



## Green Auto Market

The Business of Green Cars, Fuels & Technologies

*Jon LeSage, editor and publisher*

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#### Electric trucks see a revival as automakers prepare to meet regulations and market demand



Commercial electric vehicles are seeing a revival this year, encouraged by government incentives and demand coming from fleets and freight haulers. Electric truckmakers and suppliers had seen several financial failures in recent years, but a turnaround is starting to pick up. California is playing a leading role, with its Sustainable Freight Action Plan aiming to see 100,000 trucks, trains, and cargo-moving machines fueled by cleaner fuels or electricity on its roads by 2030. For the global market, Navigant Research says

sales of electric drive and electric-assisted commercial vehicles are expected to grow from less than 16,000 in 2014 to nearly 160,000 in 2023. Electric hybrid vehicles are now being used in commercial applications where the improved technology offers major benefits for specific drive cycles that involve city driving in stop-start traffic, Navigant says.

Cities and states across the country are adopting tighter emissions rules for urban transport; the challenge is steep due to a lack of batteries with the durability to propel fully loaded vehicles for long periods of constant use. Automakers are starting to take these vehicles and battery packs more seriously, and a few of the startups are starting to make headway in the market. That includes Mercedes, Tesla, Nikola Motor, BYD, and Smith Electric Vehicles. Heavy-duty trucks, medium-duty delivery and work trucks, and buses, will have more electrified vehicle offerings in the near future.....

- **Mercedes-Benz** outlined plans [to start selling an electric heavy-duty truck](#) in about five years, a week after Tesla Motors' initial sketch on battery-powered commercial vehicles was announced in a Tesla blog post. Mercedes' parent company Daimler says that its Urban eTruck will have a range of about 200 kilometers (120 miles) per battery charge and capacity for loads of as much as 26 metric tons. The electric truck is targeted for inner-city tasks such as supermarket deliveries. "Until now, there were extremely few commercial vehicles with electric powertrains," said Wolfgang Bernhard, head of the Daimler Trucks division. "There's now such a significant improvement on costs, performance and charging times that we're seeing a step-by-step change."
- In the recent ["Master Plan, Part Deux,"](#) **Tesla CEO Elon Musk** outlined a long-term strategy bringing the company's electric drivetrain to trucks and vans. "In addition to consumer vehicles,

there are two other types of electric vehicle needed: heavy-duty trucks and high passenger-density urban transport," Musk wrote. "Both are in the early stages of development at Tesla and should be ready for unveiling next year. We believe the Tesla Semi will deliver a substantial reduction in the cost of cargo transport, while increasing safety and making it really fun to operate."

As for the electric bus that Musk referred to, in recent tweets he said that it's going to more of a passenger van than a delivery vehicle. The planned "high passenger-density urban transport" will be not an electric city bus, but a smaller vehicle built on the Model X chassis. Musk has also said the Tesla Minibus will be modeled on an iconic vehicle – what he says is "inspired by some of the California Custom VW combi design art," which is basically a 1960s VW van.

- Salt Lake City-based startup, **Nikola Motor**, recently said that it [has received 7,000 pre-orders](#) for its Class 8 electric truck. The battery-powered prototype, Nikola One, is scheduled to be unveiled in December. The company says its electrified truck, which features a natural gas turbine range extender engine, is 10-to-15 years ahead of any other truck manufacturer in fuel efficiencies and emissions. Among a list of touted benefits, the natural-gas turbine powered rig is said to offer two-to-three times better mpg than today's diesels and "near zero" emissions. "We are the only OEM to have a near zero emission truck and still outperform diesel trucks running at 80,000 pounds," said Trevor Milton, founder and CEO.
- **Tesla Motors co-founder Ian Wright's company, Wrightspeed**, recently won a \$30 million contract to convert hundreds of New Zealand transit buses with its turbine-powered plug-in hybrid powertrain. The Alameda, Calif.-based manufacturer of range-extended electric vehicle powertrains, also announced that it was just awarded as a World Economic Forum's Technology Pioneer, a selection of the world's most innovative companies. Designed as a replacement for conventional piston engine and transmission systems, Wrightspeed's Route is a range-extended electric vehicle powertrain that provides extended range and fuel cost reductions for the refuse, delivery, and mass transit markets.
- **Smith Electric Vehicles**, based in Kansas City, Mo., just announced its decision to streamline its structure and operations to increase shareholder returns. The medium-duty electric truck maker will consolidate its operations hub in the US and will add a division in the UK. It will sell and distribute its products worldwide. The Smith Electric Newton and Edison models are deployed in several countries across a variety of industries, including parcel, food, beverage and equipment delivery, and personnel transport.
- **While BYD is leading the Chinese market** in electric car sales, in North America, its electric transit buses are taking off. Last year, California-based BYD Motors won a contract with the Washington State Department of Transportation that will allow for up to 800 heavy-duty buses from all different propulsion types that included 12 different categories for all-electric buses. The contract has the potential to be the most complete electric vehicle procurement in US history as it includes buses from 30 to 60 feet in length for both highway and transit applications, the company says. BYD is providing electric buses to other transit districts in North America, including an agreement with the Long Beach Transit, based in Long Beach, Calif., that was set up in 2015.
- **Colorado-based Boulder Electric Vehicle** has a growing fleet clientele tapping into its mid-size electric truck offerings. The 500 Series offers 80 to 100 miles per charger with up to 4,000 pounds of payload, freeway-capable speeds up to 75 mph, and a variety of available configurations and options. The 1000 Series has similar specifications with up to 6,500 lbs. payload.
- **Electric Vehicles International (EVI)**, a maker of battery electric light- and medium-duty trucks and a plug-in hybrid utility service truck, was acquired in March by First Priority

GreenFleet. The investor describes itself as “a total solutions provider to sustainable fleets that brings customers a full range of zero and low-emission vehicles that allow them to select the products and infrastructure that best fits their needs.” Its parent company, First Priority Global, manufactures a variety of specialty vehicles, including firefighting, medical, rescue, and public safety equipment. EVI also sells powertrains and performs conversions.

- Last year, **Via Motors announced that California Air Resources Board and the US Environmental Protection Agency** issued emissions certification for its full-sized Plug-In Extended Range Electric (eREV) Pickup Truck, clearing the way for the company to deliver the vehicles to its fleet customers. Via had previously received similar certification from CARB and EPA for its eREV Van. Via employs a streamlined up-fitting manufacturing process to integrate its proprietary VDRIVE power train into new OEM vehicles, then sells directly to fleets under the VTRUX brand name. Via VTRUX delivers over 40 mile battery range on a single charge and unlimited extended range, averaging upwards of 100 mpg in typical daily driving.
- **In November, Mercedes finished a test project** on a Fuso Canter E-Cell pilot in Portugal. The six-ton Canter e-Cell comes from Daimler’s Fuso brand. The customers in the test trial experienced the Canter E-Cell as an efficient and reliable concept fully meeting the demands of urban delivery transport, the company said.
- **Swedish truckmaker Scania** is testing electric trucks powered by overhead electric cables. Since February, Scania has been testing out a new electric truck on two-kilometer stretch of road between the Port of Gävle and the town of Storvik along European highway 16 in Sweden. Siemens is providing electric drive systems in the test project that operate on a catenary system, using an overhead external conductive box and cable system. Scania is finding that using hybrid electric trucks fitted with this electrified vehicle technology rather than diesel trucks can reduce fossil fuel emissions by between 80% and 90% in some cases.



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<b>Fuel (in US)</b>	<b>Current Price*</b>	<b>One Month Ago</b>	<b>One Year Ago</b>
Regular gasoline	\$2.135	\$2.288	\$2.665
Diesel	\$2.319	\$2.372	\$2.738

\*As of 7/31/16

Price data for gasoline and diesel taken from AAA Daily Fuel Gauge Report.

<b>Cost of Crude Oil per Barrel</b>	<b>Current Price</b>	<b>One Year Ago</b>	<b>Five Years Ago</b>
(as of 7/25/16)			
WTI	\$42.40	\$47.11	\$95.68
Brent	\$43.76	\$53.29	\$115.93

Oil price data comes from US Energy Information Administration.