

FUELS

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Incredible...

Despite technological advances, the fuel efficiency of American passenger cars and light trucks is at a 21-year low, says the U.S. EPA.

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Expiration of EPA's Memo 1-A threatens viability of aftermarket natural gas vehicle conversions.

See Page 5

New/Old Energy Policy

Hydrogen And Renewables Are America's Energy Future: Abraham Says It's Time To Shift Away From Fossil Fuels

Natural gas, methanol and propane are the big losers in the Bush administration's latest version of its plan to create a national energy security policy.

The big winners: hydrogen and fuel cells, with a big boost from conservation and energy efficiency.

That's the vision just spelled out by Energy Secretary Spencer Abraham as Congress starts to focus again on national energy security legislation in the wake of the September 11 terrorist attacks.

Natural gas in particular will lose support at DoE because the U.S. already teeters on a "dangerous dependency" on natural gas, as well as imported oil, Abraham holds. Continuing to bank our energy supplies on oil and natural gas leaves the country with "serious national security implications," the secretary told the Alliance to Save Energy last week.

Abraham's comments set a new tone and direction for the Bush administration, which prior to September 11 had dismissed conservation as part of the energy solution.

NGVs Pretty Well Dissed

Especially frustrated are proponents of natural gas, who believe they have a domestic fuel that helps clean the air as well as reduce dependence on imports.

Presumably, Abraham's new-found interest in renewables will open doors for ethanol. But the secretary also called on Congress to develop a long-term energy plan that's based on market-based incentives, not government mandates. And oh, yes, Abraham and the administration, i.e. Msrs. Bush & Cheney, still support expanding oil exploitation in the Alaskan National Wildlife Refuge. Estimates are that production there will supply the U.S. with less than one year's worth of oil.



DoE's Spencer Abraham

Busy in Sacramento

The Nation's at War, and California's Regulators Are Still at Work

The California Air Resources Board is continuing to do its part in support of cleaner vehicles, late last week releasing stringent new diesel rules to take effect in 2007 and preparing a critical document for settling remaining issues related to the model year 2003 zero emission vehicle sales mandate in the state. At issue are the various means, other than battery electric vehicles, that manufacturers may use to meet the ZEV requirements. Stay tuned for details, next month in *F&F*.

More Electric Vehicles News on Pages 3-4

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from the E.P.A.

Non-Electric Hybrid

Ford and the EPA Step Up Their Efforts On Hydraulics to Shrink Truck Engines

Ford and the U.S. EPA will invest some millions of dollars in an effort to apply advanced hydraulics technology to a non-electric hybrid truck. Such a vehicle could have a significantly smaller engine than is required for similarly sized vehicles today.

The hydraulic hybrid will have mechanical regenerative braking, with power stored not electrically but in hydraulic pressure vessels. "The hydraulic hybrid system uses hydraulic motor/pumps and hydraulic accumulators to store energy, in the place of electric motor/generators and batteries used in electrical hybrid drive trains," says a Ford-EPA release. As in hybrid electric vehicles, the stored power would be available for acceleration and hill-climbing, allowing the truck to be designed with a smaller engine.

EPA has supported work on hydraulic accumulator at least since 1995, when it backed a project at the Southwest Research Institute to the tune of nearly \$300,000 (*F&E*, June 26, 1995). EPA's National Vehicle and Fuel Emissions Laboratory in Ann Arbor has since become a key player.

The agency's relationship with Ford dates from

January 1999, and the two have stepped up their collaboration on the accumulator in recent weeks.

"This is the first-ever cooperative agreement with an automobile company targeted to develop EPA-patented automotive technology," EPA Administrator Christie Whitman says in the release.

Ford says it'll have an exclusive on the technology. A pilot fleet may be fielded "by the end of the decade."

Also participating in the project are Eaton and FEV Engine Technology (Auburn Hills, Mich.)

Ford, Ernie DeVincent, 313-322-9261; edevince@ford.com

Ford info, Jon Harmon, 313-845-5745; jharmon@ford.com

EPA (Ann Arbor),

Mr. Tony Tesoriero, 734-214-4811; tesoriero@epa.gov

21-Year-Low

Light Trucks Said to be the Chief Culprit As EPA Releases Its 2001 Mileage Figures

The fuel economy of vehicles on America's roads is the worst it's been since 1980, according to figures from the U.S. Environmental Protection Agency.

"The lowest fuel economy since 1980 can be attributed to the increase in light trucks on America's roads," EPA says. Model year 2001 sport utility vehicles average 17.2 mpg, pickup trucks 16.5 mpg, and vans and minivans 19.3 mpg, while model year 2001 cars average 24.2 mpg.

"If manufacturers increased fuel economy as little as three miles per gallon, consumers would save as much as \$25 billion a year in fuel costs, reduce 140 million metric tons of carbon dioxide emissions per year, and reduce the United States' reliance on foreign oil by a million barrels of oil each day," the agency says.

Hybrid Electrics Promise Relief

The EPA report also points out that automakers have used technical advances to boost the weight and performance of vehicles rather than save fuel, indicating that if technology had been applied to fuel savings, mileage could actually have been improved by about 25 percent during the period.

Bright spot? "During the past 25 years, the most significant change to light vehicle fuel economy technologies may be the introduction of vehicles with hybrid propulsion systems," the agency says, noting that the Honda Insight and Toyotas Prius hit the U.S. market in 2000 and 2001, respectively, with mileage ratings nearly three times better in some cases than the national average.

EPA info, Dave Ryan,

202-564-7827; ryan.dave@epa.gov; www.epa.gov

FLEETS & FUELS

Rich Piellisch, Editor

560 Fourth Street, Suite B

San Francisco, CA 94107 USA

415-896-5988; fax -896-5989; piellisch@augustpacific.com

Subscription Inquiries

Roger Henebry for *Fleets & Fuels*

Performance Marketing / PO Box 32699

Laughlin, NV 89028-2699

928-788-2101 or toll-free 888-729-5675 (U.S.)

fax 928-788-2102; mailings@laughlin.net

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Electric Vehicles

'Ideal Application'

NYP&A Launches 'Clean Commute' Program Which Will Place 100 Th!nk City Battery EVs
 "This is the ideal application for electric vehicles," says New York State Power Authority transportation director Bart Chezar in describing a new lease program for metropolitan New York commuters.

"You don't need an 80-mile range," he says, "and it's a big market."

The market is New York area commuters, some of whom, Chezar says, base their home buying decisions on the availability of train station parking, for which there are waiting lists of up to four years at some stations in the region.

The new program includes free charging at the train station, free installation of a home charger, a discount of \$21 per month toward a commuter rail ticket and a Th!nk City with air conditioning—all for just \$199 per month. Also included are home power receptacles for charging the vehicles, which have onboard charge electronics.

It's all part of New York Governor George Pataki's EV push, taking that push beyond state fleets to the consumer realm.

The program is open to commuters in New York's Westchester, Queens, Putnam, Nassau, Suffolk and Rockland counties. First deliveries of Th!nk City EVs under the "Clean Commute" program are

expected in the third week of November. Electric Vehicle Infrastructure, Inc. will help install train station chargers.

NYP&A, Bart Chezar, 914-390-8205; fax 914-390-8244; chezar.b@nypa.gov; www.nypa.gov

Ford Th!nk City sales (San Diego), Jonathan Richards, 760-438-6107; jrcha10@ford.com; www.thinkmobility.com

EVI, Dave Packard, 912-882-0702; dpackard@evii.com; www.evii.com

'Recycled'

That's to Be Fate of Some Unleased Vehicles, GM Says Battery EVs Are Not Market-Viable
 General Motors does indeed plan to destroy some of its unleased battery electric EV1 vehicles, says the OEM's advanced technology vehicles brand manager.

"We're going to eventually have some vehicles that don't have any use and these are going to be recycled," GM's Ken Stewart told *F&F* last week. Aluminum, some precious metals, and some valuable vehicle components will be scavenged from vehicles left over after GM completes a project to donate some of the unleased EV1s to museums and schools, Stewart says.

GM has raised the ire of EV proponents, including California's Production EV Drivers Coalition, which claims the automaker is refusing to lease several hundred EV1s even though there are plenty of customers that want one. The group has also complained that GM is refusing to allow leases to be transferred, or assumed.

Wear and Tear Has Told

"There have been lease assumptions," counters Stewart. "We're evaluating these on a case-by-case basis," he says.

The GM man says approximately 200 EV1s were reconditioned following two separate recalls for charge port and braking problems, and were put back out to lease. Of the remaining 350 or so recalled cars, "some of them were not able to go back out into service because they were kind of beat up," he says.

"Nowhere in this plan am I proactively going out and taking cars off the road from customers," Stewart insists. "There is no 'EV1 round up' going on."

Some EV1s have been returned to GM to be used as hybrid and fuel cell testbeds. EV1s donated to schools and museums will not be operational.

GM maintains that battery electric vehicles are too costly to be market-viable, and that requiring them hurts the clean air cause because it raises the price of all vehicles, keeping older and dirtier cars in service longer.

GM, Ken Stewart, 248-680-5509; fax 248-680-5144; kenneth.c.stewart@gm.com; www.gmev.com

New Th!nk

Enova and Solectria Will Contribute To Ecostar Drivetrain for New Th!nk

The powertrain for the new version of Ford's Th!nk City battery EV will be supplied by its Ecostar affiliate, with the support of California's Enova Systems and Massachusetts-based Solectria (for motor and gearbox).

Ford is winding up production of current Th!nk City vehicles with Siemens drivetrains at the company's plant in Aurskog, Norway.

The new Th!nk City vehicles, also to be built in Aurskog, will be crash-certified to U.S. standards and will feature such amenities as air conditioning and power-assisted steering. They are to debut in mid-2002.

Th!nk Nordic (Aurskog), Mr. Chris Wilson, +47-6385-4500; fax +47-6385-4561; chris.wilson@think.no; www.thinkmobility.com

Ecostar, Rob Vane, 313-337-3566; fax 313-845-5349; rvane@ford.com; www.ecostardrives.com

Solectria, Karl Thidemann or Samantha Borbone, 978-658-2231; fax -658-3224; thidemann@solectria.com; borbone@solectria.com; www.solectria.com

Enova, president Carl Perry, 310-527-2800, ext 117; fax -527-7888; sales@enovasystems.com; www.enovasystems.com

Electric Vehicles

New for GSE

Ecostar and Charlotte Launch Products At Airport GSE Gathering in Las Vegas

The Ecostar electric drivetrain unit of Ballard Power Systems (**NASDAQ:BLDP**) and Franco-American Charlotte were among the firms offering new battery vehicle options at this month's GSE Expo 2001 meeting for airport in Las Vegas.

Ecostar launched an 80-volt AC powertrain it describes as "a complete system solution" for airport ground support equipment operators. Six major airlines were involved in the product's development, and Ecostar was able to draw on Ford's experience with electric vehicles, using an electronic accelerator assembly, for example, from the company's battery electric Ranger EV pick-up truck. Full commercialization is set for the first quarter of 2002.

Charlotte, which specializes in airport GSE vehicles (*F&F Strategies*TM, May 7, 2001), took the occasion of GSE Expo 2001 to launch a new push-back vehicle capable of handling the largest aircraft with battery electric motive power. The new vehicle is available as a diesel too, designed for easy EV powertrain retrofit, Charlotte VP Bill Dean told *F&F*.

The new Ecostar drive train is being tested in at least two Charlotte vehicles.

Charlotte, VP Bill Dean, 678-576-5333; fax 678-354-9050;

loader2002@earthlink.net; www.charlotte.com

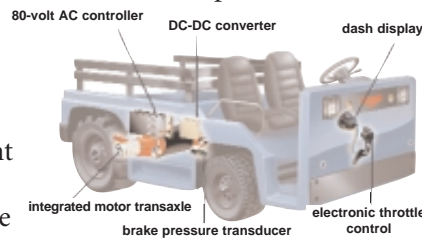
Ford-Ecostar, Kevin Vogler, 313-248-5395; kvogler@ford.com

Stempel Lauded

Bob Stempel, chairman of Energy Conversion Devices (**NASDAQ:ENER**) received the prestigious EIC Golden Omega Award at the 25th Anniversary EIC- EMCW Expo 2001 in Cincinnati, Ohio earlier this month.

"The Award recognized Stempel's work to develop and introduce electric vehicles while at General Motors and his continuing activities to bring advanced nickel metal hydride batteries for electric and hybrid electric vehicles to market in conjunction with ECD's subsidiary, Ovonic Battery Company, and their joint manufacturing venture, ChevronTexaco Ovonic Battery Systems LLC," ECD says.

The Golden Omega Award is presented on behalf of organizations including the Institute of Electrical and Electronics Engineers and the National Electrical Manufacturers Association.



Ecostar powertrain in a generic GSA vehicle, with efficiency boosted by regenerative braking

Natural Gas Vehicles

All-CNG

SACRT's 98 New Orion VII's Will Replace All of the Agency's Remaining Diesel Buses

California's Sacramento Regional Transit District is buying 98 compressed natural gas-fueled Orion VII buses with 8.3-liter C Gas Plus (formerly C8.3G Plus) engines from Cummins Westport.

SACRT will take delivery of the new vehicles, with roof-mounted CNG tanks from Structural Composites Industries, by the end of 2002, at which time it will have raised its CNG fleet total to 250 vehicles — and will have phased out its remaining 66 diesel buses.

SACRT current has 133 forty foot and 15 thirty-one foot CNG buses, as well as four replica streetcars running on the gaseous fuel. The agency upgraded its CNG fueling facility two years ago, and is planning now to add public-access dispensers, says SACRT customers services chief Mike Wiley.

SACRT, Mike Wiley,

916-321-2811; mwiley@sacrt.com; www.sacrt.com

Orion, Mark Brager, 905-402-1111;

fax 905-403-8800; mbrager@orionbus.com

Cummins Westport, Chris Murphy, 604-718-1910; fax 604-

718-2040; cmurphy@westport.com; www.westport.com

SCI, John Coursen, 909-444-3939; fax 909-594-3939;

jcoursen@harsco.com; www.scicomposites.com



an SACRT Orion VII

NexGen for D.O.N.

Chart Unit Is to Build an LNG Facility At North End of California Clean Corridor

NexGen Fueling, a unit of Chart Industries, has a contract to build a liquefied natural gas fueling station for D.O.N. Investments of Stockton, Calif.

The public-access facility is sited at the northern end of the Interstate-5 leg of the Interstate Clean Transportation Corridor, a line-up of LNG stations stretching from San Diego to Sacramento.

D.O.N. is adding 46 Class 8 semi-tractor dual-fuel tandem trucks to its fleet of trucks serving agricultural and industrial customers throughout California, NexGen says.

The station will have two LNG dispensers, designed for public access and capable of fueling up to 100 vehicles per day. It's to be completed by year-end.

NexGen, president David Barr, 952-882-5213; fax -882-5172; david.barr@nexgenfueling.com; www.nexgenfueling.com

D.O.N. Investments, president Don Narten, 209-463-0376

Natural Gas Vehicles

So Long to Conversions?

CNG, Propane Aftermarket Conversion Industry Faces Collapse Unless EPA Has Change of Heart
Time may be running out for the natural gas and propane aftermarket conversion industry.

Unless EPA extends an exemption to Clean Air Act vehicle anti-tampering rules, natural gas and propane conversion kit manufacturers could be forced to exit the U.S. market entirely by the end of the year.

That's the warning raised by aftermarket converters who are about to be hit with the same engine/emission certification fees and reporting requirements as OEM automakers.

The alarm's being raised by because the agency seems intent on forcing small equipment manufactures to meet the same stringent emission standards as OEMs.

Converters like Baytech's Rebecca Royer are trying to line up a lobbying effort to win EPA's ear.

She's won some support from the Department of Energy and the Natural Gas Vehicle Coalition to convince EPA to extend the exemptions from the certification policy, outlined in the so-called "Memo 1-A," for the struggling conversion industry.

This week she meets with propane equipment suppliers and the larger auto aftermarket industry to try to get more help to convince EPA to extend the status quo.

EPA's move to force aftermarket converters to go through the full certification procedure will likely



eliminate suppliers who only target the U.S. market.

However, there would still be conversion opportunities in Mexico, Canada and the UK, says Canadian converter Markus Wenzel, with Eco Fuels.

Eco Fuels offers bi-fuel kits in the more flexible Canadian market. It's developing a Mexican presence and may target Japan, the UK and Germany. "If EPA slams the door we have to be flexible enough to adapt," he says. EPA's demanding full, OEM-level certification fees from aftermarket converters, fees that will be more than the small companies can handle.

Less Converters = Less Fueling Infrastructure

Collapse of aftermarket converters would greatly undermine already teetering efforts to create a refueling infrastructure for CNG, Royer says, because OEMs aren't producing enough vehicles to keep AFV refueling stations busy enough to turn a profit.

CNG conversions put great numbers of vehicles on the road to provide needed customers for refuelers.

The fee for light-duty vehicle conversion equipment certifications hits \$38,000 for each engine group if EPA's proposed changes take effect as planned on January 1. That's a jump from the current \$27,211 charge per engine group certification.

Other fee increases: California certifications, jump from \$8,956, to \$16,000 while heavy duty certification fees would increase from \$12,584 to \$30,000.

Baytech, Rebecca Royer, 650-949-1976; 650-949-1970; rjroyer@baytechcorp.com; www.baytechcorp.com

Eco Fuels, Markus Wenzel, 604-888-8384; fax 604-888-6607, markus@ecofuel.com; www.ecofuel.com

Making More Models Available

That's The Key Role of Aftermarket Converters, Who Now Face Daunting New Regulatory Obstacles

Aftermarket converters allow fleet managers to use alternative fuels in vehicles that aren't otherwise available, such as the four-door "super-crew" version of the Ford F-150 pick-up truck shown here (with 5.4-liter Triton V-8 engine), which was converted to gasoline-CNG bi-fuel operation using hardware from Canada's Eco Fuel Systems. Indiana's NiSource (formerly NIPSCO) has acquired some 600 such vehicles over the years. Other Eco Fuels customers include Black Top taxis in Vancouver, Cincinnati Gas, Arizona's AZ Star, and various U.S. and Canadian government fleets.



Bill Brinkmann (left) of Indiana's NiSource and Markus Wenzel of Canada's Eco Fuel Systems with a bi-fuel CNG-gasoline Ford super-crew pick-up at the NGVC meeting early this month in San Francisco. The four-door vehicle is not otherwise available as an AFV.

Eco Fuels, reports sales & marketing director Markus Wenzel, manufactures the electronic components in its bi-fuel systems, and buys other hardware outside, including regulators from Italy's Tartarini and, for the Eco Fuels' new EDI system (for Eco digital injection), Bosch injectors and regulators from ITT Conoflow.

Eco Fuels' fms' brand fuel management system allows drivers to automatically or manually select the fuel they use, while fleet managers can gather data on the number of hours a given vehicle has operated on CNG or gasoline. Eco handles propane conversions too.

Eco Fuels, Markus Wenzel, 604-888-8384; fax 604-888-6607; markus@ecofuel.com; www.ecofuel.com

NiSource, Bill Brinkmann, 219-938-7604 or toll-free 888-CNG-FUEL (888-264-3835); fax 219-938-7584; wjbrinkmann@nisource.com

NGVC San Francisco

Hydrogen, Anyone?

Lincoln Now Touts Hydrogen Prowess, And a CNG Tank Said World's Largest
Lincoln Composites stepped up to the fuel-of-the-future plate at the Natural Gas Vehicle Coalition's annual meeting in San Francisco early this month, joining the ranks of compressed natural gas specialists embracing hydrogen.

Lincoln CNG tank competitor Dynetek has long styled itself a gaseous fuel vessel company, seizing the hydrogen phenomenon and supplying tanks for numerous fuel cell vehicles, while Impco Technologies and its new Quantum unit have even branched into residential hydrogen systems.

The European Natural Gas Vehicle Association earlier this year modified its charter to include hydrogen vehicle advocacy.

Lincoln said in San Francisco that it's delivered a quantity of 5,000-psi TuffShell brand tanks to a Japanese OEM participant in the California Fuel Cell Partnership, generally understood to be Honda.

"We are committed to the compressed hydrogen and natural gas vehicle industry," says Lincoln president Rick Rashilla. Lincoln's been the sole supplier of CNG tanks for the made-in-Ohio Honda Civic GX since 1998.

Behemoth Tank

Lincoln is also talking up a new TuffShell cylinder it says is the world's largest commercially available CNG tank, measuring 21.2 inches (539 mm) in diameter with lengths up to 120 inches (3,048 mm).

The full-size tanks weigh only 380 pounds and with 531 liters of internal volume can hold 5,606 standard cubic feet of CNG at 3,600 psi.

"Not only is this tank lower in cost and weight per SCF, but fewer large tanks on a vehicle result in a reduction in plumbing and mounting hardware," Lincoln says.

TuffShell tanks are available in a new roof-



mounting package for which Lincoln claims nearly \$1 million in recent bus OEM orders.

Lincoln also notes that it's the supplier of CNG tanks to Colorado's TransTeq, manufacturer of unique hybrid electric vehicles that ply the downtown Denver pedestrian mall. TransTeq recently notched a sale of four of its super-clean buses to Los Angeles International Airport (*F&F*, October 8).

Lincoln, VP Bill Dick, 402-464-6611, ext 3391;

bdick@lincolncomposites.com;

www.lincolncomposites.com

Dynetek

Calgary-based Dynetek Industries was in San Francisco, talking up its lightweight gaseous fuel tanks (for CNG or hydrogen), which feature thinwall aluminum liners wrapped in carbon fiber.

Dynetek emphasized its strong interest in the American market and said that it's continuing efforts to get its fuel tanks to meet "Buy American" standards, even if it ultimately means building a U.S. plant.

The Canadian company has meanwhile commissioned a production facility in Germany, and said last week that Dr. Chris Rasche, formerly of Mannesman, a Dynetek competitor, will head up its operations there.

Dynetek (Calgary HQ), CFO Robb Thompson

or VP Andrea Cherkas, 403-720-0262 or 888-396-3835;

fax -720-0263; robb.thompson@dynetek.com or

andrea.cherkas@dynetek.com; www.dynetek.com

Dynetek Germany, Steffen Rau, +49-2102-30963-30;

fax +49-2102-30963-10; steffen.rau@dynetek.de

**More coverage of NGVC's San Francisco meeting?
You bet! Stay tuned...**

ShowTimes at ETIC 2001

Where Your Advertising Meets the Market

**December 11-14, 2001
Sacramento, CA Convention Center**

Good, But Not that Good

Kudos to Eco Fuels Markus Wenzel for pointing out a gaffe in the October 8 issue of *Fleets & Fuels*.

An item on natural gas vehicle activity in Latin America should have read conversion of 8,000 and 7,000 vehicles *per month* in Argentina and Brazil, respectively, not per day. Markus, thank you.

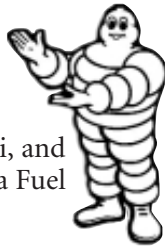
Events

Yes, You Heard Right

The Race Really Is Called the Bibendum, And Michelin Event is Drawing the AFVs
Wrapping up today in Las Vegas, at the annual Specialty Equipment Market Association meeting, is the Michelin Challenge Bibendum, a road rally that kicked off in Los Angeles and which has attracted numerous alternative fuel vehicles.

Among them:

- hydrogen-powered fuel cell vehicles, including cars from DaimlerChrysler, Ford, General Motors, Honda, Hyundai, and Toyota, under auspices of the California Fuel Cell Partnership;
- a Ford F150 pick-up truck from the utility Pinnacle West truck with an internal combustion engine fueled by a blend of hydrogen and natural gas (the vehicle has a fuel tank by Impco-Quantum);
- commercial trucks, trailers, buses and component parts employing advanced technologies and clean fuels from manufacturers including Freightliner, Volvo, Eldorado National, E Bus, Neoplan, Sturman Industries, Xcellsis and Sun Line Transit; and
- a Ford Focus with an Endura Turbodiesel engine converted to 100 percent natural gas operation by Westport Technologies — the vehicle was a driven from Vancouver to Los Angeles for the Michelin event, marking, in the words of Westport's Alan Welch, "a significant demonstration of the real-world value of our technology."



Bibendum, himself

Clean Air Soon

Major Urban Air Pollution Conclave At the Disneyland Hotel Next Week

The South Coast Air Quality Management District and other organizations are hosting Clean Air Technologies 2001 at the Disneyland Hotel in Anaheim, Calif. **November 5-6.**

Topics to be covered include the costs of air pollution; regulatory-versus-market solutions to the air pollution problem; and the role of public transit and fleet vehicles.

Among the numerous presentations will be a disclosure by UPS chairman and CEO Jim Kelly of a new hybrid electric vehicle project involving PEI Electronics of Huntsville, Ala. (see page 8).

SCAQMD, Cerrell Associates, Anita Saunders, 323-466-3445; anita@cerrell.com; www.aqmdconferences.org



More Meetings Action!! Click here for instant access to a complete calendar on the *Fleets & Fuels* website.

Heavy Duty

WestStart and the Army Slate Second Meeting On Moving Beyond Diesel: February in Tempe
WestStart and the U.S. Army National Automotive Center have slated **February 20-22** for their second annual clean heavy duty vehicles conference.

The meeting will be held at the Tempe Mission Palms Hotel in Tempe, Ariz.

Topics to be discussed by delegates from Asia, Europe and North America will include

- international trends in advanced transportation technologies and fuels from the perspective of government regulators, engine and vehicle manufacturers, industry suppliers, and vehicle users;
- the challenge of meeting year 2007 diesel engine and emissions standards in the U.S. and similarly stringent regulations in Europe;
- the role of such clean fuels and technologies as hydrogen, fuel cells, hybrid electric, clean diesel, synthetic fuels, and natural gas; and
- the role of new, cutting-edge drivetrain and propulsion systems.

Clean Heavy Duty Vehicles for the 21st Century: Exploring Trends in Advanced Technologies and Fuels is the theme of the WestStart-U.S. Army meeting.

WestStart (Calstart), Susan Romeo, 626-744-5600; sromeo@calstart.org; www.calstart.org

Stuttgart & Paris

UK Sponsors Step Up Their Promotion Of a New Alternative Fuels Conference

The London-based World Refining Association and affiliated Energy Exchange are stepping up their promotion of the Global Alternative Fuels Forum 2002, to be held at the Hotel Inter-Continental in Stuttgart, Germany **February 12-13.**

The associations are also promoting the 3rd European Fuels Conference to be held **March 19-20** at the Hotel Royal Monceau in Paris. A European Commission proposal to eliminate sulfur in European diesel by 2001 will be a key focus (10 percent discount off the conference fee of **\$1,395** until **December 31**).

The Global Alternative Fuels Forum in Stuttgart is to include presentations from Anuvu, DaimlerChrysler, the EC, Fiat Research, the German Ministry of Transport, Nuvera, Renault, Ford's Th!nk Group, and the World Fuel Cell Council. Attendees are invited to participate in a tour of the local Xcellsis (Ballard) fuel cell facility too.

The Stuttgart conference fee is **£895, or about \$1,300 U.S.** at current rates of exchange.

Energy Exchange, Charlotte (Charlie) Hodson, +44-1242-529090; fax +44-1242-529060; c.hodson@theenergyexchange.co.uk; www.theenergyexchange.co.uk

Strategies

United Parcel Service

Largest Private CNG Fleet Looks Ahead To More Stable Fuel Pricing, and Hybrids

United Parcel Service, stung by this year's rise in compressed natural gas prices on top of the high acquisition cost of CNG vehicles and the inconvenience of refueling them, is looking beyond CNG to hybrid and fuel cell electrics.

The ubiquitous package delivery specialist has meanwhile kicked off a new clean vehicles publicity push, displaying CNG and electric vans in connection with the Michelin Bibendum Challenge race and associated SEMA meeting in Las Vegas (see page 7).

The firm also plans an announcement next week at the Clean Air Technologies 2001 conference in Anaheim, Calif., by UPS chairman and CEO Jim Kelly, about a new hybrid electric vehicle initiative.

Largest CNG Fleet, But Not Growing

UPS operates some 82,000 vehicles in North America, among them 947 CNG package delivery trucks (413 of them in California), more than 800 propane vehicles in Canada and Mexico, and some 1,400 low-emission vehicles.

The company has 13 electric nickel metal hydride battery electric EPIC minivans from DaimlerChrysler active package delivery service in Los Angeles, and is planning to buy at least nine more liquefied natural gas-fueled tractors by Mack Truck to augment the one

United Parcel Service at a glance

Headquarters: Atlanta, Georgia

Employees: 359,000 total; 320,500 in the U.S.

Facilities: nearly 1,500

Volume: UPS handles approximately 13.6 million packages and documents per day.

Vehicles: About 82,000 in North America

Alt Fuel Vehicles: Approximately 1,800 including 947 CNG package delivery trucks (413 of them in California); 750 propane vehicles in Canada and 82 in Mexico City; an LNG tractor (with nine more on order); and 13 battery electric vans in Los Angeles; plus some 1,400 low-emission vehicles.

Key Suppliers: Applied LNG Technologies, Baytech, Clean Air Partners, DaimlerChrysler, Mack Truck, PEI Electronics, Pinnacle CNG.

UPS had revenues of \$29.8 billion last year, during which time it delivered approximately 3.5 billion packages. In addition to its huge ground fleet, the company operates approximately 240 aircraft.

it has in Southern California service now.

"The CNG fleet that we have is the largest CNG fleet in North America," says UPS corporate environmental affairs manager Mike Herr.

UPS first fielded CNG trucks in 1989. The 94-year-old company says it's been working with electric vehicles since operating them in New York City since the 1930s. And UPS is persisting in its hybrid efforts, with the new initiative to follow a project three years ago with Navistar and Lockheed Martin (now BAE Control Systems).

The short-term bad news is that UPS has no intention of expanding in CNG, beyond upgrading the older NGVs it's operating today.

"We deliver to every address in North America, especially the United States, and our vehicles have to have range," Herr told *F&F*.

UPS has also been hurt by recent CNG price hikes, enough for Herr to state flatly, "Natural gas is more expensive than diesel today."

It's Got to Pay

"The driving force is going to be an economic driver," he says.

UPS also maintains environmental initiatives in the areas of recyclable packaging materials, minimizing noise at its handling facilities, and the replacement of older underground fuel storage tanks: more than 2,800 such tanks were upgraded some two years in advance of EPA's 1998 deadline.

But when it comes to alternative technology vehicles, expect the next big UPS move to be toward hybrids, with fuel cell electrics eyed as the future's ultimate propulsion option. One key partner is PEI Electronics of Huntsville, Ala., a firm that's also tied closely to Colorado's UQM Technologies for electric drivetrain development. The initial UPS hybrid will have a Peugeot fuel engine.

Key Contacts at UPS

Jim Kelly, chairman & CEO

Robert Hall, environmental fleet manager,
404-828-6556; rhall@ups.com

Mike Herr, corporate environmental affairs,
404-828-6511; mherr@ups.com

United Parcel Service
55 Glenlake Parkway, N.E.
Atlanta, GA 30328 USA

404-828-6000; fax 404-828-6562

www.ups.com