



The World Needs Commercial Electric Vehicles Now

Just a few years ago the idea of fully electric vehicles on the roads seemed distant, a “someday” proposition. Auto manufacturers came to market with a limited number of transitional concepts, such as hybrid electrics that ran on both gas and batteries. These early entrants offered pioneering drivers the range they needed coupled with dependability. The early offerings often were at the bottom of the market, cheap and cheerful vehicles that offered little for anyone outside of environmental activists – for Big Auto the equivalent of putting a toe in the water.

Fast forward to 2020 and things are changing quickly. General Motors, in a bid to bring EV ownership to the

masses, recently announced 20 new electric models by 2025, to be released in a staggered fashion starting in 2021. For a company once criticized for “killing the electric car,” the transformation from fossil fuels to EV looks to be a total transition – an “all-electric” future in the words of GM executives. Ford has responded in kind with a more measured approach, announcing an electric version of its bestselling F-150 pickup and, of course, the electric version of its iconic Mustang and new Mustang SUV.

In doing so, Ford has shown that a major auto manufacturer is now prepared to whet the average American’s appetite for electric vehicles, the equivalent

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of the proverbial one-two punch in boxing — bang, bang, knockout. To augment these initiatives, Ford has announced a massive national charging network it anticipates will be several times the size of Tesla's charging network.⁽¹⁾

Meanwhile, in Europe, we've seen Porsche respond with the Taycan, a sports sedan aimed directly at the Tesla Model S Performance, albeit with a higher price tag for that salivation factor among car enthusiasts. Interestingly, Volkswagen has promised to quickly launch tens of thousands of its new ID.3 electric cars at a price lower than gasoline models.⁽²⁾ As VW pushes to make EVs affordable, Tesla says it's on the cusp of a battery-cost breakthrough that will make their cars cost-competitive without government subsidies.⁽³⁾

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cars are on par with combustion vehicles in terms of price, though by one estimate a Tesla Model 3 already beats the Toyota Camry in total cost of ownership over five years.⁽⁴⁾⁽⁵⁾

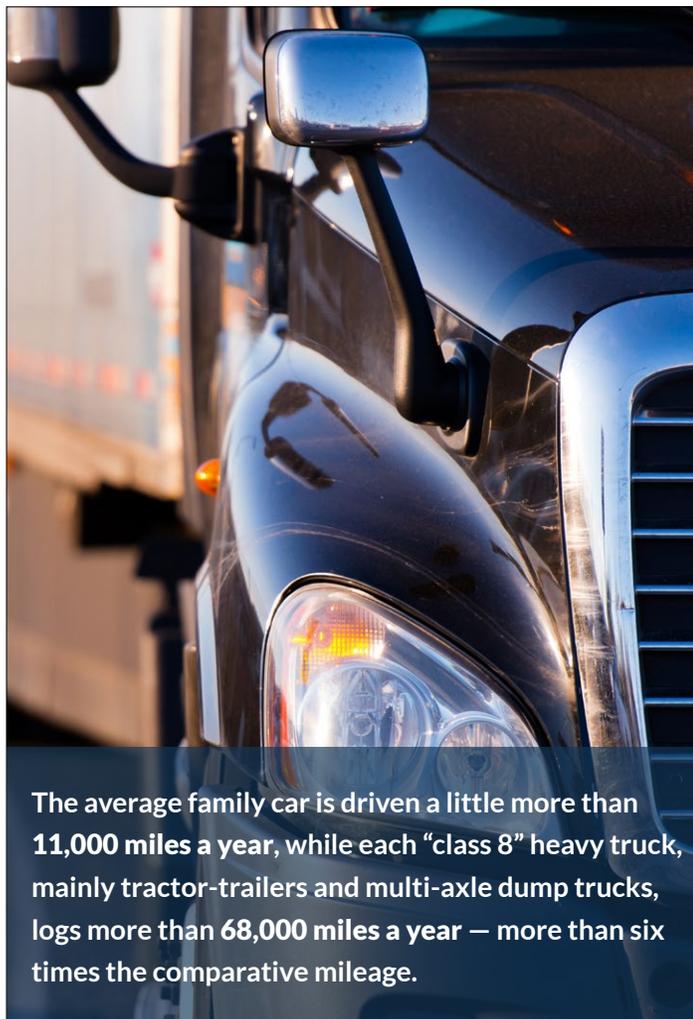
For most of these global brands, of course, China, India, and Southeast Asia are the biggest markets for EV transportation growth. And while advances in battery technology promise increased range and lower prices, consumer vehicle headlines here and around the world miss the clear case for immediate commercial vehicle electrification.

Ideanomics, through its Mobile Energy Group (MEG) and CATL, is working to facilitate this important mission of reducing carbon emissions through commercial EV conversion at scale.

In a world waking up to climate change, the low-hanging

fruit is to convert our global commercial fleets of delivery and industrial vehicles to electric as soon as possible. Close to one-third (29%) of U.S. greenhouse gas emissions comes from the transportation sector, of which nearly a quarter (23%) is from medium- and heavy-duty trucks.⁽⁶⁾

While there are far more passenger vehicles on the road, heavy trucks are driven nearly nonstop. The average family car is driven a little more than 11,000 miles a year, while each “class 8” heavy truck, mainly tractor-trailers and multi-axle dump trucks, logs more than 68,000 miles a year — more than six times the comparative mileage.⁽⁷⁾ Add in autonomous, driverless trucks and that mileage figure could easily double. Trucks would go night and day without rest.



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Add to that the thousands of smaller delivery vans that power rapidly growing e-commerce businesses. Feeling the pushback from climate-concerned consumers, companies such as Etsy and Amazon are working to ensure that their carbon footprint from delivery is dropping. Amazon aims to be halfway to “net zero” on its carbon emission by 2030, then eventually to 100% carbon neutral.

Getting to carbon neutral might take a variety of forms, including purchasing offsets to plant trees. Yet the most impactful move companies can make now is to convert their fossil-fuel fleets to clean electricity sooner rather than later. If saving the environment is a priority, companies such as Amazon don’t have to wait until 2022 or 2030 for commercial EVs to be economical — the math works out now.

Unlike passenger cars, delivery vehicles operate on set routes, a fact that alleviates range anxiety. Besides climate and range, however, there are several important advantages to converting trucks and fleet vehicles to electric power.

Modern combustion engines are tremendously complex machines. They require oil changes and regular parts replacement to operate at peak efficiency. EVs in comparison have one-fifth the number of powertrain parts. Electric cars need no oil, while regenerative braking means brake pads last more than three times longer. By one estimate, auto dealers face a 35% decline in service revenue over a five-year period due to EV conversion as the two most common automobile service needs, oil changes and brake renewal, are nearly eliminated.⁽⁸⁾

Tesloop, a Tesla rental service operating in Southern California and Nevada, reports that it has one vehicle exceeding 400,000 miles in perfect operating condition. The company says it has replaced that Tesla’s battery twice, both times under warranty, while estimating battery degradation of just 6% in the first 194,000 miles.⁽⁹⁾

The company calculates the cost of maintaining that single early model Tesla at 5 cents per mile, compared to an estimated 25 cents per mile for a Lincoln Town Car at the same mileage. Tesloop figures that the life of a “Tesla quality” drivetrain is more than 500,000 miles. At that rate, an EV would last a normal driver 25 years — essentially forever in automotive ownership terms.⁽¹⁰⁾

According to industry research in China, a commercial combustion vehicle is driven on average 127 miles per day over 250 days per year. They cost \$6,000 while an electric vehicle costs \$13,000. However, once you consider insurance, maintenance, repair and energy consumption, the annual cost of ownership for the gasoline vehicle is \$32,260 versus an EV cost of \$28,600.

Multiply the wear-and-tear of an ordinary car by the higher mileage demands of a combustion delivery truck and those regular maintenance costs multiply as well. Moving to EV trucks greatly reduces the associated cost of keeping a major commercial fleet moving for longer.

The commercial transportation market is huge in China. Commercial vehicles — heavy trucks, commercial buses, last-mile delivery vehicles, and taxis — account for approximately 70% of all new energy consumed in the

electric automotive sector. In numbers, MEG estimates the size of the opportunity to be 7.4 million heavy-duty trucks and off-road vehicles such as mining trucks; 14 million delivery vehicles (tractor-trailers and smaller delivery trucks); 1.6 million buses for mass transit and tourism; and 1.2 million taxis and ride-sharing vehicles.

While high efficiency and low maintenance cost is great, moving wholesale toward new forms of transportation does create a financial conundrum for the heavy truck business. Banks find it harder to finance EV projects because there’s no track record for battery-driven heavy trucks and the cost of refurbishing them over time. Calculating depreciation, and thus financing terms, is virtually impossible.

On the leasing side, a 10% to 20% deposit is normal for a traditional diesel truck. Leasing companies are demanding a 50% deposit on EV trucks. That’s because the battery alone is half of the value of a heavy truck, and it can be refurbished and resold.

That’s far more cash than firms have on the balance sheet for fleet replacement. Nevertheless, fleet operators in China, both private and state-owned, are under pressure to convert to EV power by 2025. They

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must replace up to 20% of the fleet per year at a cost of billions of dollars to the transportation industry.

Ideanomics is filling the financing gap by inviting capital from insurance pools to invest, setting up 100% financing for operators through the leasing firms. Ideanomics also has launched an optional battery buyback program, to be run by the leasing companies. To qualify for financing under the program the fleet operator must have a good credit rating, of course.

The goal of Ideanomics is to provide total financing on a rapid timetable that facilitates mass conversion in China to less-polluting electric heavy truck technology. This unique financing model, built on partnerships fostered by Ideanomics, could turn out to be a barrier to entry for competing firms interested in the EV market.

Innovative financing for trucks and batteries can bring significant cost savings to operators and make quick conversion to EVs financially feasible. MEG expects to launch its heavy truck initiative in the second quarter of 2020 to include battery manufacturer buyback programs and other options that will help support flexible financing.

The recent COVID-19 outbreak has shown that while isolation of the human population has caused inconveniences and slowed the economy, the positive impact on the environment has been nearly immediate. Satellite imagery of major cities in China, Europe and the United States has demonstrated reduced pollution.

A global pandemic is undoubtedly a tragedy, yet it has provided the world with something not seen in modern times – a brief window into what happens to the environment if mankind hits the “pause” button. Pollution recedes quickly, and air quality rapidly improves.

This hopefully brief global respite from economic activity gives us a heartening glimpse of nature’s resiliency. We can greatly reduce damage to our shared environment by converting heavy trucks and commercial vehicle traffic sooner rather than later. Boosted by legislation and subsidies, EVs offer a compelling ROI model right now in terms of fuel savings performance and cost, no doubt powerful motivating factors for commercial fleet operators.

Financing and clean energy leadership from companies such as Ideanomics point toward a future of decreasing carbon emissions alongside reliable economic growth. Commercial EV conversion offers a way to significantly help the environment. It should be supported legislatively in order to smooth the necessary transition away from fossil fuels in every developed country in the world. China can lead the way.

- (1) [*Ford announces launch of largest electric vehicle charging network in the US*](#)
- (2) [*VW says it will drop 30,000 ID.3 electric cars at once, will be cheaper than gas cars*](#)
- (3) [*57.4K News Tesla Battery Day can mean doomsday for legacy carmakers shifting to electric*](#)
- (4) [*New market. New entrants. New challenges. Battery Electric Vehicles*](#)
- (5) [*Tesla Model 3 vs. Toyota Camry – 5 Year Cost of Ownership Comparisons*](#)
- (6) [*Fast Facts on Transportation Greenhouse Gas Emissions | US EPA*](#)
- (7) [*Alternative Fuels Data Center*](#)
- (8) [*Electric cars and the future of auto maintenance*](#)
- (9) [*Tesloop's Tesla Model S Surpasses 400,000 miles \(643,737 km\)*](#)
- (10) [*Tesla and the Electrifying Economics of Depreciation*](#)