pioneer Pickups

Denver's FuelTek (Booth 621) has converted 25 Ford F-250 pick-ups to bi-fuel CNG-gasoline operation for Pioneer Natural Resources, and has installed a fueling station near Trinidad to support Pioneer's Raton Basin operations in Southern Colorado. FuelTek offers its own EPA-certified bi-fuel systems for 2008 Ford F-250 and E-350 vans, installs equipment from Baytech (Booth 616) and Altech-Eco (236), among others, and offers propane conversions. Most of the CNG fuel cylinders for Pioneer were supplied by SCI. FuelTek also buys CNG tanks from Lincoln (546) and Luxfer (414).

Truckers Delivered



Virginia-based FleetSeek is at Booth 550 offering "comprehensive, accurate, and up-to-date demographic and marketing information" on more than 200,000 truck fleets via a custom-built internet search engine. All of the information is "from the fleets themselves," says Laurel Johnson, a FleetSeek business development director. It's gathered not from public records but by "a team of in-house researchers who sit down and smile and dial," she told *ShowTimes*.

FirmGreen to Offer CNG, Delivered

FirmGreen (Booth 513), which is producing CNG from landfill gas near Columbus, Ohio, is converting a 16-passenger Ford E-450 shuttle bus to the clean fuel (conversion by BAF). FirmGreen also expects delivery by May 1 of a mobile fueling trailer by Canada's Dynetek (Booth 245), replete with dispenser, to allow CNG deliveries to customers. Rhonda Howard is here for FirmGreen with company president Steve Wilburn.

ANGI for Turnkey NGV Fueling

ANGI Energy, founded in 1983, bills itself as one of the few companies "exclusively dedicated to providing highly integrated turnkey NGV refueling solutions." Products include compressors, control systems, dryers, storage and dispensers. With Hurricane Compressors, ANGI has supplied more 600 complete fueling installations worldwide. About half of its business is outside the U.S. ANGI president Andy Grimmer and sales chief Dan Hicks are here. Booth 451.



Go Natural CNG

Go Natural CNG is the new name for Utah's formerly SNO-Motion Solutions/Motion Technology. The company claims the largest selection of EPA-certified CNG conversion kits available "anywhere," handling Baytech, BAF, FuelTek, NaturalDrive, Altech-Eco and Emissions Solutions, Inc. hardware. Go Natural also supplies cylinders, and says it's developing its own EPA-certified system too. "Our mission is to build the most complete and comprehensive network of parts, supplies, knowhow and proven processes," Go Natural says. Booth 512.

GESI: More Products, People, Projects, Places

California's Gas Equipment Systems, Inc. weighs in with a broader product line and new personnel, and reports more than half a dozen new projects in California and one in the Midwest.

UK compressor supplier CompAir, acquired last year by longtime GESI supplier Gardner Denver, has authorized GESI to package the full CompAir line of CNG compressors. "Combined with Gardner Denver, this addition will allow us to cover a very broad range of scfm outputs," says GESI president Larry Ozier. "Like GD, the CompAir line of compressors are very robust and well designed," he says. The two have merged manufacturing at the CompAir plant in Ipswich, England.

Paul Green, a 44-year CompAir veteran, "will take the lead in helping us develop the market in the U.S.," Ozier says. Kelly Crawford will help with business development at GESI headquarters as Rich Stoddard takes the Midwest region. He's based in Aurora, Ill.

GESI expects to break ground at Groot Disposal in Elk Grove Village, Ill. on May 1. The plan includes two 171 scfm Gardner Denver compressors providing fuel for Groot's 40 new CNG refuse trucks, Ozier says. GESI also provides fueling for the McNeilus Trucks factory in Minnesota. McNeilus has stepped up its efforts in CNG trash tracks, and is developing a CNG concrete mixer on a Kenworth chassis under a South Coast Air Quality Management District contract.

In California, GESI

- will soon break ground on the Morongo Basin Transit Agency Phase II project in Joshua Tree.

GESI completed phase I at the agency's Twentynine Palms location in 2007.

- expects to break ground on two new CNG fueling stations in the California Central Val-



GESI president Larry Ozier.

ley, a combination public/private access station in Exeter and another in Turlock.

- has been awarded a contract to construct the CNG fueling station for the City of Chowchilla.
- expects to begin construction in May of a public access CNG station for Avery Petroleum at an Avery gasoline fueling station in Laguna Niguel.

GESI broke ground on a new CNG station for the City of Rancho Cucamonga yesterday. The installation will include time and fast fill for the city's fleet. **Booth 536.**

Green Light Today

If you're here for EVs, don't miss *The Green Light: Electric Vehicles Changing How Cities Drive* in **Pelican** this afternoon.

Scheduled participants include Rick Kasper, president of Chrysler's Global Electric Motors (**Booth 452**), Bill Williams of Canada's ZENN Motor (**Booth 352**), Project Get Ready's Matt Mattila, and David Worthington of Sonoma County, Calif., which is working on EV charging infrastructure with Nissan and other OEMs.

Discussion will cover federal funding, preparation for a plug-in future, and the partnerships that are accelerating EV market penetration.

San Francisco-based consultant Rick Ruvolo will moderate.



William Rigsby and Helda Rodriguez of Nova-Charge, which is providing scalable, revenue-producing ChargePoint brand public EV charging stations from Coulomb (**Booth 606**).



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FLEETS & FUELS



Delphi's on the Fusion Hybrid as it works to make inverters smaller and lighter.



Delphi Packs for Ford Seen Followed By More OEM Electric-Drive Business

Delphi is targeting high-volume applications in the electric drive vehicle arena. The company sees annual growth, as the economy gets back on track and fuel prices rise again, of 20% per year or better for the sector, until at least 2020.

Delphi, born of GM-Delco, is to supply battery packs (with lithium ion cells by Sanyo; *F&F*, Feb. 29) for Ford's new Fusion Hybrid. Delphi supplies connectors and wiring harnesses for electric drive vehicles too.

Higher-tech, Delphi is leading a DoE drive to lower the cost of high-power inverters for e-drive vehicles.

"The current value equation for a strong hybrid is weak," says Tom Goesch, managing director for hybrid

electric vehicles and power electronics at Delphi. Vehicles that sold well with gasoline at \$4 per gallon fare less well at \$2, he points out. Delphi's goal for DoE is a DC-AC inverter that's half the size and cost of today's and can be cooled using the same plumbing that the vehicle's engine uses.

"We have a lighter, smaller package than our competition," Goesch says.

He predicts OEM announcements, heavy duty vehicle news, and news from Asia and Europe in the coming months. "We see this as a very robust market growing at probably 20 to 25% over the next ten years," he says.

"It's going to grow fast."

[Ford is at [Booth 434](#) here.]

Fleets & Fuels, April 6

Hydrogen Highway Taps Pipeline

New hydrogen stations in California include the first to tap a refinery pipeline and the first by independent owners of a major-brand gasoline station.

A station on Toyota property in Torrance is to be fed by Air Products' 17-mile pipeline, which carries hydrogen made via large-scale natural gas reformers in Wilmington and Carson at a pressure of 800 psi. The pipeline pressure will help curb station operating costs as the fuel is compressed for 5,000- and 10,000-psi vehicles.

In nearby Harbor City, the independent owners of Mebtahi Chevron have tapped Air Products to truck compressed hydrogen from the new Shell-Toyota facility via a 7,500-psi tube trailer, DoT-approved last year, by Structural Composites Industries (SCI). "We use the same low-cost mole-

cules," says Air Products' Dan Rabun.

It's economical too because no compressor will be needed to fuel 5,000-psi vehicles, he says.



Air Products' reformer in Carson feeds refineries.

The base cost of pipeline hydrogen may be reckoned at about \$2.50 per kilogram, about equal in energy content to a gallon of gasoline.

The Harbor City project is backed by the California Air Resources Board.

CARB is also supporting a new Shell Hydrogen station at Newport Beach, where hydrogen will be made on-site via natural gas reformation. And, the agency is backing a fueling unit at the University of California Los Angeles with hydrogen made via a (relatively) low-temperature, UCLA thermochemical process. The idea is to "decompose" water with no carbon emissions.

Fleets & Fuels, April 6

Plug-In Yard Hostlers by Capacity

Capacity of Texas has developed a plug-in hybrid electric version of its Trailer Jockey brand yard hostler, terming its PHETT, for pluggable hybrid electrical terminal truck, "not a retrofit but a guaranteed OEM solution." The series hybrid design features a 225-horsepower 3-phase AC traction motor by Baldor with an EnerSys lead acid battery array charged by 40-amp single-phase 220V grid power — or via an onboard 40-hp Cummins Onan diesel engine. Capacity projects fuel savings of up to 60%. "This product will change perceptions and reduce operational expense of terminal tractors as we know them today," said Capacity president Phillip Ford.

Fleets & Fuels, April 6



Diesel Replacement in Cambridge

Boston's Alternative Vehicle Service Group reports an order of seven diesel-replacing, CNG-fueled EIDorado buses by CRTMA — the Charles River Transportation Management Association of Cambridge, Mass.

Fleets & Fuels, April 20

CNG Engine Option from Doosan

Korea's Doosan is taking the wraps off a lean-burn, 11-liter engine for natural gas vehicles, noting that a simple software change will allow it to run on blends as high as 60% hydrogen. An initial 290-horsepower version is planned, says Kwangsup "K-sup" Hwang, who is running the project from Doosan's branch in Suwanee, Ga., where the engine will be built.

Fleets & Fuels, September 1

Kia's Forte Propane Hybrid

Kia launched the Forte LPI propane/LPG-fueled hybrid for the Korea market, using lithium ion batteries from GM Volt supplier LG Chem. Kia said it will spend some \$6 billion on R&D this year with parent Hyundai, "with majority of money pumped into development of new hybrid and fuel cell electric cars such as Kia Forte LPI hybrid and Borrego FCEV." *Fleets & Fuels, April 6*



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Trillium Is Still Focused on Large Outlets for CNG

Salt Lake City-based Trillium USA specializes in large CNG fueling installations, pointing with pride to its role as fuel provider for natural gas buses in New York City, Los Angeles, and Orange County, Calif. In Anaheim and at the Jackie Gleason Depot in Brooklyn, Trillium has replaced aging Knox Western compressors with more modern Ariel units.



Trillium has installed new Ariel compressors at the Jackie Gleason depot in Brooklyn, N.Y.

In Los Angeles, Trillium is proposing to apply approximately \$6 million in early federal stimulus funding the Caterpillar natural gas engines driving compressors at three LA Metro CNG stations with more efficient electric motors. The motors are expected to cost less to operate in terms of energy expense, be free of local emissions, require less maintenance, and last longer.

Nearby, Trillium is building a CNG station on the premises of Long Beach and Los Angeles port trucker Cal Cartage in support of Southern California Gas's advocacy of CNG as the superior alternative fuel choice for drayage operations — most of which have no long range requirements.

CNG, says Trillium president Mark Barton, "can be a very low cost fuel if you size the station correctly." The Cal Cartage station will have a 200-horsepower compressor. It will be able to support 35 to 40 trucks, seen ample as heavy duty CNG trucks are only now becoming available. SoCal

enine in Long Beach, and the prototype CNG version of Freightliner's M2 is making its debut here.

Trillium USA pumps the equivalent of 35 million gasoline gallons of CNG per year, and business is growing at an annual 10%, Barton says.

Trillium USA is at **Booth 238** here this week.

Hybrid Retrofits Made a Bit Easier

ITS Electric is in from Australia with a range of hybrid retrofit systems designed to minimize both cost and the amount of space they consume on a given vehicle, Electric motors to ease engine load and pare fuel burn can be mounted on light vehicle (like the Ford F-150) differentials or, for larger trucks and buses, on axles. "Reductions of up to 60% are being achieved now," the company says. ITS Electric has systems for reefer trucks too.



CEO Cliff Hall of ITS Electric (**Booth 114**)

Lincoln Goes Large

Lincoln Composites supplied fuel cylinders for a wide range of vehicles at AF&V 2009, including the first of Freightliner's new CNG-fueled M2 trucks, being shown here for the first time anywhere, and for Altech-Eco's Ford Focus conversions, which have just won Tier 2 Bin 2 certification from the U.S. EPA.

Lincoln also supplied the 5,500-psi accumulator shells for Freightliner Custom Chassis Corp's new hydraulic hybrid, on show at **Booth 208**.

The Nebraska firm is promoting its big new Titan brand cylinders for bulk transport of CNG. They measure more than 42.5 inches by nearly 38 feet, with internal volumes as high as 8,400 liters.

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Growth Is Great But Training Is *Essential*

The world is abuzz with talk of compressed natural gas for transportation — CNG. One year ago at this conference, UPS made yet another announcement of their plans to grow their CNG fleet. Last month, AT&T joined the pack by announcing that they will add 8,000 CNG vehicles to their fleet. This market growth is great news, but, my inner NGV trainer voice is screaming “Warning! Warning!”

For more than two decades I’ve traveled around the world as a CNG trainer. I am troubled over the serious lack of qualified and trained maintenance technicians, coupled with a major station operator education deficit. Let me say this in a different way. Even in a climate with very few fueling stations, we don’t have a skilled workforce to maintain the vehicles or the stations. Now, compound that with new market growth and if the industry can’t reshape this reality, we’re going to have some problematic, as Ricky said to Lucy, “splainin’ to do.”



Leo Thomason applauds the CNG market surge but hopes training keeps pace. He’s continuing this real-world NGV training session here tomorrow. Sign up at **Booth 420**.

I want to give you an example of what I’m talking about but first I want to be very clear that I will stake my professional reputation on CNG as a transportation fuel that is perfectly safe and clean. My client is an operator of a public retail CNG station that put its station maintenance out to bid. A commercial building maintenance contractor was hired based on his maintenance experience with a gas station and a natural gas

boiler, neither of which qualifies someone to maintain a CNG station. A short time later, I was asked to inspect the station and discovered that the contractor had installed a 3,000 psi rated nozzle on the 3,600 psi dispenser hose. This unsafe situation would allow over pressurization of a 3,000 psi rated vehicle and could potentially result in rupturing the cylinder or an even more severe catastrophe.

NGVs are safe and they are not the same as a gasoline vehicle. There are all kinds of things an unfamiliar driver wouldn’t know, like what to do when fueling an NGV and you turn the nozzle on and the



The Alternative Fuels & Vehicles National Conference and Expo returns to the Rio All-Suite Las Vegas Hotel next year. The dates are May 9-12, 2010.

gas won’t flow. Or that cylinder inspections are required by the National Highway Transportation Safety Administration every 3 years or 36,000 miles because a damaged cylinder could have a life-threatening outcome. Or, why you may have oil in the fuel system in spite of declarations of innocence from the fuel provider and the station operator.

This is the most promising time I’ve seen for the industry. I salute those lobbying for incentives, requesting production of dedicated vehicles, and those expanding the fueling infrastructure.

Equally as important is ensuring that fleet operators understand why training and education is critical to the safety of their employees and contractors. Someone once told me, “There’s no heavier burden than a great potential.” CNG has come a long way, and this is our chance to get it right.

Drying, Efficiently

Pneumatic Products (**Booth 530**) is promoting its CNG Series adsorbers, which use molecular sieve technology for natural gas purification, specifically drying. The equipment is specifically engineered for large flow (greater than 200 scfm) heavy-duty NGV fleet fueling applications.

Pneumatic Products uses patented technology to sense the need to regenerate the key membrane. “The drying bed stays online until the energy management system signals the need to switch over for regeneration,” the company explains. The design reduces energy consumption, making the system cheaper to operate and reducing its environmental impact.

Pneumatic Products, has its headquarters in Ocala, Fla., northwest of Orlando and locations in Canada, Britain and China).



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