



Green Auto Market

The Business of Green Cars, Fuels & Technologies

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Why is Apple investing \$1B in Chinese ridesharing giant Didi?



It's been a big year for breaking news on the clean mobility front, with General Motors investing a half billion in Lyft and Apple announcing last week that it's investing \$1 billion in Didi Chuxing Technology. Apple appears to be just as serious about investing in mobility services as is Silicon Valley neighbor Google and its self-driving car project.

Here's my thoughts on what's behind all of it:

- **Uber's global domination:** Didi is part of an international coalition announced in late 2015 with Lyft in the U.S., India's Ola, and

Southeast Asia's GrabTaxi, [to compete with ridesharing giant Uber](#). Uber has spent millions of dollars to grow its share of the Chinese market, but is far behind Didi with its larger fleet of cars. Uber has set a target of operating in 100 Chinese cities by the end of this year. The company said it's able to invest in the China market because it's making \$1 billion in annual profit from its 30 largest global markets. Uber is facing pressure in other markets where cities like Austin, Texas have blocked it from competing with taxis; and a \$100 million settlement with drivers in California over the "employee vs. independent contractor" job classification legal issue. China is still on the top of its list of priorities.

- **Didi is booming:** Didi and its ridesharing platform serves more than 11 million rides a day and about 300 million users across China, according to the company. Apple's investment brings Didi's funding round to \$3 billion to a startup company now valued at about \$26 billion, according to people familiar with the matter. Didi already has backing from Alibaba Group Holding and Tencent Holdings, the country's two largest Internet companies. Didi, formally known as Xiaoju Kuaizhi Inc., was created last year when separate apps backed by Tencent and Alibaba merged. Didi now serves 400 Chinese cities with 14 million registered drivers.
- **The future of Apple:** Apple continues to lose share in the smartphone business, a segment the company propelled in 2007 when it launched the first iPhone. Google's Android phone has taken the lion's share of that market. China has been a very important market for Apple to focus upon, where it's invested heavily in a manufacturing plant for its mobile devices. Billionaire investor Carl Icahn recently sold his position in Apple, largely due to the company's lagging performance in China and that region overall. In its most recent earnings report, the company revealed its revenue in China fell by 26%. Apple has been looking at other technology services in recent years with mobility at the top of the list, which is behind its near-secret testing grounds for autonomous and electric vehicles. CEO Tim Cook has highlighted

higher-margin services such as ride-hailing firm Didi as a growth area, and suggested he would use some of the company's \$200 billion-plus cash reserves for investments.

- **China a very hot market:** Automakers have joined ranks with other industries, such as mobile devices, in setting up manufacturing plants and marketing to consumers in China's booming economy. Labor is cheap and skilled in China, and government incentives and low-cost leasing offers are plentiful for the largest automakers to come to China to set up factories. The audience is massive as well, with China hosting the world's largest market for electric vehicles and internal combustion engine vehicles. Chinese consumers are buying their share of technology products and are tapping heavily into e-commerce and internet usage. It's very typical to hear about internet companies like LeEco, led by billionaire founder and internet icon Jia Yueting, investing in Faraday Future and the recently revealed LeSEE electric concept car. Tesla Motors also sees growth in China as integral for its future profitability. China's economy and vehicle sales have softened in the past year, but compared to other markets around the world, China is still considered to be the most important one to be established within.
- **Mobility pivotal in crowded cities:** China has several cities seeing dramatic growth in population, vehicle traffic jams, and air pollution. Established cities like Beijing and Shanghai are congested with cars and trucks, creating serious air pollution hazards being addressed by the government. Beihai, China is predicted to be the world's fastest growing city in the next few years with annual growth rates of 10.58% in population from 2006 through 2020. As U.S. cities such as San Francisco, New York City, and Los Angeles have discovered in recent years, area residents are clamoring for more mobility options like ride-hailing and ridesharing firms Uber and Lyft; carsharing services such as Zipcar and Car2Go; improved rail and municipal transportation; protected bike lanes and racks; and creative options such as what Lyft and investor GM are testing out in short-term rental of electrified vehicles and gas-engine cars to Lyft drivers. Cities around the world are facing very similar conditions as Beijing and Los Angeles with congestion and pollution and are taking on measures to improve it – including Rio de Janeiro, London, and Mexico City. Didi has been a fast-growing mobility service in China as consumers demand to get from Point A to Point B for less cost and cleaner air.
- **Sustainability theme:** Emily Castor, director of transportation policy at Lyft, spoke on a panel last week at ACT Expo on the future of clean mobility. Castor talked about how its ridesharing now makes up 40% of the rides in 15 U.S. cities testing out the Lyft Lanes ridesharing service. Castor also talked about a short-term lease program Lyft is trying out with General Motors offering Lyft drivers an opportunity to rent a Chevrolet Volt for rides. Sustainability has been built into Lyft's strategy of providing mobility services in cities, Castor said. Didi and other ridesharing firms hold the promise of reducing cars on roads and offering consumers more options to reduce their stress and transportation cost, and to feel like they're contributing something to their community's improving air quality.
- **The sharing, on-demand economy is taking off:** Ride-hailing and ridesharing services like Uber, Lyft, and Didi find mobility services to be highly profitable. They serve as a third-party company joining together consumers looking for rides with car-owner drivers looking to make additional income. They use the sharing platform invented and branded by Uber and competitors to gain access to fast, affordable, efficient rides. This model of the "sharing economy" or the "on-demand economy" is being used by AirBNB to match up homeowners who have an extra bedroom with travelers looking for good lodging deals. Amazon has been expanding its use of independent contractors nationwide to meet a promise to deliver its Prime Now orders within two hours of the order being placed. Amazon is competing with Google, Wal-Mart, and other retailers offering fast and cheap delivery services. Food delivery services like Postmates, GrubHub, and DoorDash are taking off in cities across the U.S. Their business model is nearly the same as Uber and Lyft – independent contractors driving their own cars and using the mobile app to deliver service and produce income.

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Clean Transportation Publicly Traded Companies

Company	Ticker	Share Price*	52 Week Range*	Market Cap*
AeroVironment	AVAV	\$27.84	\$19.10-\$30.65	\$638.47 million
Supplies electric vehicle charging systems for the Nissan Leaf and other EVs; parent company also produces unmanned aircraft systems and efficient energy systems.				
Ballard Power Systems	BLDP	\$1.34	\$1.07-\$2.51	\$210.23 million
Engages in the design, development, manufacture, sale, and service of fuel cell products. Has a long-standing relationship with Mercedes-Benz for its fuel cell stacks.				
Car Charging Group	CCGI	\$0.40	\$0.9-\$0.89	\$31.79 million
Aided by US government tax incentives and grants, the company would like to be at the forefront of the electric car revolution.				
Clean Energy Fuels	CLNE	\$3.11	\$2.15-\$8.29	\$327.79 million
A natural gas vehicle fueling station infrastructure builder installing stations with airports, municipalities, and fleets across the country.				
Fuel Systems Solutions	FSYS	\$4.95	\$3.06-\$8.88	\$89.57 million
Fuel Systems Solutions, Inc. engages in design, manufacture, and supply of alternative fuel components and systems for use in transportation, industrial, and power generation markets.				
Plug Power	PLUG	\$1.79	\$1.30-\$2.98	\$322.69 million
Engages in the design, development, manufacture, and commercialization of fuel cell systems for the industrial off-road markets worldwide, including forklifts.				
Quantum Fuel Systems	QTWW	\$0.08	\$0.08-\$3.10	\$2.24 million
Develops and produces natural gas, fuel cell, and other propulsion systems, including producing Ford F-150 plug-in hybrids, and renewable energy generation systems and services.				
Renewable Energy Group	REGI	\$9.32	\$6.02-\$12.80	\$407.43 million
Produces and sells biomass-based diesel in the U.S.; its Services segment provides facility management and operational services to biofuel and cleantech facilities.				
SolarCity	SCTY	\$19.60	\$16.31-\$63.12	\$1.93 billion
Designs, installs, and sells and leases solar energy systems to residential and commercial customers, and government entities in the US; and is working with Tesla Motors.				
Tesla Motors	TSLA	\$207.61	\$141.05-\$286.65	\$27.81 billion
The company that brought the high-priced Roadster electric sports car to market before creating joint ventures with Toyota and other OEMs to produce EV technologies, and the Model S.				

Vivint Solar	VSLR	\$2.24	\$2.16-\$16.00	\$240.09 million
Provides distributed solar energy to residential customers in Arizona, California, Connecticut, Hawaii, Maryland, Massachusetts, New Jersey, New Mexico, Nevada, New York, and Utah.				
Westport Innovations	WPRT	\$2.02	\$1.30-\$5.95	\$129.11 million
Provides low-emission engine and fuel system technologies that enable light, medium, heavy-duty, and high-horsepower petroleum-based fuel engines to use natural gas and alternative fuels.				

**As of close of business day Friday, May 13, 2016.*