

SHOWTIMES

MAY 2, 2017 ACT EXPO

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Cummins Westport Challenges the Battery New Line of Super Low-NOx Engines Launches in 2018

Cummins Westport, which unveiled "Near Zero" technology challenging the low-emissions leadership of the battery electric in fall 2015, pulled out the stops here yesterday by declaring that all three of its engines – 6.7, 8.9 and 11.9 liters – will be renamed for 2018, and all will feature the latest refinements of the Near Zero design. Cummins Westport president Rob Neitzke (pictured) made the announcement at the *Game Changer 2.0 Summit* hosted by ACT Expo organizer Gladstein, Neandross & Associates.

—More on Cummins Westport and Related Stories on Pages 4&6

Kenworth is exhibiting this Cummins Westport ISL G Near Zero-powered T880S concrete mixer at [Booth 1019](#).



UPS Claims Another 'Rolling Laboratory' First



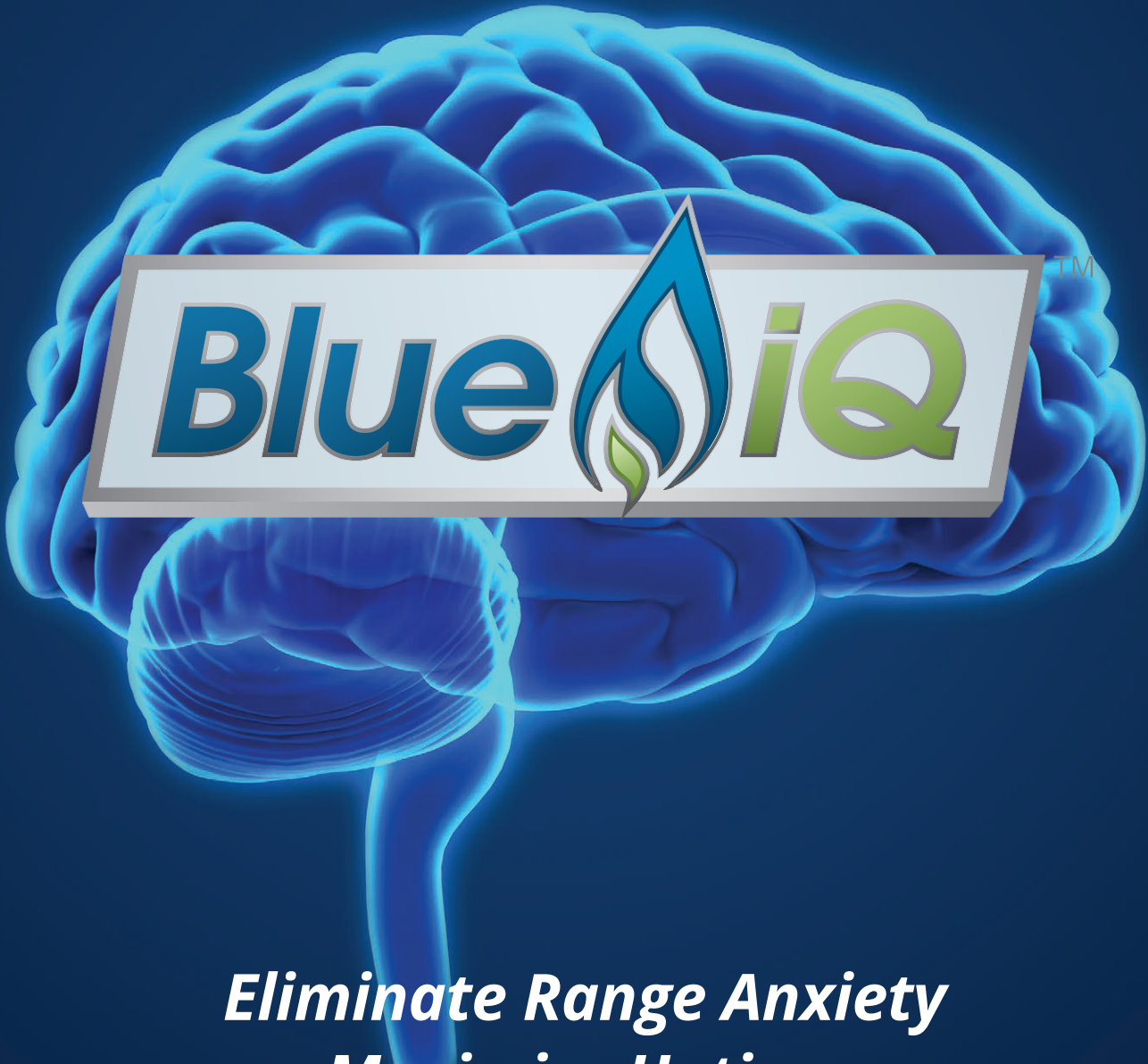
UPS is announcing a first-ever hydrogen fuel-cell powered zero-emission Class 6 delivery vehicle today – a converted 2006 package car with fuel cell by Hydrogenics, a highly efficient switch-reluctance motor by Nidec, and high-pressure Type IV fuel cylinders by Hexagon Lincoln, an affiliate of Agility Fuel Solutions ([Booth 945](#)).

"We have a long history of developing and promoting the use of more sustainable alternative fuels with our Rolling Laboratory, and hope that by bringing our

unique expertise to the development of hydrogen fuels, we can help advance the technology," said Mark Wallace, UPS senior VP, global engineering and sustainability. "This project is an essential step to test the zero tailpipe emission technology and vehicle on the road for UPS and the transportation industry," he said.

The ex-diesel truck, which is to enter package delivery service in the Sacramento area later this year, is the first of a U.S. DoE-backed initiative that's to include 16 more.

The pioneering H2 chassis is being shown by UPS at [Booth 1745](#). Details in *ShowTimes* tomorrow.



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Developed with Cummins, Blue iQ[™] integrates data from your fuel system and engine to give you a next-level fleet experience.

On behalf of Gladstein, Neandross & Associates (Booth 1119), producers of the 2017 Advanced Clean Transportation (ACT) Expo, I'd like to extend to you all a very warm welcome back to the great coastal city of Long Beach. A leader in alternative fuels, the city has adopted the use of RNG fueled refuse trucks equipped with the Cummins Westport ISLG "NZ" (near zero) natural gas engine, CNG and battery-electric buses, street sweepers powered by bio-based LNG, and work vehicles fueled with renewable diesel.

- natural gas, electric, hybrid, and propane auto-gas, as well as emergent renewable fuels and hydrogen fuel cell technologies.

This year's ACT Expo will see an even greater emphasis on the vehicle management and efficiency technologies that can reduce fuel use and pollution. Telematics, autonomous, and connected technologies are the future of intelligent transportation.

Day one of the Expo saw the North American Council for Freight Efficiency's workshop, the California Hydrogen Business Council's ses-

Top of mind at this year's event is, of course, the new and uncertain regulatory climate. With a new administration, the landscape for clean fuel technologies and infrastructure is set to shift. The question is, in which direction? Policy and regulatory influences have always played a key role in clean transportation. You'll hear from progressive policymakers who are continuing

to push the envelope to clean up emissions and modernize goods and people movement.

As we've done in prior years, we're looking to deliver the tools and information fleets need to make responsible investment decisions in advanced clean



Erik Neandross

transportation technologies.

Thanks to our friends and colleagues at *ShowTimes* for synthesizing the many exciting announcements, product details, photos and company news from across the board here at ACT Expo. This daily digest of happenings at the show is your guide to the sessions and show floor. We look forward to hearing stories and feedback from your own ACT Expo experience, in what promises to be an action-packed week.

Erik Neandross, CEO
Gladstein, Neandross & Associates

Welcome to ACT Expo 2017

It is with excitement, enthusiasm and pride that we kick-off the 7th annual ACT Expo. This year the show ushers in a strategic partnership with Penton Trucking, the transportation industry's leading business intelligence provider, to further expand the scope of the conference to encompass all aspects of technology advancements for the commercial vehicle market.

This year's show is packed full of the latest advancements in innovative transportation technologies and clean fuels. The conference tracks focus on Medium & Heavy Duty Commercial Vehicles and Urban Fleet Mobility. All weight classes and alternative fuel types are represented

sion, Business for Social Responsibility's *Future of Fuels Spring Forum* and others, bringing in stakeholders from across the nation. These technical workshops will continue into Thursday with the funding workshop *Updates on the VW Settlement Funds and How to Access These and Other Grants and Incentives* kicking off at noon.

Also on Thursday, the *Ultra Clean Heavy-Duty Vehicle Summit* will illustrate the dawn of a new era for this sector, one characterized by an array of zero emission technology, from full battery electric trucks, buses and other equipment to ultra-low emission heavy duty natural gas and propane autogas engines.

See It Here in the Steel Workhorse to Unveil W-15 PHEV

Workhorse will unveil its half-ton W-15 pickup, a plug-in hybrid electric vehicle, at 5:00pm this evening at Booth 1844.

Preliminary specs indicate that the designed-for-fleets PHEV – challenging Ford's F-150, the GM/Chevy 1500, and the Dodge Ram 1500 – will have 80 miles of all-electric range, achieve a fuel efficiency rating of 75 MPGe/miles per gallon of gasoline-equivalent in all-electric mode, will have true four-wheel drive, and be equipped for 7.2 kilowatts of export power.

Workhorse has reported more than 2,150 letters of intent for the \$52,500-target vehicle.

The LoIs have come from utilities including Duke Energy and Portland General Electric, the City of Orlando, the Southern California Public Power Authority, and Clean Fuels Ohio.

Workhorse plans to build the W-15 in its Union City, Ind. plant, "a facility with the capacity to build 60,000 chassis a year."

"We believe the W-15 will be the first electric plug-in pickup made in America by an OEM," says Workhorse CEO Steve Burns.



SHOWTIMES

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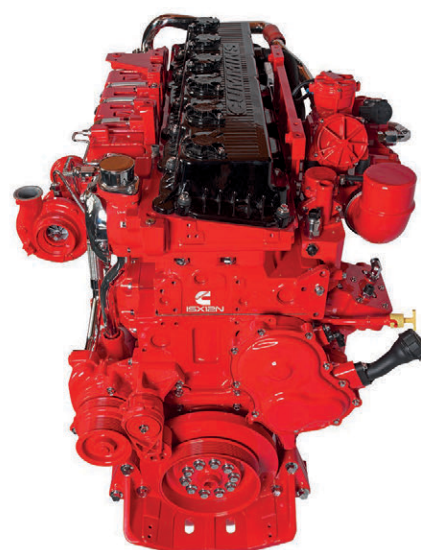
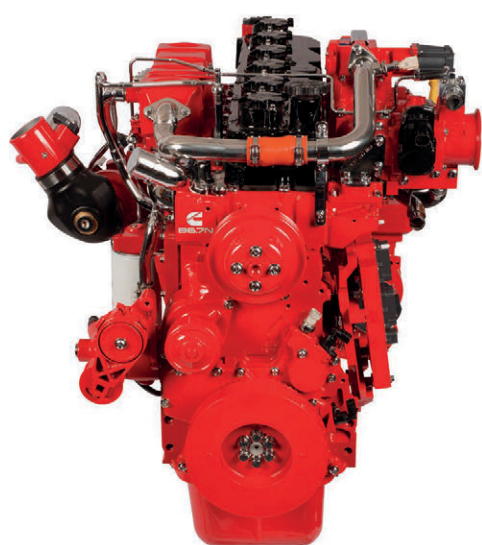
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CONVENTION & TRADE SHOW NEWS



Cummins Westport's New Low-NOx Line Three Engines 'Similar to Battery-Electric Propulsion'

Cummins Westport is launching the 6.7-liter B6.7N, the 8.9-liter L9N (formerly the ISL G Near Zero) and the ISX12N for 2018.

"Move to Zero," says Cummins Westport, as the joint venture company is expanding its line of super low-NOx engines for 2018: launching here the 6.7-liter B6.7N, the 8.9-liter L9N (formerly the ISL G Near Zero) and the ISX12N.

The latter two will be California Air Resources Board-certified to just 0.02 grams of NOx per brake-horsepower-hour, which is 90% cleaner than the current standard. The B6.7N is to be certified to 0.1 g/bhp-hr – 50% cleaner.

All are to be available in the first quarter of next year.

"These 2018 natural gas engines set new standards for performance and reliability while offering near-zero emissions," Cummins Westport says. They "continue the evolution of ultra low emission on-highway natural gas engines from Cummins Westport."

When combined with the use of RNG/renewable natural gas, they make for "significant well-to-wheel GHG [greenhouse gas] reductions similar to battery electric propulsion."

The new natural gas engines feature spark-ignited stoichiometric combustion with cooled exhaust gas recirculation (EGR), with a simple maintenance-free, three-way cCatalyst (TWC) for consistent emissions control. They have new electronic engine, ignition, and OBD/onboard diagnostics capability via the CM2380 ECM/engine control module.

The low-NOx trio was unveiled at yesterday's *Game Changer 2.0 Summit* here by Cummins Westport president Rob Neitzke.

"It's more than just a tagline," he said of "Move to Zero."

"For us," Neitzke said, "it embodies this journey that we are on with customers, with industry

leaders and market influencers like many of you in this room today. Because as the 'Game Changer' name implies, this is a really big bold change. In fact, in our view it's a journey."

"This is not – I repeat not – clean sheet disruptive technology," he said. "In fact, it's just the opposite. We stood on the shoulders of ten to 20 years of hard work by many of the people in this room to arrive at a place now where I believe we have the best alternative out there. It's mature. It's affordable. And it's ready right now."

"We were able to take a stable, mature affordable technology that we have been improving with customers since 2007 and make it emissions equivalent to other zero emission technologies without having to push clean sheet disruptive technologies and without having to ask customers to throw away all of their valuable experience and investment with one technology and start over with a new one," Neitzke said.

Coalition for Renewable Natural Gas CEO Johannes Escudero discussed his organization's mission and advocacy and education efforts.

"For the transportation fuel market, [the use of] renewable natural gas quintupled between the years 2013 and 2015," Escudero said. "And it is on pace to triple yet again by the end of next year."

"As of last Friday, April 29th, our projected volume of renewable natural gas by the end of 2018 is estimated to be 541,409,000 ethanol gallon equivalents."

"One recent study indicates that if you were to aggregate the potential RNG from agricultural residue, manure, fats, oil, greases, landfill gas and other municipal solid waste streams, according to UC Davis, there is enough potential just in California to produce nearly 2 billion diesel

gallon equivalents."

A subsequent panel representing RNG commercial and municipal users also provided their own perspectives on the topic.

Pointing to testing of the Cummins engine that successfully concluded in August 2016, Tim Burrie, maintenance manager for the San Diego Metropolitan Transit System, noted that his agency would be receiving 76 more near zero engine buses this year and is "out to bid on up to 400 more buses over the next five years. And they will all be the near zero engines."

Marty Mitchell, Athens Services maintenance director, described his company's use of the new engines as "just an excellent fit."

"Our trucks go out and come back to the same yard every night," he said. "We slow fill them and they are ready to run the next morning. So, for this type of a business, it really makes a lot of sense. And it's sustainable. It's something that we can continue doing and know that the ability will be there for us years from now."

Referring to his company's experience testing an advance version of the ISX12N powering a Freightliner Cascadia in the Port of Long Beach, Total Transportation Services, Inc. founder, president and CEO Vic LaRosa said, "We have been running that truck for about eight weeks and the performance has been phenomenal."

"The Cummins people run tests on the motor and we're not seeing any fault lights. We're not seeing any fault issues with the truck. The drivers love the truck. It gives us the capability to handle the varying weights. It gives us the capability to handle grades. So we have great, great hopes for this engine."

Cummins Westport is at [Booth 936](#).

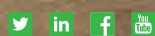
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RNG Means Jobs, NGV Groups Say

A new employment study indicates that the use of trucks fueled by RNG/renewable natural gas could create up to 130,000 new jobs and add \$14 billion to California's economy. The RNG Jobs Report was released jointly here today by the Coalition for Renewable Natural Gas (RNG Coalition) and the CalNGVC/California Natural Gas Vehicle Coalition.

A switch to RNG-fueled trucks could quickly help California achieve its air quality, greenhouse gas emissions, and climate



RNG Coalition CEO
Johannes Escudero

change-related goals, the groups say. More than 95% of the trucks on California roads use petroleum-based diesel fuel and are a major source of particulate, NOx and GHG/greenhouse gas emissions. In Southern California, they note, the heavy-duty trucking sector is the single largest source of NOx emissions, which combine with other pollutants to form both ground-level ozone and fine particulates.

"Those pollutants are responsible for a wide range of health

impacts from exacerbating asthma to premature deaths," states today's release, which notes that the ports and related goods-movement activity emit more than 35% of all smog-forming pollutants in the region.

"This study affirms what we have been advocating—increased production, deployment and utilization of RNG not only realizes significant benefits for our environment, but for our economy as well," said RNG Coalition CEO Johannes Escudero. "Our industry is eager to develop new projects, create additional employment opportunities and supply the heavy-duty truck sector in California with renewable natural gas," he said.

The two organizations maintain that for every job created through direct investment in the trucking and goods movement sector powered by California-produced RNG, two more jobs will be created. "These are high-paying jobs, with estimated labor income more than double California's current median income," they say.

The jobs and economic activity stem from increased opportunities for skilled workers in construction, fabrication, vehicle manufacturing, engineering services, waste management, and service industries.

"We recognize the importance of ensuring not only that we clean up our air," said Cal NGVC president Thomas Lawson, "but that when evaluating alternative solutions, we also consider the impact on our economy."

Athens Services Embraces Near Zero

Santa Monica-headquartered Athens Services is showing an Autocar collection vehicle powered by the ISL G Near Zero engine from Cummins Westport – the 8.9-liter powerplant rechristened the L9N for 2018.

It is the first Autocar vehicle to be fitted with the super low-NOx engine, says Athens maintenance director Marty Mitchell.

"This will be one of 100," Mitchell told *ShowTimes* here yesterday, as the hauler has 99 additional Autocar trucks with the engine.

The truck has a front-loader body by Heil

with Odyssey brand hydraulics expected to reduce overall fuel consumption by about 5%, he says.

The CNG cylinder assembly is by Agility Fuel Solutions (Booth 945). The truck here can hold 65 DGE/diesel gallon equivalents of fuel.

Athens scored big recently here in Southern California as it won contracts from the City of Los Angeles for three of 11 new franchise collection zones for commercial trash pickups. "We were awarded the most zones," says Mitchell.

Cummins Westport is at Booth 936.



This collection truck for Athens Services is the first Autocar vehicle to be powered by the Cummins Westport ISL G Near Zero engine.

TTSI Tests Low-NOx ISX12 G on Redeem

Total Transportation Services, Inc., is testing a low-NOx variant of the 11.9-liter ISX12 G engine from Cummins Westport, the California Natural Gas Vehicle Coalition reports. TTSI, Cal NGVC notes, is one of largest drayage trucking companies in the ports of Los Angeles and Long Beach.

The low-NOx ISX12 G is a field test unit, Cummins Westport says. It has been installed in a Freightliner Cascadia tractor, fueled with LNG. TTSI is using Redeem brand fuel, made with RNG/renewable natural gas supplied by Clean Energy Fuels.

TTSI is a longtime alternative fuel pioneer, committing to LNG/liquefied natural gas trucks for the ports nearly a decade ago and later testing hydrogen fuel cell trucks for drayage operations.

TTSI operates 57 LNG tractors.

The low-NOx 11.9-liter engine – re-named the ISX12N for 2018 here yesterday – is expected to be

certified by the California Air Resources Board to produce 90% less NOx than the current EPA standard for heavy-duty engines – "equivalent," says Cal NGVC, "to that of a truck powered by electricity from the electrical grid."

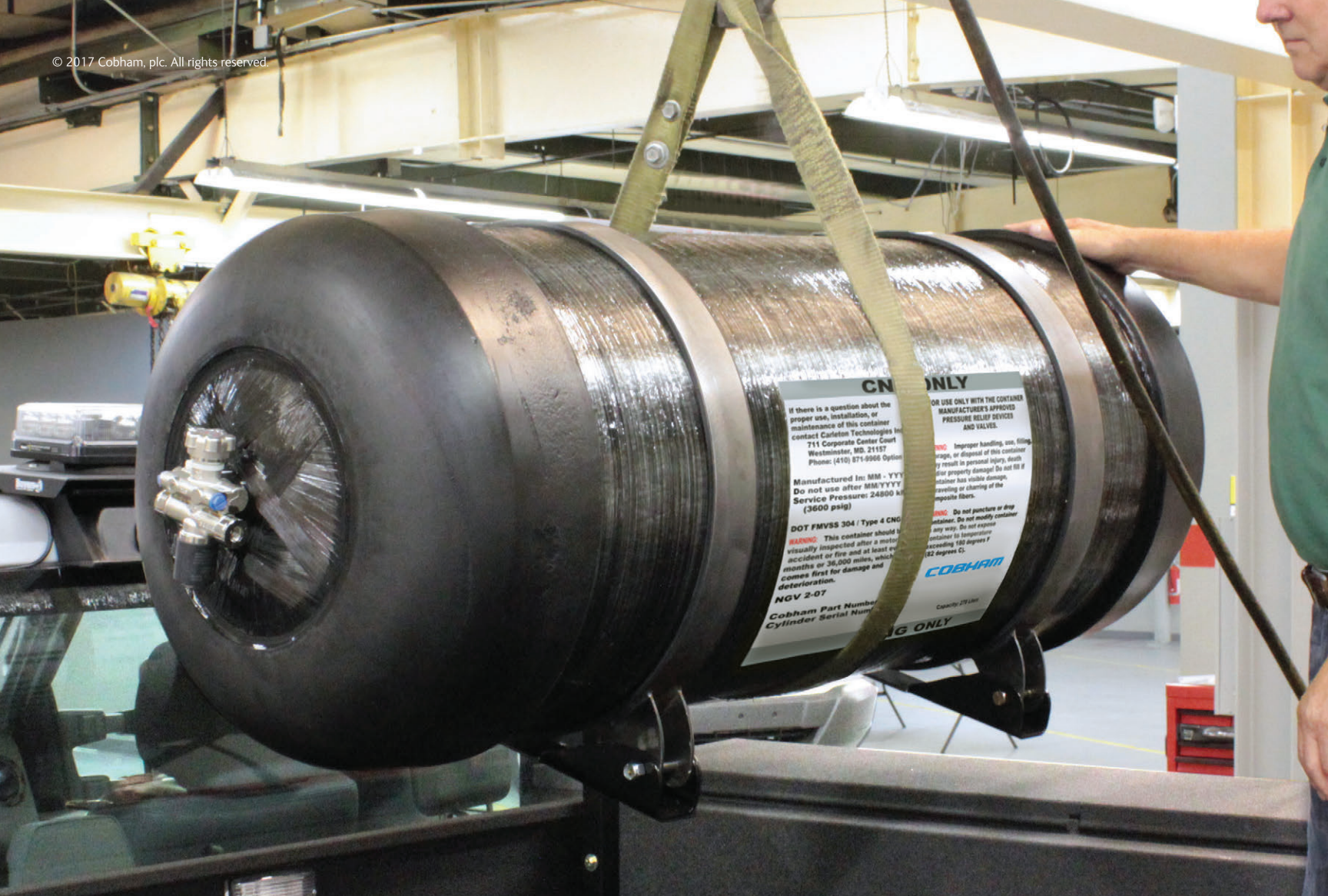
"The trucking industry is facing hard choices on how we are going to reduce our emissions impact, especially here in Southern California," TTSI president and CEO Vic LaRosa says in the Cal NGVC report.

"We believe the quickest and most affordable way to cut our NOx emissions to essentially zero is with the new CWI engine and renewable natural gas (RNG)."

"We've successfully operated natural gas trucks in the San Pedro ports since the last Clean Trucks program in 2008, and it's great that we now have a dramatically improved engine and an even cleaner fuel with renewable natural gas," LaRosa said.

TTSI is operating this Freightliner Cascadia fitted with a low-NOx version of the Cummins Westport ISX12 G engine using Redeem brand LNG from Clean Energy Fuels.





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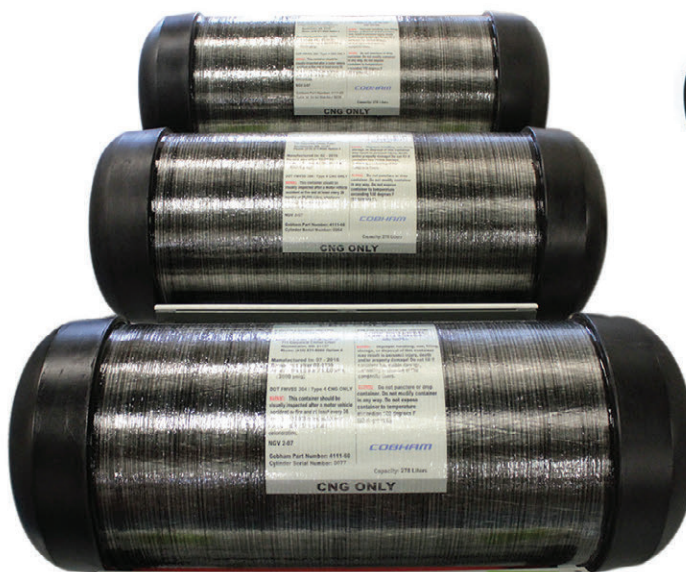
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TransPower to Power a Kalmar T2

Heavy duty electric vehicle specialist TransPower and Kalmar USA disclosed a five-year supply agreement as they jointly showcase the first joint-effort, zero emission, 100% battery-electric version of Kalmar's Ottawa T2 terminal tractor here at ACT Expo.

The firms note that they have been collaborating since 2011 "to develop and perfect advanced, zero-emission electric terminal tractors." The unit on show here was finished as part of a glider program in which TransPower completed the build by installing its electric drive-line at its facility in Escondido, Calif.

"Under Kalmar's new supply agreement with TransPower, Kalmar will manufacture electric terminal tractors on its own assembly line in Ottawa, Kans., using parts shipped to Kansas by TransPower," the companies said yesterday. The first prototype units are to be produced in the Ottawa plant in the fourth quarter.

TransPower ElecTruck drives have accumulated approximately 40,000 miles of commercial use on past models of Kalmar terminal tractors "in a variety of demanding applications" since 2013. For example, at the California distribution



Two views of the 100% battery-electric version of the Kalmar T2 with TransPower drive.

center of retail giant IKEA, the companies say, a Kalmar Ottawa-TransPower electric tractor has become the preferred tractor since 2014, due to its high reliability and low operating cost.

The cost of energy for an electric tractor can be as little as 3¢ per mile – if the tractor is powered by solar energy such as the one being operated by IKEA. "For a comparable diesel tractor," they say, "the energy cost is closer to 75¢ per mile."

Development of TransPower's electric tractor

drive system has been supported since 2011 by agencies including the California Air Resources Board, the California Energy Commission, the Texas Commission on Environmental Quality, U.S. EPA, the South Coast Air Quality Management District, and the San Joaquin Valley Air Pollution Control District. The Ports of Los Angeles, Long Beach, and San Diego have also contributed to the development and demonstrations of the technology.

TransPower is at [Booth 1645](#).

Cal NGVC Prods Los Angeles Ports

Members of the California Natural Gas Vehicle Coalition are taking the occasion of ACT Expo to urge the San Pedro Bay Ports to develop and implement an aggressive clean truck program as part of CAAP, the Ports' updated 2017 *Clean Air Action Plan*.

To accelerate the CAAP, Cal NGVC earlier this year proposed the *Advanced Clean Trucks (ACT) Now Plan*, which it says "offers a cost-effective opportunity, using proven technology, to drastically and immediately reduce emissions from the 13,000 heavy-duty trucks serving the ports of Los Angeles and Long Beach.

Approximately 80% of the region's smog comes from the transportation sector, the association says: "The single largest contributor to this pollution is heavy-duty trucks that haul goods in and out of the San Pedro Bay Ports through busy transportation corridors near homes."

The *Act Now Plan* calls on the Ports to immediately increase the number of zero and near zero emission trucks "to dramatically improve regional air quality, reduce greenhouse gas emissions, drive job growth throughout the region and the state, and increase the competitiveness of the Ports and the entire California goods movement system."

As written, the Port's CAAP discussion draft relies on a long-term transition plan to implement zero emission technology, "leaving room for diesel trucks to continue polluting the air for another 17 years," Cal NGVC says – "affecting an entire generation."

By contrast, Coalition members support Los Angeles Mayor Eric Garcetti's Sustainable Freight Advisory Committee

recommendation to deploy 100% zero- and near-zero emission trucks powered by renewable fuel within five years, by 2023.

"The latest generation of low-NOx, zero-equivalent natural gas engines powered by renewable natural gas exceed the required air quality standard by 90% and they are available today," said Cal NGVC president Thomas Lawson. "There is no reason to wait to clean Southern California's air."

"This is a public health issue – especially for the underserved communities living near the freeways that serve the Ports of Los Angeles and Long Beach," said Clean Energy Fuels VP Greg Roche.

"The *ACT Now Plan* can save a generation from the ill-health effects of the NOx and smog-forming emissions coming from diesel trucks," he said.

The *ACT Now Plan* encompasses all zero- and near-zero emission technologies and fuels, including natural gas, propane, battery electric, and hydrogen fuel cell electric.

"Near-zero-emission heavy-duty natural gas trucks can immediately deliver clean-air benefits and transform the Ports' diesel-dominated freight movement system," said George Minter, regional VP for Southern California Gas.

"This is a game-changing option."

Clean Energy Fuels is among the companies that's long been lobbying for a serious natural gas trucks program at the Ports of Los Angeles and Long Beach.





See the Unveiling

Workhorse W-15 Range Extended Electric Pickup

Designed for Fleets

Tuesday May 2 Long Beach, CA

5:00 PM Booth 1844

workhorse.com

Mitsubishi Fuso's All-Battery eCanter

Mitsubishi Fuso is showing its 100% battery-electric eCanter delivery truck at [Booth 1345](#). The vehicle is “engineered and manufactured by Fuso – the first major truck manufacturer to produce an all-electric truck for North America,” the company says.

Fuso plans to offer a limited number of trucks for lease in the U.S., beginning in September, for \$1,000 per month, says product management director Otto Schmid.

“Our target areas are New York City and

California,” he told *ShowTimes* – adding that the company will be happy to speak with other interested fleet managers.

Schmid also noted here that Fuso is switching to lithium ion battery packs produced by corporate affiliate Daimler Mercedes – and by doing so will reduce the cost per kilowatt-hour of storage by a stunning 85%. The batteries are the same as used on premium Mercedes S-Class electric cars.

The new 82.8-kilowatt battery array for the eCanter truck is expected to deliver a single-charge range of about 100 miles. The truck has an AC synchronous

Zero Noise. Zero Emissions. 100% Electric.



Mitsubishi Fuso product management director Otto Schmid shows off the charge ports on the eCanter – the truck can accept both Chademo and SAE J1772 connectors.

motor coupled to a single-speed reduction gear drive.

The 15,995-pound GVWR vehicle will be available in the flatbed configuration shown here or with a van body.



Mitsubishi Fuso is showing ‘the world’s first purely electric-powered light truck,’ the eCanter, at [Booth 1345](#).

BYD for Battery Trucks, Buses, Lifts

BYD, the automotive arm of a large Chinese battery manufacturer that says it’s the world’s largest producer of electric vehicles, is continuing its North America push by showcasing its latest advancements in battery-electric buses, trucks and materials handling equipment here at ACT Expo.

Vehicles on show at [Booth 1633/1827](#) include:

- an 8Y Class 8 battery electric terminal tractor, capable of providing 15 hours of continuous operation with operational cost savings calculated at more than \$27,000 annually (assuming operations 16 hours a day/seven days a week);

- a 60-foot K11 articulated transit bus, “the first of its kind available in the U.S.,” providing 200 miles of range on a single charge with full charging completed within two to three hours. BYD’s 60-footer, shown at ACT Expo in the colors of AVTA, the Antelope Valley Transit Authority, complements 30-, 35- and 40-foot BYD buses, all Buy America-compliant and capable of traveling up to 275 miles on a single charge;

- an all-electric ECB 25 forklift featuring ultra-fast full-charging: just one or two hours. The BYD electric forklift can run for two typical shifts on one charge and can be opportunity charged, “whenever and wherever.” It comes with an industry-leading 10-year full replacement battery warranty; and

- the new 8R battery electric refuse truck, said to be the first fully battery electric refuse truck from an OEM. The vehicle boasts a 10-ton payload capability with 76 miles of range and minimal battery degradation. “Fleet managers can expect more than \$13,000 of operational

cost savings annually based on service routes of 60 miles per day/five days a week,” BYD says.

“BYD continues to lead the industry with its advanced battery technologies that make electric buses, trucks and materials handling equipment cost competitive with other alternative fuel vehicle options today,” said BYD Motors president Stella Li.

“BYD provides the safest battery available today in the electric vehicle market,” she said. “Our battery reliability also gives fleet managers the assurance they need that these vehicles will operate just as needed for any service route.”

“Additionally, our BYD vehicles provide for significant operational cost savings.”

All of the BYD battery electric vehicles shown here can charge at 40-, 80-, 100- or 200-kilowatt rates, requiring between one and five hours of charging time depending on the model and selected charger.

Even after 12 years of use, BYD’s battery capacity is projected to remain above 70% of the original capacity, the company says.

BYD said too here yesterday that “customers are saving thousands of dollars in annual maintenance costs, due to these all-electric vehicles requiring lower maintenance on propulsion systems, fewer fluids to change, less brake wear due to cutting-edge regenerative braking technology, and fewer moving parts.”

BYD is formally introducing its fully battery-electric Class 8 refuse truck at 5:00pm this evening at [Booth 1633/1827](#).



Cobham Offers New Type IV CNG Tank Family

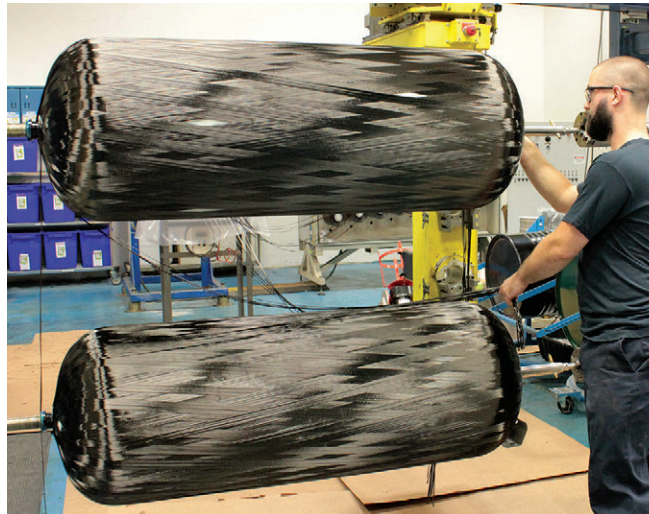
New 17-inch-diameter CNG cylinders from Cobham “offer customers more options,” says the manufacturer, which is introducing its new family of Type IV tanks at [Booth 854](#).

The all-composite Cobham cylinders for light and medium duty natural gas vehicles are available in 60- and 83-inch lengths.

“The new family of 17-inch-diameter cylinders further compliments our current 21-inch-diameter offerings, enabling us to serve a wider range of medium and light duty customer needs,” says Cobham outside sales manager Art Holbert.

“The 17-inch size was developed in response to customers needing more supplier options in sourcing cylinders that sit below the bedrail to give pickup-truck owners the ability to use a cover across the entire length of the truck bed,” he says.

Cobham’s current 17-inch and 21-inch-diameter families are available with both strap and boss mounts. Cobham pledges to “begin



Cobham CNG cylinders are manufactured in Westminster, Md.

developing larger diameter sizes in various lengths planned for release later in 2017.

“We also produce customized sizes as needed,” the company says. “As part of our commitment to offer superior products, additional load-testing is performed to validate the

mounts and composite interface will withstand long term vehicle usage. For added safety, Cobham cylinders are significantly more resistant to permeation.”

Cobham recently publicized Type IV CNG cylinder supply deals with the NGV upfitters Altech-Eco in North Carolina and Redmark CNG in Colorado.

The firm’s UK-based parent employs some 11,000 people primarily in the U.S., UK, Europe and Australia, and has customers and partners in more than 100 countries for high-performance composite pressure vessels “and hybrid integrated structures for alternative energy, life support,

military and commercial aircraft, and spacecraft applications.

“The NGV market is a strategic fit,” the company says, “that leverages our gas management core capability and composites technology to offer the best value to end users.”

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LCFS, for Most Part, Survives Challenge

LCFS, California's complicated low carbon fuel standard, has survived mostly intact the latest court ruling in favor of South Dakota-based ethanol producer Poet. Once again, the court is requiring the California Air Resources Board to address deficiencies in its environmental analysis. But industry observers are pleased that the court has allowed the bulk of LCFS implementation to continue in the interim.

The bottom line for alt fuel suppliers? They can continue to earn their credits, for now.

The LCFS requires fuel providers to gradually reduce the CI/carbon intensity of their fuels by 10% by 2020. It is one of California's suite of greenhouse gas-fighting policies.

Since its adoption, the LCFS has spurred innovation and investment in renewable natural gas, biogas, biodiesel, ethanol, and electricity to power both heavy-duty and light-duty vehicles.

Through the third quarter of 2016, according to CARB data, the LCFS has delivered roughly



Neste produces renewable diesel at facilities including this one in Rotterdam.

23 million metric tons of carbon reductions.

The legal battle dates back to 2011, when the LCFS first went into effect. Poet claimed CARB improperly followed procedures of CEQA, the California Environmental Quality Act.

The latest decision on April 10 from the California Court of Appeal directs CARB to redo its CEQA analysis – again – to address whether the LCFS “is likely to have caused an increase in NOx emissions in the past and is likely to cause an increase in NOx emissions in the future.”

The court left unchanged provisions of the gasoline component of the LCFS, but froze the diesel component to 2017 levels until CARB can present its fix. According to a statement from the National Biodiesel Board ([Booth 625](#)), “While we continue to review and do not necessarily agree with the Court’s findings of a violation, it is positive the court recognized

the environmental and public health benefits of biodiesel. We are pleased the court did not close the door to biodiesel under the LCFS.”

CARB says it hopes to complete the new CEQA review this year, so the program could be fully back on track by early 2018.

Meanwhile, a separate case, known as Poet II, presents a parallel challenge to CARB’s 2015 re-adoption, with many of the same issues. A hearing in that case is slated for late July. The uncertainty presented by the continuing legal challenges creates difficulty for alternative fuel providers who rely on market certainty to guide long-term investment decisions.

The American arm of Neste, which produces renewable diesel in Europe and Singapore – product that has helped cities including San Diego and San Francisco wean themselves from petroleum fuel – is at [Booth 1022](#).

Honda Takes Clarity Beyond the Fuel Cell

A Two-Motor Hybrid Electric Truck Is Promised Too

American Honda has expanded its line of Clarity-badged electric drive vehicles beyond the hydrogen-fueled Clarity Fuel Cell car, launching the Clarity Plug-in Hybrid PHEV and all-battery Clarity Electric as additions to the five-passenger line of midsize sedans.

“The ‘three-in-one’ Clarity series,” Honda says, “provides unparalleled electric drive choice with premium midsize sedan capability and three advanced electrified powertrain options.”

Honda says it’s targeting a five-fold increase in sales of electrified vehicles in the next four years.

“The Clarity series is the first of its kind, the very first car in the industry to offer fuel cell, battery electric, and plug-in hybrid powertrains on a single vehicle platform,” American Honda senior VP Jeff Conrad said at the New York International Auto Show, where the

Clarity line was unveiled.

“This three-in-one approach, as we call it, is aimed at accelerating the deployment of advanced electrified powertrain technology.”

“We’re bringing electrified vehicles further into the mainstream by providing choices that meet the diverse needs of customers interested in advanced technology vehicles,” Conrad said.

- The Clarity Plug-in Hybrid is expected to have an all-electric range of 42 miles from its 17-kilowatt-hour battery pack, with a 1.5-liter, four-cylinder Atkinson-cycle engine yielding an EPA fuel economy rating of 105 MPGe/miles per gallon of gasoline-equivalent combined, at the top of its class. Total driving range is 330 miles.

- The Clarity Electric has an expected single-charge range

of 80 miles from a 25.5-kilowatt-hour battery pack with an anticipated EPA fuel economy rating of 120/102/111 MPGe.

- The Clarity Fuel Cell boasts a fuel cell stack that is 33% more compact with a 60% increase in power density compared to its predecessor, the Honda FCX Clarity.

“The more compact fuel cell and integrated powertrain, now comparable in size to a V-6 engine, fits entirely under the hood of the car, allowing for a more spacious cabin with seating for five passengers,” Honda says. EPA range of 366 is the best of any zero-emission vehicle in the U.S.

Honda ([Booth 1303](#)) began deliveries of the 2017 Clarity Fuel Cell in December 2016 in select California markets.

The Honda Clarity PHEV shown here is a direct descendant of the automaker’s hydrogen-fueled Clarity Fuel Cell car – as is a new 100% battery Clarity Electric. All are identically styled, five-passenger sedans.



Cenergy & Catalina Team for Adsorbent Cylinders

Adsorbent natural gas technology developer Cenergy Solutions (Booth 529) has just reported an exclusive agreement with Catalina Composites (Booth 549) to manufacture ANG fuel cylinders for natural gas vehicles.

"Catalina Composites has already manufactured and tested several sizes of these new low-pressure ANG cylinders making them FMVSS certified and DOT-compliant," Cenergy says.

ANG technology allows for natural gas to be stored at lower pressure than it is in conventional CNG/compressed natural gas fuel cylinders.

Cenergy installed one of the new ANG cylinders on a Nissan truck that was shown at the Altfuel Expo in Mexico City last month. The ANG tank has a working pressure of just 650 psi and can be filled at home or at a business with a new, certified Cenergy compressor (approved for use, the company says) in both the U.S. and Canada.

"Cenergy Solutions has made major breakthroughs with adsorbent natural/biogas storage that will not only help the world with its energy needs but will also help to capture and store natural and biogas throughout the world," says Cenergy COO/CTO Gary Fanger.

"This is the technology that will keep methane from escaping into our atmosphere and allow it to be put to good use in gasoline and diesel vehicles," he said.

"The joint development agreement with Catalina Cylinders has been very fruitful allowing us to design, manufacture and test new high tech ANG tanks that are now ready for sale to approved NGV upfitters," Fanger said.

Catalina will provide a lightweight aluminum Type I (no wrap) cylinder for the Cenergy application, Fanger told *Fleets & Fuels*.

Catalina Composites manufactures aluminum Type I and composite Type III (carbon fiber-wrapped aluminum) CNG cylinders at a dedicated 107,000-square-foot facility in Garden Grove, Calif. The firm unveiled its Type IIIs at the ACT Expo 2016 here in Long Beach.

Catalina Composites GM Kjeld Johansen (left) with Gary Fanger of Cenergy Solutions



Freightliner's First NZs

Nine new Freightliner (Booth 929) tractors with the super low-NOx 8.9-liter ISL G Near Zero engine from Cummins Westport have been purchased

by Mountain Valley Express and will be fueled with Redeem brand RNG/renewable natural gas from Clean Energy Fuels, the fuel provider reported.

"They are buying Freightliner M2s with LNG," Clean Energy business development manager Jeff

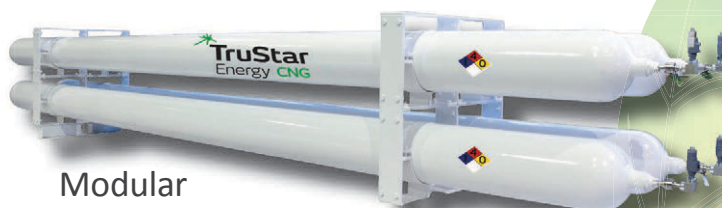
Wittenberger told *Fleets & Fuels*.

They are the first Freightliner trucks to be fitted with the ISL G Near Zero engine, says Bob Carrick of Freightliner.

The 8.9-liter Cummins Westport engine was re-named the L9N for 2018 here yesterday.



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NACFE's 'Run on Less' Partners With Geotab

The North American Council for Freight Efficiency and Carbon War Room, working with the support of Shell and PepsiCo, have tapped Geotab to help keep tabs on its *Run on Less* fuel efficiency initiative.

Run on Less is described as a "first-of-its-kind cross-country roadshow to showcase advancements in fuel efficiency. Canada's Geotab, a leading telematics provider, is to install its devices on all trucks participating in the three-week experience.

"The event will demonstrate how Class 8 trucks can use different technologies to achieve the best fuel economy possible," states a NACFE release.

The fair measurement of fuel efficiency is a complex matter, says NACFE executive director Mike Roeth. "Trucks will be operating in different weather conditions, hauling different payloads and on different routes," he says.



Geotab telematics devices will be installed on all of the trucks participating in NACFE's Run on Less initiative, which takes place through June 1.

"Some will be driving in more mountainous areas and some will have to deal with crosswinds – as they do every day."

"The key is how these all star truckers and the fuel efficient equipment the fleets provide them, handle all of these real challenges."

Statistics on fuel usage, DEF level, idle time, and cruise control usage – and the team's fuel economy – will be shared on runonless.com throughout the event.

"For over 15 years, Geotab has been helping businesses streamline their operations and discover new cost saving potential with our industry-leading telematics device and software," said Geotab commercial vehicle solutions associate

VP Scott Sutarik.

"With a key focus on fuel economy," he said, "we're thrilled to partner with NACFE and help class 8 trucks discover new techniques and best practices for minimizing their fuel usage and spend."

Run on Less will feature six to ten Class 8 trucks, using current, commercially available technologies that will haul real freight around the country. The trucks will be equipped with different efficiency technologies, and drivers will demonstrate how to achieve the best fuel economy in today's highway tractors.

The three-week experience will kick off from multiple locations across the U.S., culminating at NACV, the new North American Commercial Vehicle show in Atlanta in September. Final results will be announced there. "Drivers will showcase their equipment and share fuel economy learnings and best practices with attendees."

More details about *Run on Less* will be announced in coming months. Sponsorship opportunities will remain open until **June 1**.



EDI Gives PG&E More Export Power

The Pacific Gas and Electric utility and its partner Efficient Drivetrains, Inc. (Booth 1628) have unveiled a plug-in hybrid electric truck providing as much as 160 kilowatts of export power – enough to support as many as 125 homes: "potentially eliminating planned outages while shortening unplanned outages."

It's the industry's first on a Class 6 platform, PG&E says – a Peterbilt 337 with PX-7 diesel engine.

The EDI upfit allows for up to 50 miles of all-electric driving with 300 more miles of driving range in hybrid mode – "a Class 6 truck," says the utility, "that reduces emissions by 80%

compared to conventional vehicles."

The PHEV Peterbilt truck, configured as a flat-bed, will be used to haul materials such as transformers to job sites. PG&E has thus far taken delivery of two.

"These cutting-edge trucks not only will help us reduce our fuel costs as well as our carbon footprint, but in the event of an outage, we would be able use their exportable power capacity to supply electricity to homes and businesses," said PG&E's Dave Meisel, senior director of transportation and aviation services.

"Being able to partner with a company that operates a manufacturing plant in the heart of

our service area will also help us meet our goal of creating economic vitality in the communities we are privileged to serve," he said.

"PG&E has over a dozen of our trucks at this time," EDI CEO Joerg Ferchau told *ShowTimes* yesterday.

His Milpitas, Calif.-based company performs vehicle installations in Dixon, between San Francisco and Sacramento.



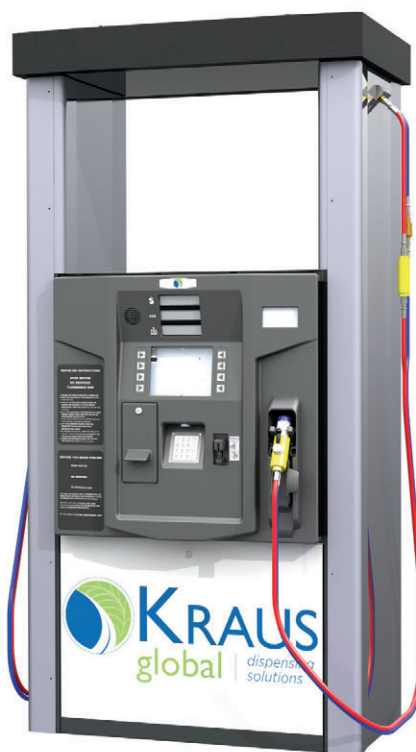
EDI's Class 6 Peterbilt 337 is on show at Booth 1628.

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Kraus Global has been field-testing its new Optima dispensers with major customers for some 18 months – and is formally launching the line here at ACT Expo 2017.

Kraus Global Launches Optima for CNG Fueling ‘Next Generation’ of Dispensers Features New ‘Pulse’ Display

Kraus Global (Booth 745) is formally introducing its Optima line for CNG fueling, stating that it represents the “next generation” of natural gas vehicle fueling dispensers.

With a proprietary new companion display trade-named Pulse, and new Micon Nextgen 1.0 electronics, “Optima enables enhanced station control and performance,” the company says, with “unmatched data and communication capabilities.”

“Optima is the result of three decades of CNG focused dispenser experience and feedback from the field,” the company says. It provides “full access to error codes, software upgrades, and fill parameter set points either locally or remotely” from smartphones, tablets, or laptops.

“The new Micon NextGen 1.0,” Kraus Global says, “builds upon proven Micon 500 technology elevating functionality beyond current standards with data capabilities and configuration tools delivering smarter

control, increased efficiency, and higher profitability.

“Real time data is visible on the Pulse display, allowing users to follow fill progression as it communicates the starting and ending parameters of their filling process, reassuring that a target was established and then safely met.”

“We have been beta testing Optima for approximately 18 months and have received positive feedback from our customers,” says Kraus Global CEO Ossama AbouZeid. “Their support has been tremendous and we appreciate their loyalty,” he said.

AbouZeid names AVSG/Alternative Vehicle Services Group, Independent Fueling Systems, Love’s Trillium CNG (Booth 1011), Nopetro, Pacific Gas & Electric, Timco, and U.S. Gain (1252) as Optima customers.

Gain Clean Fuel (Booth 1252) uses Kraus Global dispensers.



‘Women in ACT’ Series

ACT Expo’s *Women in ACT* series continues in Room 102C this morning, beginning at 8:00am.

“An ever-increasing focus on sustainability is changing the way we think about transportation solutions to deliver people, goods, and services,” says organizer GNA/ Gladstein, Neandross & Associates (Booth 1119/1125): “Hear from women in the public and private sectors who have made meaningful impacts and helped to transform the advanced clean transportation market, including how they got started in their industry and what has motivated them to continue pushing cleaner fuels and technologies forward.”

Scheduled speakers include

- Kathryn Garcia of the New York City Department of Sanitation;
- Tina Quigley of the Regional Transportation Commission of Southern Nevada;
- Seleta Reynolds of the Los Angeles Department of Transportation;
- Eileen Tutt of the California Electric Transportation Coalition;
- Caroline Choi of Southern California Edison; and
- Jordan Davis of The Columbus Partnership (Smart Cities).

The *Women in ACT* forum is sponsored by Ford (Booth 1211) and will be moderated by Ford Smart Mobility city solutions director Jon Coleman.

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Agility Fuel Systems' Blue iQ on a CNG-fueled Freightliner Cascadia tractor on Booth 945.



Agility CNG systems may be seen on Athens Services and City of Long Beach refuse trucks on the ACT Expo 2017 show floor, as well as on this City of Los Angeles-operated Peterbilt.

Agility Begins 'Blue iQ' Shipments

Agility Fuel Solutions said here Monday that it's begun shipping its first Blue iQ brand production units for both large and small fleets and is accepting orders from all customers for Blue iQ-equipment.

"Blue iQ was developed in collaboration with Cummins," Agility says, "to create a better-than-diesel experience for natural gas vehicles..."

"Customers have been enthusiastic about the product. It solves the challenges they face when switching their fleets to natural gas," the company says.

The new Agility product is integrated with Cummins Connected Diagnostics, INSITE

service tool, and QuickServe support to connect vehicles, drivers, managers, and technicians for real-time management, diagnostics, and service.

Fleets now have access to propriety engine data that will help diagnose problems with their NGVs, find a service center for repairs, and have parts ready on arrival.

Blue iQ uses proprietary engine data for a set of tools that help reduce range anxiety.

Vehicle Range Monitor tells drivers how far they can go with fuel on board with a Smart Gauge located inside the cab on the dashboard. Eco Mode gives fleet managers the ability to control engine derate. Limp home mode makes sure drivers can get safely out of heavy traffic situations.

"Heavy-duty vehicles that run on renewable natural gas are among the cleanest on the planet with negative carbon dioxide emissions," said Agility president and COO William Nowicke.

"Blue iQ opens new doors for fleets who want a better than diesel experience."

Agility Fuel Solutions is at [Booth 945](#).

BSR Projects 'Future of Fuels' Collaborative Growth

BSR's *Future of Fuels Spring Forum*, held here Monday afternoon, included a discussion of the organization's recently launched Sustainable Fuel Buyers' Principles. The principles, which were reviewed during the forum, are designed to increase the availability of sustainable, low carbon fuels by signaling the magnitude of business demand, clarifying sustainability criteria needed for uptake, and encouraging partnerships with pilots and suppliers.

While acknowledging that every company has



its own unique needs, BSR representatives noted that the principles were developed by BSR's Future of Fuels members, which include companies like Amazon, UPS and Walmart, and projected continuing growth in that group.

Looking forward, BSR hopes to invite any fleet or shipper engaged on this topic to sign on to the principles. In parallel with that, BSR will be developing case studies surrounding fuel technologies in heavy duty freight.

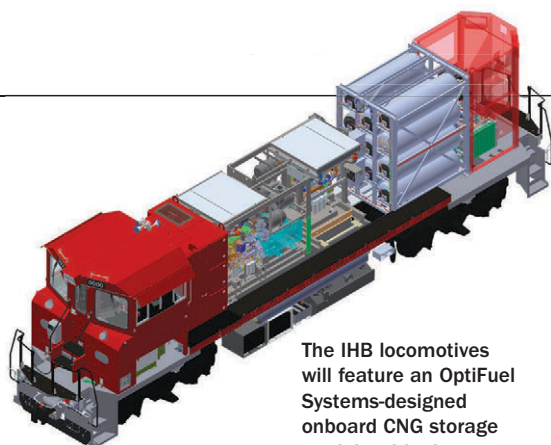
Representatives from both PepsiCo and

Walmart also offered company perspectives on the topic. For example, Elizabeth Fretheim, Walmart director of sustainability, outlined a private fleet of 6,500 tractors and 60,000 trailers that drive approximately 700 million miles a year on 150 million gallons of diesel.

In addition to efficiencies achieved in that fleet, she noted the recent launch of "Project Gigaton," an initiative to eliminate 1 billion tons of emissions from the company's supply chain.

CNG Locomotives for Chicago

ANGI and Ariel Are Key: They'll Furnish the Fuel



The IHB locomotives will feature an OptiFuel Systems-designed onboard CNG storage module with eleven 5,000-psi, DOT-approved Type IV fuel cylinders by Hexagon Lincoln.

Two ACT Expo exhibitors are providing the necessary fueling infrastructure as the Chicago-area Indiana Harbor Belt Railroad begins converting switcher locomotives to CNG operation. Federal and other agencies are backing IHB's CNG Repower initiative.

IHB contracted the system design, assembly, and integration of the entire natural gas fuel system to OptiFuel systems, and the overall locomotive design, assembly, and integration to Kentucky's R.J. Corman Railpower Locomotives, OptiFuel says.

Equipment for the first two of 21 – and perhaps 31 – planned Tier 4 switcher locomotive conversions for IHB has been shipped, OptiFuel reported last week.

The hardware includes large Type IV cylinders designed for 5,000-psi service.

A trackside CNG fueling facility is being built by ANGI Energy (Booth 653). ANGI is using high-pressure duplex compressors from Ariel (Booth 637), capable of filling the locomotive's 5,000-psi fuel cylinders.

ANGI “created and manufactured a low-risk, proven, modular CNG station that can refuel two locomotives every 15 to 30 minutes in the basic configuration and four locomotives every 15 to 30 minutes in a growth configuration,” OptiFuel says.

“The team developed CNG dispensers, locomotive to refueling equipment communications, locomotive RF tagging, and safety approaches and requirements, based on standard ‘best practices’ used in the rail industry.”

South Carolina-based OptiFuel credits Mainstay Fuel Technologies, also of South Carolina, with design of the locomotives' onboard modular CNG storage systems. The design “incorporates important features and elements of Mainstay's established fuel systems that are used in Class 8 truck markets,” OptiFuel says.

The locomotives are being fitted with Type IV CNG fuel cylinders by Hexagon Lincoln.

“Based on the current IHB duty cycle, the onboard system storage of 700 DGE [diesel gallon equivalents] will handle seven to ten days of operation before refueling is required,” OptiFuel says. The locomotives' diesel tanks remain in place, allowing 100% diesel operation if needed.

“OptiFuel's technology will provide needed solutions and support to the Class I, II and III railroads as they seek ways to mediate the recognized adverse environmental impacts of their aging switcher fleets,” said OptiFuel president Scott Myers.

“As of September 2016, there are over 1,000 railyards in the U.S. located in densely populated, urban areas classified as particulate matter and ozone EPA defined ‘nonattainment’ areas,” he said.

“Over 119 million people (nearly 40% of the U.S. population) living in these nonattainment areas are experiencing acute and chronic adverse health outcomes.”

IHB says it's the largest switch carrier in the U.S. According to OptiFuel, IHB has 35 miles of mainline and 350 miles of yard and siding tracks.

IHB initially considered LNG/liquefied natural gas fuel, but given the limited range requirements of its locomotives, opted early on in the program for CNG.

Hexagon Lincoln's Type IV CNG cylinder business for automotive applications has been merged with Agility Fuel Solutions (Booth 945).

Want to learn more about natural gas for high-horsepower applications? ACT Expo organizer Gladstein, Neandross & Associates has slated this year's HHP Summit for November 6-9 in Jacksonville, Fla. GNA is at Booth 1119/1125 here.



These two Indiana Harbor Belt Railroad locomotives are the first of 21 EMD-built SW1500 units to be converted to CNG-diesel dual fuel operation by OptiFuel and R.J. Corman Railpower. ‘They are currently being built and scheduled to return to IHB in mid-June,’ says IHB mechanical operations director Mike Nicoletti.

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Love's Trillium CNG: Fuel and Buses for Miami-Dade

Two New Public CNG Fueling Stations to Be County's First



Love's Trillium CNG is building two large fueling stations for Miami-Dade Transit.

Trillium CNG comes to ACT Expo having finally publicized a long-gestating, blockbuster win in Florida. The firm beat out two major competitors to notch a ten-year, \$330 million-plus contract for two public-access fueling stations for Miami-Dade Transit.

Each will be able to support 250 CNG buses. And, perhaps setting a precedent for deals to come, Trillium (Booth 1011) was tasked with procuring those buses for the agency: 300 New Flyer vehicles to be delivered through this year and next.

Trillium CNG secures a ten-year, \$330 million-plus contract for two public-access fueling stations.

"After much consideration and research, the Miami-Dade Board of County Commissioners and I felt Trillium CNG was the best company to help move us toward a more sustainable future," said Miami-Dade County Mayor Carlos Giménez.

"This is easily one of the most innovative public-private collaborations we've undertaken with a transit agency," said Trillium CNG director Bill Cashmareck.

"The combination of providing buses, designing, building and maintaining the CNG systems, upgrading maintenance facilities, and constructing new fuel and wash buildings demonstrates the breadth of our services," he said.

The stations are to be open early next year and in summer 2018. They will be the only CNG fueling outlets in Dade County. They are to dispense "a minimum" of 20% RNG/

renewable natural gas.

The Miami-Dade agreement also includes CNG-related updates to existing transit infrastructure, as well as new fueling buildings, bus washes, and a ten-year operation and maintenance pact, Love's says.

The new stations will have 600- or 700-horsepower electric, multi-stage, reciprocating compressors from Ariel (Booth 637), arranged on three skids with space for a fourth.

"The fiscal impact for the initial ten years in the implementation of the CNG bus program is an estimated \$321.6 million," said Miami-Dade. "This long-term investment can yield significant savings in the long run," the announcement states, noting an option to renew up to an additional ten years.

"Our goal is to simplify sustainability, meaning that we'll take care of the details," Cashmareck said.

"It's definitely unique," he said. In addition to the CNG buses, "they'll be able to take anything from a Class 8 down to a passenger vehicle." Each station will be capable of dispensing up to 10,000 scfm/standard cubic feet per minute, Cashmareck says. They will each have four fueling lanes, with separate islands for buses and public.

Under the contract, 300 of New Flyer's 40-foot Xcelsior CNG buses are to be delivered through this year and 2018, Trillium says, noting that "the agency may add CNG buses in the future."

The acquisition of Trillium by Love's Travel, which was already building a national CNG fueling network at its truck stops, was announced in March 2016. Love's customers gained access to 37 existing Trillium stations for a combined total of 65 public-access CNG facilities.



Trillium Opens for PennDoT in Johnstown

Love's Trillium CNG said late last month that it's opened the first of 29 CNG fueling stations it's building for the Pennsylvania Department of Transportation.

The company is building the public-access fueling stations as part of PennDoT's 20-year, \$84.5 million P3/Public-Private Partnership project.

The inaugural facility, on Maple Avenue in Johnstown, will support CNG buses operated by CamTran, the Cambria County Transit Authority, which broke ground in the station this past September.

"It's also open to the public and it can accommodate all types of vehicles," Trillium says.



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