



Hybrid Power Systems Background

News releases noted below about Eaton's hybrid power systems are accessible at www.eaton.com.

February 27, 2008 – Coca-Cola's Hybrid Electric Drivetrain Order Is Eaton's Largest

Eaton announced today that Coca-Cola Enterprises will purchase 120 new trucks in 2008 powered by Eaton's hybrid electric drivetrain systems – the largest single order to date for Eaton's hybrid power systems. Eaton has been working with Coca-Cola since 2003. The beverage company purchased 20 trucks with Eaton hybrid power systems in 2007.

January 14, 2008 – Eaton Corporation Introduces Its First Commercially Available Hybrid Power System In China With Beiqi Foton Bus Company And Guangzhou Yiqi Bus

Eaton introduced its first commercially available hybrid power system in China with Beiqi Foton Bus Company, deploying the hybrid system in 30 city buses. "Innovative Eaton technologies such as our hybrid power systems are generating improved fuel economy and significant environmental benefits. We look forward to supplying more of these systems to serve the growing Chinese market," said James W. McGill, Eaton vice president—Asia Pacific.

December 21, 2007 – Eaton To Develop Digital Hydraulic Hybrid Drive System For U.S. Army Vehicles

Eaton is adapting its advanced digital hydraulic hybrid drive system technology for U.S. Army vehicles. The goal of the project, which is being done in conjunction with Western Michigan University (WMU), is to develop smaller and lighter drivetrain components, increase fuel efficiency and improve traction and stability for Army tactical vehicles. "The new hybrid drivetrains will offer significant advantages over existing systems, enabling the vehicles to carry more armored protection for the soldiers who use them," said Yannis Tsavalas, Eaton vice president and chief technology officer.

August 22, 2007 – PACCAR and Eaton Announce Heavy-Duty Hybrid Truck Technology Agreement

PACCAR and Eaton Corporation will jointly develop proprietary hybrid technology for heavy-duty commercial vehicles in North America. The innovative new products will be introduced exclusively in Kenworth and Peterbilt trucks in the North American market, targeted for initial production by the end of 2009.

"We are pleased to partner with PACCAR to produce a solution for heavy-duty hybrid trucks that delivers excellent fuel economy, idle reduction and improved operating performance," commented James E. Sweetnam, Eaton senior vice president and president – Truck Group. "During the past five years, we've clearly demonstrated our leadership in the hybrid marketplace with the success of our patented hybrid power system in the medium-duty marketplace. We're excited to be working with PACCAR on this ground-breaking initiative."

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August 9, 2007 – Eaton Begins Commercial Production of Hybrid Power Systems for Medium-Duty Trucks

Eaton today announced that its medium-duty hybrid power systems are now commercially available and will be ready for customer deliveries in 2008 on the chassis of several major North American commercial vehicle manufacturers. These include International Truck and Engine Corporation, Kenworth Truck Co., Peterbilt Motors and Freightliner Corporation. The announcement follows more than four years of development and two million miles of successful field-testing in North America, Europe and Asia.

“Eaton formed this business unit almost seven years ago to provide a cleaner and more fuel-efficient future for the world’s commercial vehicle fleet,” said James E. Sweetnam, Eaton senior vice president and president – Truck Group. “Now, we’re poised to fulfill that goal with the help of our forward-looking OEM and fleet partners that share our vision.”

May 23, 2007 – UPS “Green Fleet” Expands With 50 Hybrid Electric Vehicles

UPS today announced its fleet of alternative-fuel vehicles – already the industry’s largest – had expanded with the deployment of 50 next-generation hybrid electric delivery trucks. The new hybrid vehicles will feature two different size vehicles from Workhorse Custom Chassis and Freightliner LLC and a hybrid power system from Eaton Corporation.

The 50 new HEV package cars are expected to reduce fuel consumption by roughly 44,000 gallons over the course of a year compared to an equivalent number of traditional diesel trucks. The hybrids also should reduce by 457 metric tons the amount of CO2 gases released annually into the atmosphere.

March 16, 2007 – Peterbilt, Eaton And Wal-Mart Partner On Hybrid Electric Aerodynamic Model 386 Development

Advanced hybrid technologies developed jointly by Peterbilt Motors Company and Eaton Corporation have been integrated into an aerodynamically styled heavy-duty vehicle for superior fuel efficiency and greater environmental stewardship.

Wal-Mart Stores, Inc., which operates the nation’s second largest private fleet, is supporting development of new hybrid technologies by helping to validate the concept and refine the final design. Peterbilt and Eaton have previously partnered to develop hybrid electric Class 6-7 vehicle platforms and Class 8 hybrid hydraulic vehicles. With a successful test and evaluation program, the heavy-duty hybrid electric power system will be available in 2009.

March 8, 2007 – Eaton Showcases Hybrid Expertise At Work Truck Show

Eaton again demonstrated its commitment to advancing hybrid power technology within the commercial truck industry by hosting a seven-vehicle Ride-N-Drive event at the 43rd Annual National Truck Equipment Association (NTEA) Convention and Work Truck Show 2007. The demonstration vehicles included chassis from International Truck and Engine Corporation, Peterbilt and Freightliner – each equipped with an Eaton hybrid electric system.

“Just as the trucking industry’s interest in hybrid trucks continues to expand, so does our progress in providing a cost-effective and reliable hybrid solution,” said Mark Lloyd, market development manager for Eaton’s Hybrid Power Systems. “The Work Truck Show provides us with a great opportunity to demonstrate our success.”

At the event, Eaton also announced that its hybrid systems will be commercially available this year on the assembly lines of most major North American OEMs.

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November 1, 2006 – Eaton Receives Innovation Award From Ohio Environmental Council

Eaton Corporation is one of seven recipients of the 2006 Ohio Environmental Council (OEC) Environmental Achievement Awards. The OEC will honor the winners at the organization's annual awards reception, November 4, at Ohio State University's Fawcett Center in Columbus.

Eaton is receiving the OEC's "Environmental Innovation Award" for its new hydraulic hybrid and hybrid electric technologies for trucks. This year, Eaton joined with the U.S. Environmental Protection Agency (EPA), UPS, International Truck and Engine Corporation and the U.S. Army to develop the first-ever hydraulic hybrid diesel urban delivery vehicle. Also cited by OEC was Eaton's development of a hybrid electric powertrain in concert with FedEx and Environmental Defense. Both technologies significantly improve fuel economy and reduce emissions.

June 21, 2006 – EPA Unveils Unique Hydraulic Hybrid Diesel Delivery Truck With UPS, International Truck and Engine, Eaton And U.S. Army

The U.S. Environmental Protection Agency today unveiled the first-ever series hydraulic hybrid diesel urban delivery vehicle, which will provide dramatic improvements in fuel economy and in emission reductions. The development of the hydraulic hybrid is the result of a partnership between the EPA, U.S. Army, UPS, International Truck and Engine Corporation and Eaton Corporation. The EPA and UPS plan to evaluate the vehicle's fuel economy performance and emissions during a series of tests in 2006. In laboratory testing, the EPA's patented hydraulic hybrid diesel technology achieved a 60 to 70 percent improvement in fuel economy and more than a 40 percent reduction in carbon dioxide emissions, compared to a conventional UPS vehicle.

"EPA and our partners are not just delivering packages with this UPS truck - we are delivering environmental benefits to the American people," said EPA Administrator Stephen L. Johnson. "President Bush is moving technology breakthroughs from the labs to the streets. We are doing what is good for our environment, good for our economy, and good for our nation's energy security."

September 28, 2005 – Eaton To Supply Hybrid Power Systems To UPS For International And Freightliner Delivery Trucks

Eaton has been selected to provide hybrid power systems for a total of 50 step-van delivery vehicles made by International Truck and Engine and Freightliner Custom Chassis Corporation, to be purchased by UPS, the world's largest package delivery. The vehicles are expected to deliver up to a 35 percent improvement in fuel economy over its conventionally-powered vehicles, in addition to dramatic decreases in vehicle emissions.

Jim Sweetnam, senior vice president and president – Truck Group, said, "Eaton is extremely pleased to be recognized as the leader in the commercialization of hybrid power for commercial vehicles. This order, combined with other significant orders in the delivery van segment and for public utility trucks, signals that hybrid power is ready for broader commercialization."

September 26, 2005 – FedEx, Environmental Defense, Eaton Corporation Join Forces On Hybrid Delivery Trucks That Dramatically Reduce Emissions And Increase Fuel Efficiency

On May 4, FedEx Express President and CEO David Bronczek, Environmental Defense President Fred Krupp, and Eaton Corporation senior vice president James Sweetnam will be at Harvard's Kennedy School of Government to receive the 2005 Roy Family Award for Environmental Partnership for their joint creation of a hybrid delivery truck that reduces particulate emissions by 96 percent and increases fuel efficiency by up to 50 percent.

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With the hybrid electric powertrain designed by Eaton, the first 18 production models of the new truck are now in service. Earlier this month, FedEx announced plans to add up to 75 hybrid trucks to its fleet in the next 12 months, contingent upon pricing and availability. If all goes well, the company plans to make this a standard replacement.

June 20, 2003 – U.S. Department of Energy Awards Contract To Eaton For Truck Hybrid System Development

Eaton announced that the U.S. Department of Energy (DOE) has awarded Eaton's Truck business a \$3.1 million contract to develop hybrid propulsion systems for trucks and other heavy duty vehicles. Secretary of Energy Spencer Abraham announced the contract award to Eaton this month.

The DOE contract provides matching funds for a research and development program aimed at doubling the fuel efficiency of today's conventional truck engines, while at the same time increasing reliability and durability of components and meeting new, lowered federal emissions standards for 2007. The department's National Renewable Energy Laboratory will fund about \$3.1 million of the \$7.1 million three-year subcontract, with Eaton providing the balance of the funds.

"Hybrid technology has already demonstrated it can dramatically increase the fuel economy of cars," Secretary Abraham said. "Our goal through this important project is to achieve the same economic and environmental benefits for heavy commercial vehicles. In the process we also make our nation more secure by reducing our dependence on foreign sources of oil."

May 20, 2003 – FedEx Express Introduces Hybrid Electric Truck

FedEx Express, a subsidiary of FedEx Corp., in concert with Environmental Defense and Eaton Corporation introduced a low-emission, hybrid electric powered delivery vehicle that could become a standard medium-duty delivery truck for the FedEx Express fleet. The FedEx OptiFleet E700 hybrid electric vehicle will decrease particulate emissions by 90 percent, reduce smog-causing emissions by 75 percent and increase fuel efficiency by 50 percent. FedEx Express has agreed to purchase 20 hybrid electric diesel delivery trucks using Eaton's innovative hybrid electric technology

"Eaton is pleased to make this innovative, environmentally advanced technology available to FedEx Express and Environmental Defense for this ground-breaking project," said Jim Sweetnam, Eaton senior vice president and group executive – Truck Group. "We are proud of the achievements to date, and we look forward to working with our colleagues to prove out the economic and environmental benefits of this technology."