

# Opportunities from Electric Vehicles, Future Mobility & New Transportation Technology

An Overview of the KraneShares Electric Vehicles & Future Mobility ETF (Ticker: KARS)



## Introduction to KraneShares

### About KraneShares

Krane Funds Advisors, LLC is the investment manager for KraneShares ETFs. Our suite of China focused ETFs provides investors with solutions to capture China's importance as an essential element of a well-designed investment portfolio. We strive to provide innovative, first to market strategies that have been developed based on our strong partnerships and our deep knowledge of investing. We help investors stay up to date on global market trends and aim to provide meaningful diversification. Krane Funds Advisors, LLC is majority owned by China International Capital Corporation (CICC).



# KARS

## KraneShares Electric Vehicles & Future Mobility ETF

### Investment Strategy:

KARS seeks to measure the performance of Solactive Electric Vehicles and Future Mobility Index. The Index is designed to track the performance of companies engaged in the production of electric vehicles and/or their components, or engaged in other initiatives that may change the future of mobility. The Index includes issuers engaged in the electric vehicle production, autonomous driving, shared mobility, lithium and/or copper production, lithium-ion/lead acid batteries, hydrogen fuel cell manufacturing and/or electric infrastructure businesses.

### KARS features:

- Access to global companies that operate in all areas of new transportation methods, passenger and freight, including electric vehicles, autonomous vehicles and shared mobility.
- Exposure to companies that lead the development of vehicle connectivity like Internet of Vehicles (IoV) and Intelligent Mobility.
- Exposure to the growth brought on by increased demand for lithium-ion battery and non-ferrous metals like lithium due to electric vehicle adoption.
- Exposure to equities listed in Mainland China, currently the world's largest electric vehicle market.

### Future Mobility Sector Highlights






- 55% of new car sales and 33% of the global car fleet are projected to be electric by 2040.<sup>1</sup>
- The global electric vehicle market is projected to command \$2.7 trillion of total investment before 2040.<sup>2</sup>
- Autonomous vehicles and the resulting “passenger economy” are projected to generate a cumulative \$8 trillion in global service revenues by 2050.<sup>3</sup>

1. Data from Bloomberg New Energy Finance as of 05/21/2018, retrieved 12/31/2018.

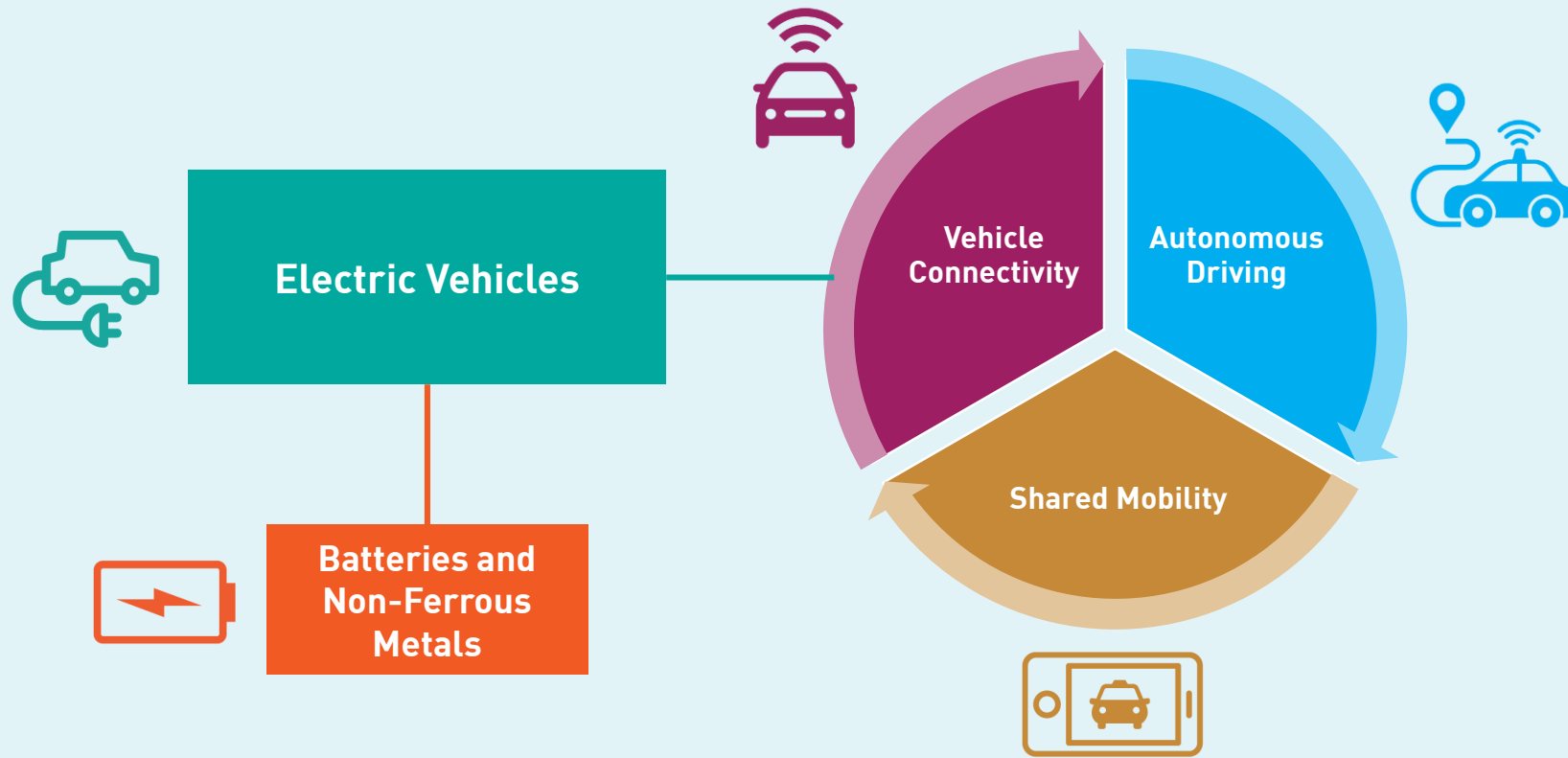
2. Morgan Stanley Research. “The EV Infrastructure 55: A Diversified Way to Play a Critical Enabler in the EV Theme.” Morgan Stanley. 17 October 2017

3. Lanctot, Roger. “Accelerating The Future: The Economic Impact of the Emerging Passenger Economy.” Strategy Analytics. June 2017.

## Future Mobility – We are entering an electrified, connected, autonomous, and shared future.

		Definition
	<b>Electric Vehicles</b>	Electric vehicles (EV) are vehicles which use one or more electric motors for propulsion.
	<b>Battery and Non-Ferrous Metals</b>	Adoption of electric vehicles dramatically increases demand for lithium-ion battery and non-ferrous metals such as lithium and copper.
	<b>Vehicle Connectivity</b>	Vehicle connectivity has three main characteristics: the presence of sensors, vehicle connectivity to networks, and the ability to rapidly compute incoming data.
	<b>Autonomous Driving</b>	Autonomous vehicles, also called driverless cars or self-driving cars, are vehicles that are capable of sensing the environment and navigating without human input.
	<b>Shared Mobility</b>	Shared mobility allows passengers to share transportation includes carsharing, e-hailing, ridesharing and carpooling.

# Future Mobility Ecosystem

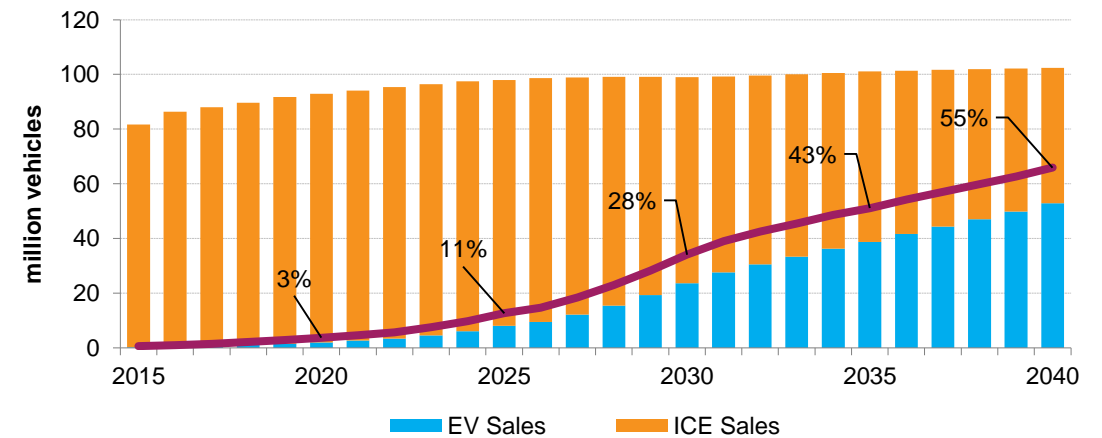




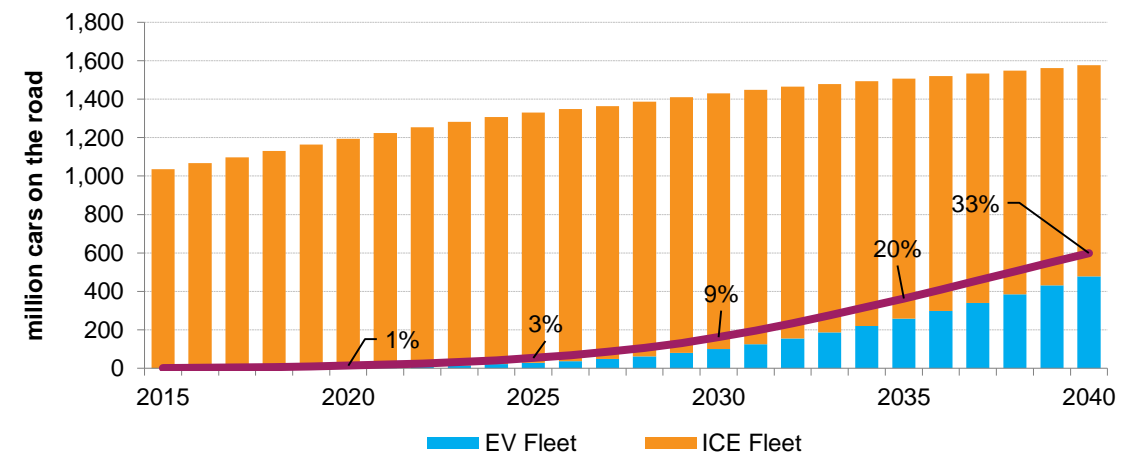
## Electric vehicles (EV) are becoming increasingly widespread and economical.

- 55% of new car sales and 33% of the global car fleet are projected to be electric by 2040.<sup>1</sup>
- China currently accounts for about 50% of global EV sales and is estimated to comprise half of the global EV market until 2025<sup>1</sup>
- Rising average mileage per vehicle brought on by ride sharing platforms may result in electric vehicles becoming more cost competitive than vehicles with traditional internal combustion engines (ICE).
- The low environmental impact of electric vehicles means that governments may be more motivated to promote their manufacture and many have already introduced subsidies for electric vehicles.<sup>2</sup>

Annual global light duty vehicle sales<sup>1</sup>



Global light duty vehicle fleet<sup>1</sup>



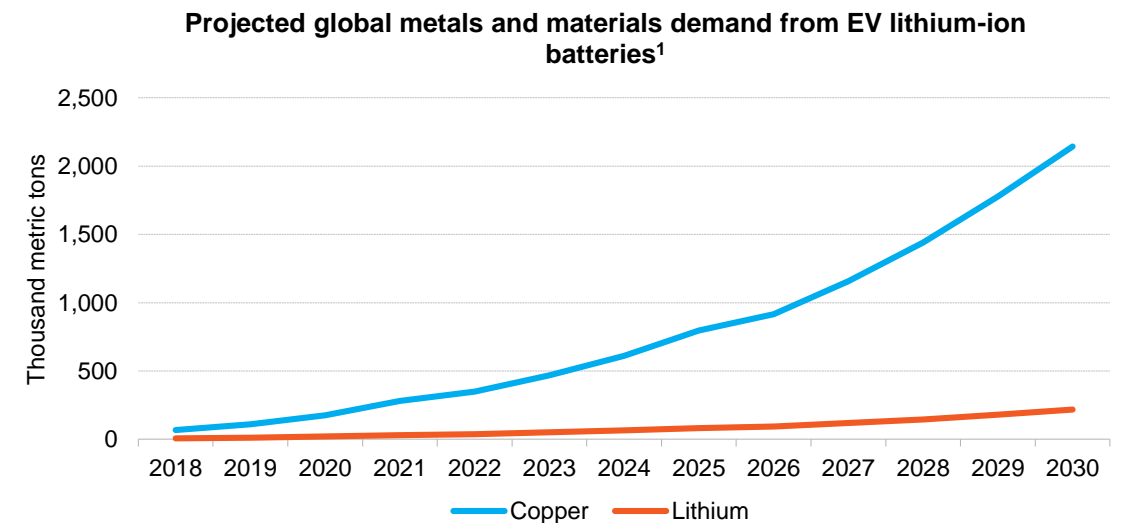
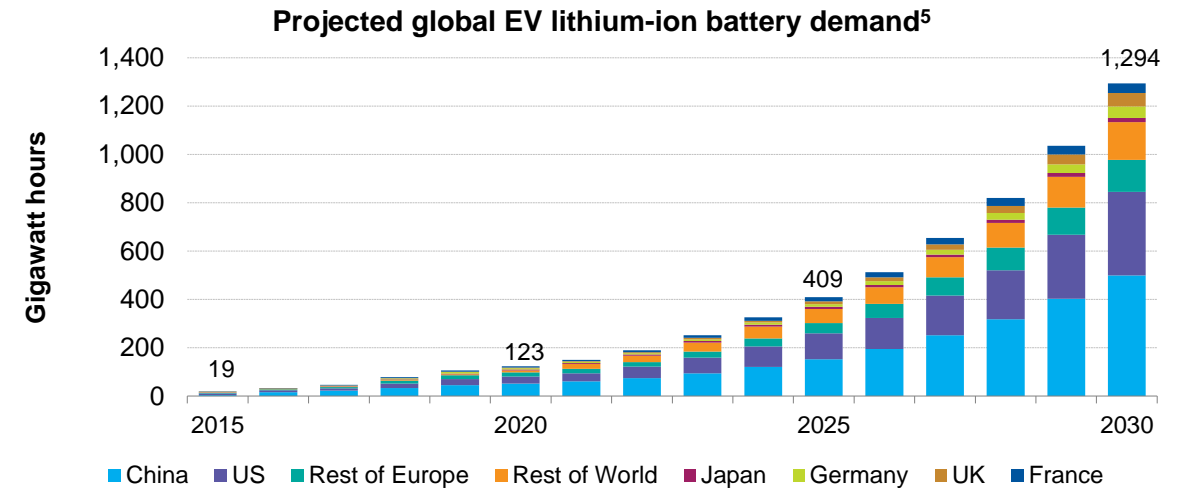
1. Data from Bloomberg New Energy Finance as of 05/21/2018, retrieved 12/31/2018

2. Moss, Trefor. "China, With Methodical Discipline, Conjures a Market for Electric Cars." Wall Street Journal. 2 October 2017.

## Batteries and Non-Ferrous Metals are an ideal avenue for capturing the potential value of electric vehicle markets.

- Widespread adoption of electric vehicles may dramatically increase demand for lithium-ion battery and non-ferrous metals such as lithium and copper.
- Global lithium-ion battery demand is projected to grow 3750% by 2030.<sup>1</sup>
- The revenue pool for lithium, an indispensable component of electric vehicle batteries, is expected to grow 450% by 2025.<sup>2</sup>
- Copper demand for electric cars may rise nine-fold by 2027.<sup>3</sup>
- Mining companies have already begun to increase production capacity to meet the impending demand. Galaxy Resources recently purchased a mining area in South America's "Lithium Triangle" home to around 60 percent of the world's reserves.<sup>4</sup>

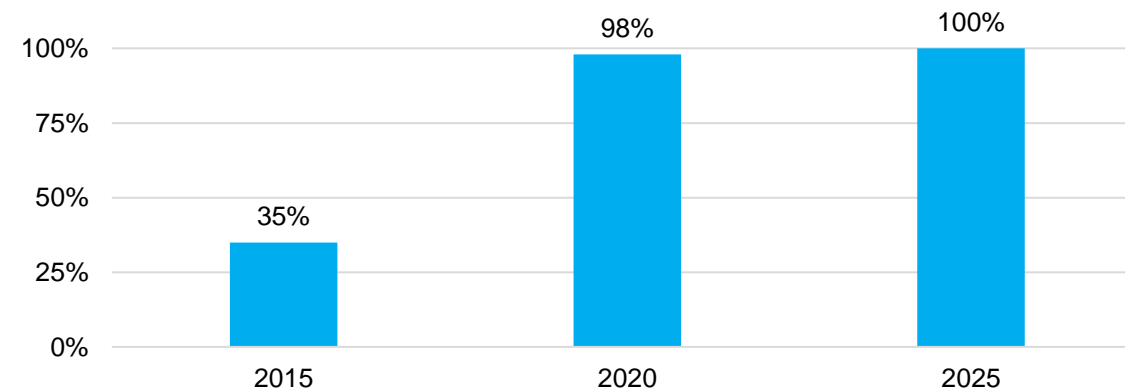
1. Data from Bloomberg New Energy Finance as of 05/21/2018, retrieved 12/31/2018.
2. Desjardins, Jeff. "The Massive Impact of EVs on Commodities in One Chart." Visual Capitalist. 15 September 2017.
3. Reuters. "Copper demand for electric cars to rise nine-fold by 2027: ICA" Reuters. 13 June 2017.
4. Ben Creagh, "Galaxy raises \$61 million for development of lithium projects", Feb 8 2017.
5. Data from Bloomberg New Energy Finance as of 07/06/2017, retrieved 12/31/2018.



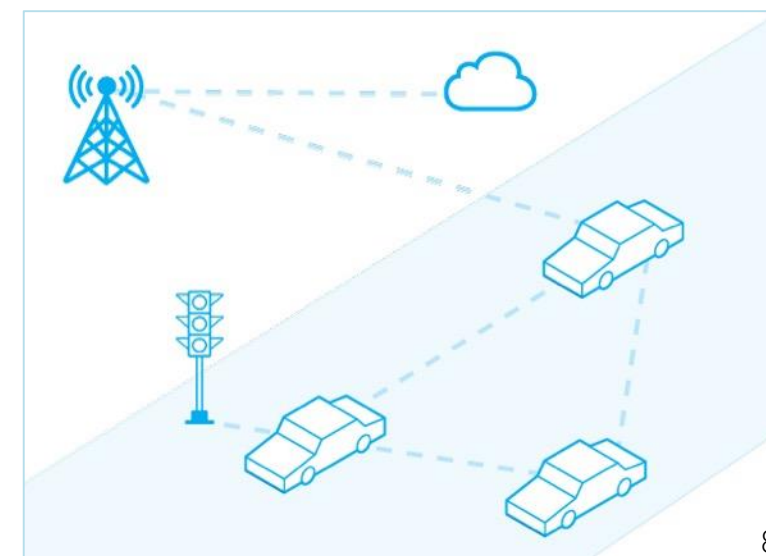
## Connectivity technology like Internet of Vehicles (IoV) connects cars to each other and outside world.

- Nearly all new vehicles sold in China, European Union, and United States are projected to be internet connected by 2022.<sup>1</sup>
- The growth of Internet of Vehicles (IoV) may potentially produce \$273 billion in revenue by 2026, according to a report by GSMA.<sup>2</sup>
- Companies like NVIDIA and NXP Semiconductor provide connectivity solutions including Artificial Intelligence (AI), Vehicle-to-Vehicle (V2V) and Vehicle-to-Everything (V2X).
- Connectivity in personal vehicles and all types of transport is projected to increase, creating a larger role for data services companies like Alphabet and Baidu in the mobility space.

Share of new cars sold that are connected to the Internet worldwide from 2015 to 2025<sup>1</sup>



IoV is designed to improve traffic management and enhance safety by connecting cars and signals to each other.



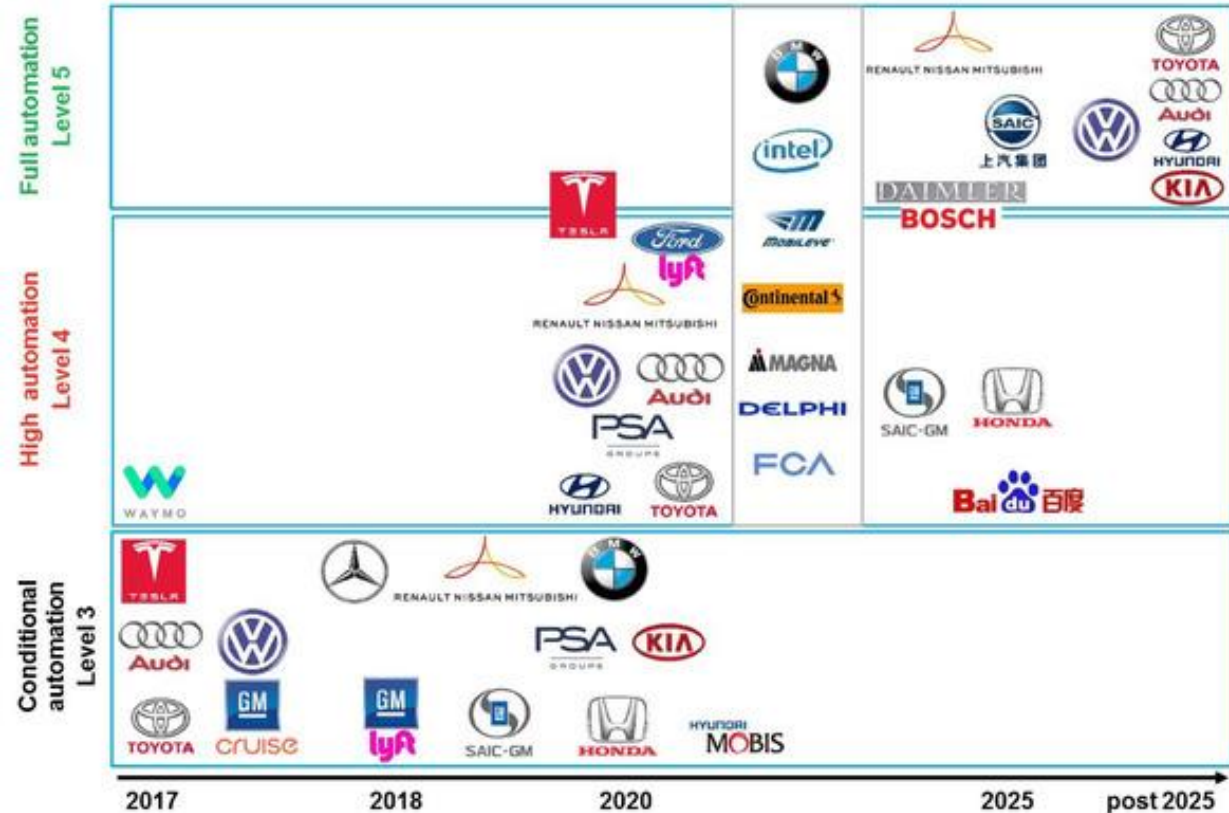
1. PwC, "The 2017 Strategy & Digital Auto Report", September 2017.  
 2. GSMA, "GSMA Highlights US\$1.8 Trillion IoT Revenue Opportunity for Mobile Network Operators", September 7, 2017



## Autonomous vehicles could dramatically change the Nature of the transportation market.

- By 2035, cars with autonomous vehicle features are projected to capture 25% of the new car market and more than 30 million autonomous vehicles are projected to be sold per year globally.<sup>1</sup>
- The assisted driving market, a precursor to full autonomy, may potentially double by 2021.<sup>2</sup>
- Alphabet’s Waymo has developed autonomous vehicles that are already being regularly used in California, Wyoming, Arizona and Texas, achieving 10 million “self-driven” miles.<sup>3</sup>
- Baidu’s Apollo Program is the first open source simulator for autonomous vehicle developers and has already partnered with over 200 partners including Nvidia and Infineon.<sup>4</sup>

### Autonomous vehicle launch timelines based on public announcements<sup>5</sup>



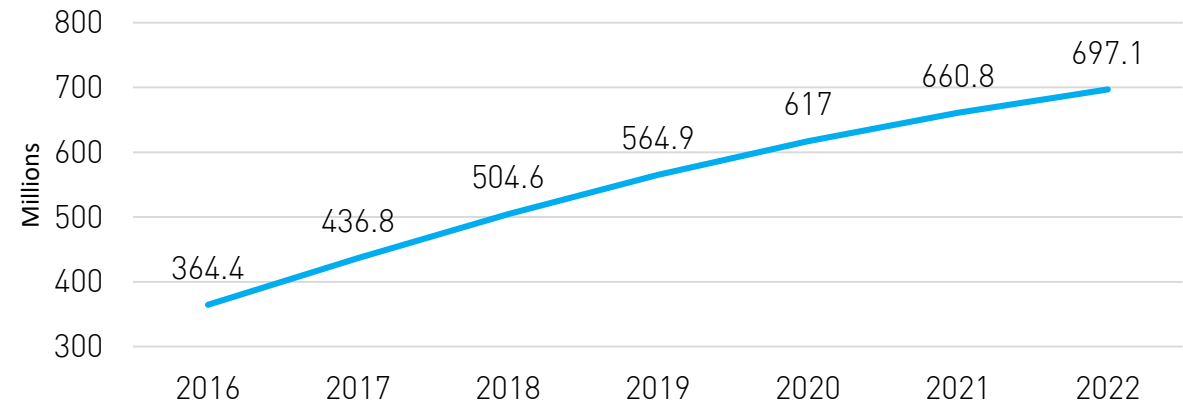
1. Boston Consulting Group, “Autonomous Vehicle Adoption Study”, APRIL 10, 2017
2. Choi, Seunghkyuk. “Advanced Driver-Assistance Systems: Challenges and Opportunities Ahead.” McKinsey & Company. February 2016.
3. Data from Waymo website, “On The Road”, retrieved 12/31/2018
4. Data from Apollo.auto, retrieved 12/31/2018.
5. Data from Bloomberg New Energy Finance as of 07/06/2017, retrieved 12/31/2018.

## Shared mobility is revolutionizing transport systems.

- The rapid rises of ride sharing platforms such as Uber laid the foundation for the major paradigm shift in transportation to a “passenger economy,” which is projected to add \$8 trillion to the global economy by 2050.<sup>1</sup>
- Ride sharing companies are capturing market share at an extremely fast pace. There are already 437 million users of ride sharing platforms and that number is projected to increase to 697 million by 2022.<sup>2</sup>
- Car sharing platforms are also on the rise. These platforms allow users to rent and drive a car for short periods of time. Examples include Baidu’s Pand-auto, GM’s Maven, Daimler’s Car2Go, and BMW’s ReachNow.
- Baidu’s Pand-auto has the world’s first fully electric fleet of shared mobility vehicles. The company has over 15,000 electric cars and over 2,100,000 registered users as of Nov 2017.<sup>3</sup>
- The combined trend of Shared Mobility and Autonomous driving has the potential to disrupt vehicle ownership and insurance as transportation becomes a pay as you go service in many cases.



**Ride Sharing Platform User Projections<sup>4</sup>**



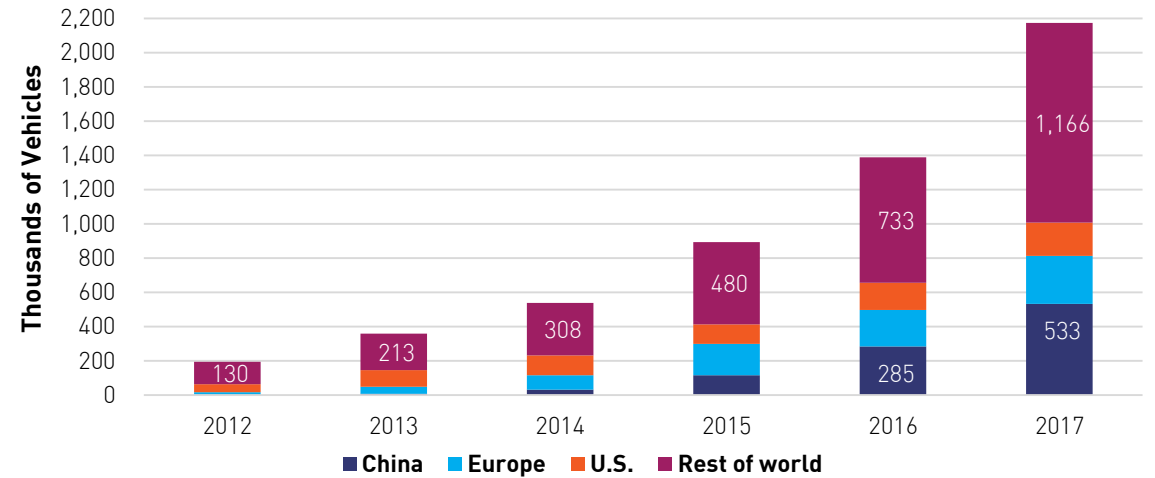
1. Lanctot, Roger. “Accelerating The Future: The Economic Impact of the Emerging Passenger Economy.” Strategy Analytics. June 2017.
2. Statista, “Ride Sharing Platform User Projections”, September 2017
3. Abnewswire, “Pand-Auto is the Premier Car Sharing Operations in the Area”, Dec 12, 2017
4. Data from Statista as of 9/2018. Retrieved on 12/31/2018.

## China possesses unique advantages in future mobility development.

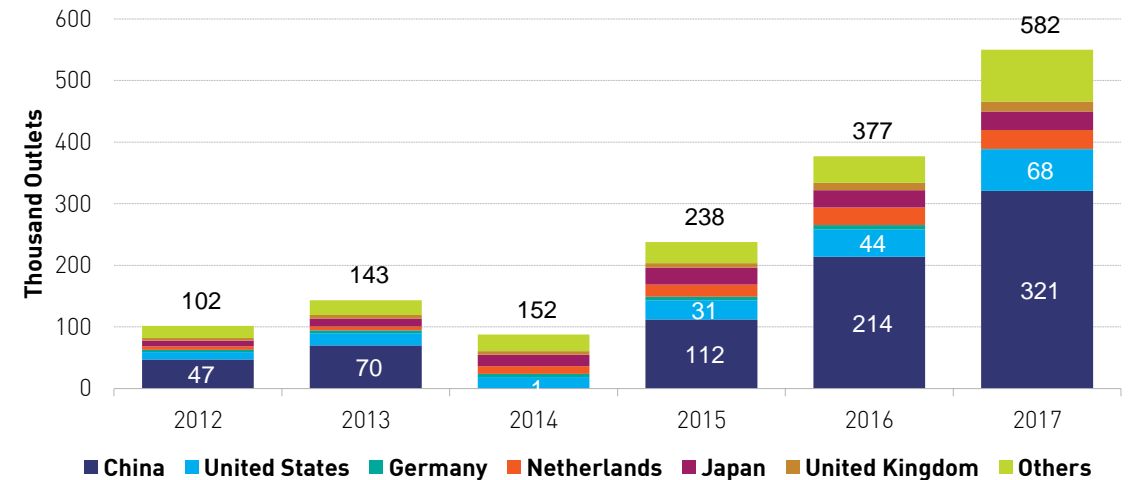
- China is the world's largest electric vehicle (EV) market with 533,290 EV sold in 2017, more than US, Europe and the rest of the world.<sup>1</sup>
- China already built 320,900 charging stations<sup>1</sup> and the number is projected to be 4.8 million by 2020<sup>2</sup>
- The Chinese government already offers subsidies of \$15,000 per electric vehicle produced, twice those offered by the US. Beijing's municipal government has earmarked \$1.3 billion to replace 70,000 city taxicabs with electric models.<sup>2</sup>
- China's urban development provides an opportunity to build exterior infrastructure for autonomous vehicles from the ground up.
- Chinese auto maker BYD (Build Your Dreams) is one of the world's largest electric vehicle manufacturers and has sold vehicles for use as public buses to the cities of London and Long Beach, CA.
- Warren Buffett invested \$230 million into BYD in 2008.<sup>3</sup>



Global EV Sales<sup>1</sup>

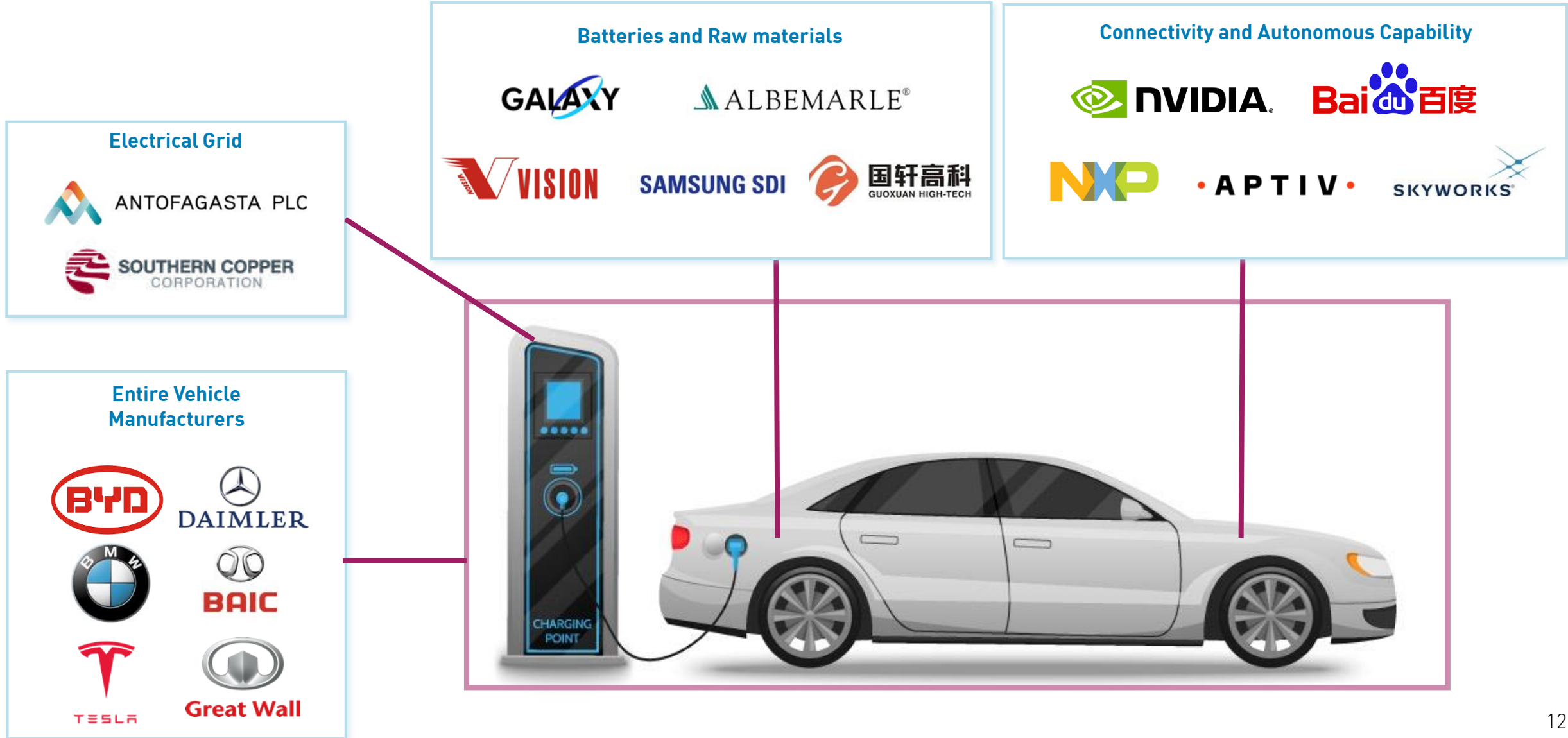


Global cumulative number of public EV charging points installed<sup>1</sup>








1. Data from Bloomberg New Energy Finance as of 05/21/2018, retrieved 12/31/2018.
2. Moss, Trefor. "China, With Methodical Discipline, Conjures a Market for Electric Cars." Wall Street Journal, 8/2/2017.
3. Justine Lau, "Buffett buys BYD stake", September 29 2008

KARS constituents contribute to all components of future vehicles.

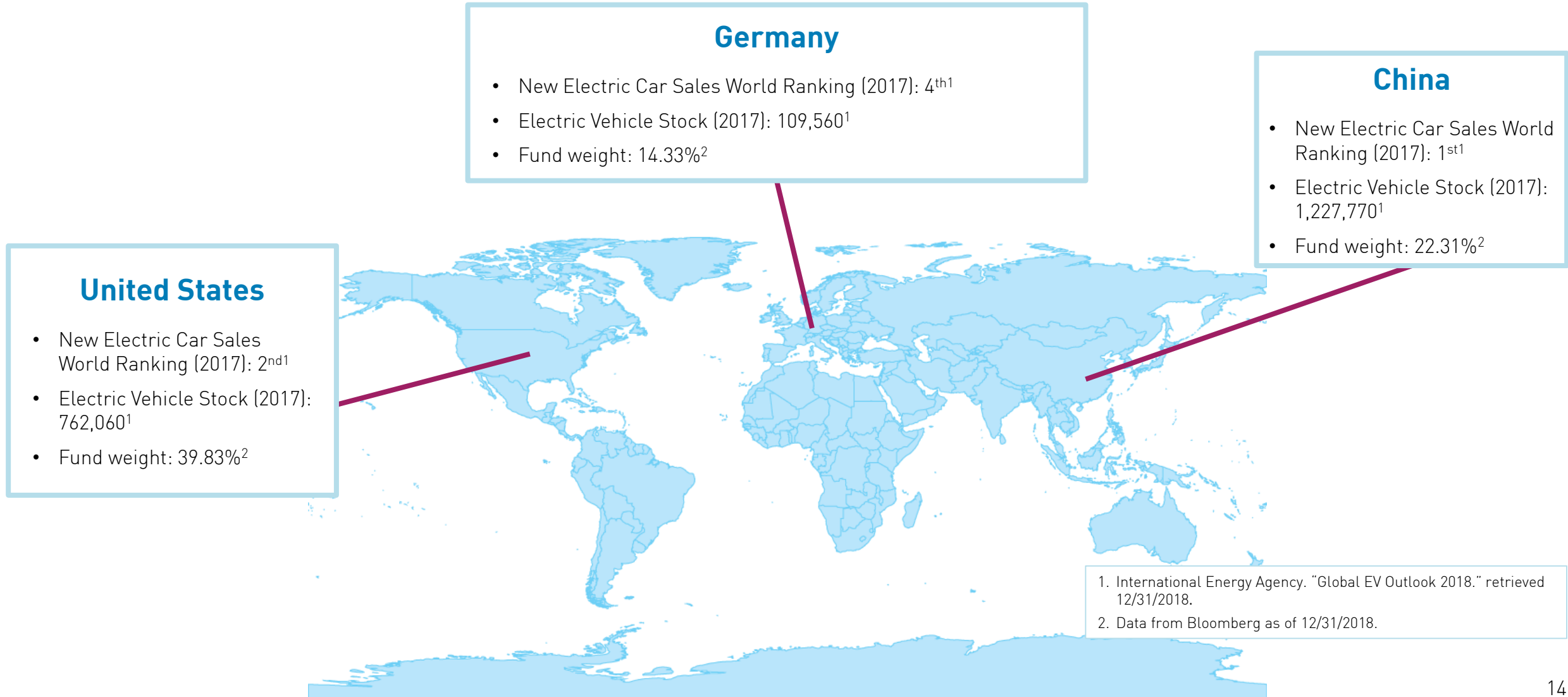


## Example Holdings of the KraneShares Electric Vehicles and Future Mobility ETF:

Theme		Example Holdings	Holding weight in KARS (as of 12/31/2018)*	Future Mobility Service
	Electric Vehicles	Tesla	3.46%	Tesla designs and manufactures the Model S electric sedan and the Model X electric SUV.
		BYD	1.41%	BYD designs and manufactures electric sedans, buses, taxis and coaches.
	Autonomous Driving	Alphabet	3.69%	Alphabet Waymo's self-driving cars has achieved millions of miles self-driven.
		Baidu	3.40%	Baidu's Apollo provides an open, reliable and secure software platform for its partners to develop their own autonomous driving systems.
	Vehicles Connectivity	Nvidia	3.27%	Nvidia's Artificial Intelligence (AI) technology gives cars the power to see, think, and learn and to drive themselves eventually.
		NXP	1.94%	NXP's Vehicle-to-Everything (V2X) technology enables cars to communicate with their surroundings.
	Shared Mobility	Baidu	3.40%	Pand-auto, owned by Baidu, cooperate with Apollo Project and operates electric vehicles carsharing business in China.
		Daimler	3.57%	Car2Go, an subsidiary of Daimler, offers exclusively Smart Fortwo and Mercedes-Benz vehicles and features one-way point-to-point rentals.
	Lithium-ion Battery	Samsung SDI	2.22%	Samsung SDI manufactures Lithium-ion batteries for electric vehicles.
		Guoxuan High-tech	1.10%	Guoxuan High-tech is a Chinese company manufacturing lithium-ion batteries.
	Lithium and other Non-Ferrous Metals	Albemarle	1.50%	Albemarle became a major lithium producer by owning lithium mines in South America and by acquiring lithium companies in China and globally.
		Southern Copper Corp.	2.03%	Southern Copper Corp. is one of the largest integrated copper producers in the world. They produce copper, molybdenum, zinc, lead, coal and silver.

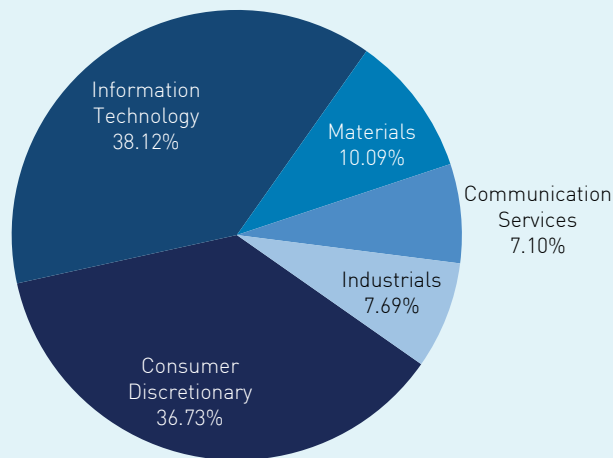
\*Data from Bloomberg as of 12/31/2018. See page 16 for the Fund's top 10 holdings

## China, the United States, and Germany are leading the world in future mobility

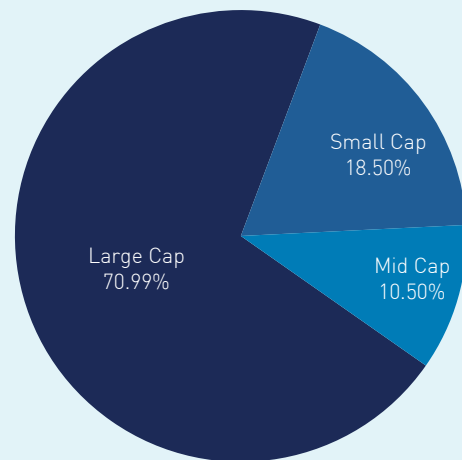


**KARS is diverse in sector coverage, size, and geography in an attempt to capture value wherever it is being created.**

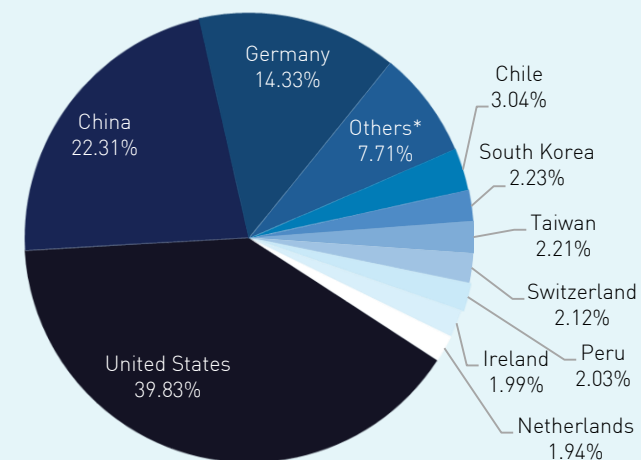
**KARS Sector Breakdown**



**KARS Market Cap Breakdown**



**KARS Country Breakdown**



\* Others include Canada, Sweden, Austria, Japan, Australia, United Kingdom

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### KARS Performance History as of 12/31/2018

	Cumulative %			Average Annualized %		
	3 Mo	6 Mo	Since Inception	1 Yr	3 Yr	Since Inception
Fund NAV	-16.45%	-18.14%	-27.41%	-	-	-27.41%
Closing Price	-17.24%	-18.91%	-27.90%	-	-	-27.90%
Index	-16.06%	-18.11%	-28.37%	-	-	-28.37%

The performance data quoted represents past performance. Past performance does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when sold or redeemed, may be worth more or less than their original cost and current performance may be lower or higher than the performance quoted. For performance data current to the most recent month end, please visit [www.kraneshares.com](http://www.kraneshares.com)

Index returns are for illustrative purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index.

Fund Details	As of 12/31/2018
Primary Exchange	NYSE
Cusip	500767827
Total Annual Fund Operating Expense	0.70%
Inception Date	1/18/2018
Distribution Frequency	Semiannually
Index Name	Solactive Electric Vehicles and Future Mobility Index
Index Ticker	Bloomberg: SOLKARSN
Number of Holdings (ex Cash)	57

Top Ten Holdings as of 12/31/2018 The Fund's Holdings Are Subject to Change.	% of Fund
ALPHABET INC-CL A	3.69
TEXAS INSTRUMENTS INC	3.62
DAIMLER AG-REGISTERED SHARES	3.57
ANALOG DEVICES INC	3.56
BAYERISCHE MOTOREN WERKE AG	3.53
VOLKSWAGEN AG-PREF	3.51
TESLA INC	3.46
BAIDU INC - SPON ADR	3.40
NVIDIA CORP	3.27
FORD MOTOR CO	3.26



## Important Notes

**Carefully consider the Funds' investment objectives, risk factors, charges and expenses before investing. This and additional information can be found in the Funds' full & summary prospectus, which may be obtained here: [KARS](#). Read the prospectus carefully before investing.**

Investing involves risk, including possible loss of principal. There can be no assurance that a Fund will achieve its stated objectives. ETF shares are not redeemable with the issuing fund other than in large Creation Unit aggregations. Instead, investors must buy or sell ETF Shares in the secondary market with the assistance of a stockbroker. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling. The NAV of the Fund's shares is calculated each day the national securities exchanges are open for trading as of the close of regular trading on the New York Stock Exchange ("NYSE"), normally 4:00 p.m. Eastern time (the "NAV Calculation Time"). Shares are bought and sold at market price (closing price) not NAV. Market price returns are based on the midpoint of the bid/ask spread at 4:00 pm Eastern Time (when NAV is normally determined).

The Fund is subject to political, social or economic instability within China which may cause decline in value. Fluctuations in currency of foreign countries may have an adverse effect to domestic currency values. Emerging markets involve heightened risk related to the same factors as well as increase volatility and lower trading volume. Narrowly focused investments typically exhibit higher volatility.

The ability of the fund to achieve its objective is dependent, in part, on the continuous availability of A Shares and the ability to obtain, if necessary, additional A Shares quota. If a Fund is unable to obtain sufficient exposure to limited availability of A Share quota, the Fund could seek exposure to the component securities of the Underlying Index by investment in other types of securities. The fund may invest in derivatives, which are often more volatile than other investments and may magnify the Funds' gains or losses. The fund is non-diversified.

Indices are unmanaged and do not include the effect of fees. One cannot invest directly in an index.

The KraneShares ETFs are distributed by SEI Investments Distribution Company (SIDCO), 1 Freedom Valley Drive, Oaks, PA 19456, which is not affiliated with Krane Funds Advisors, LLC, the Investment Adviser for the Fund.

**Important Notes (continued)**

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Forward-looking statements (including Krane’s opinions, expectations, beliefs, plans, objectives, assumptions, or projections regarding future events or future results) contained in this presentation are based on a variety of estimates and assumptions by Krane. These statements generally are identified by words such as “believes,” “expects,” “predicts,” “intends,” “projects,” “plans,” “estimates,” “aims,” “foresees,” “anticipates,” “targets,” “should,” “likely,” and similar expressions. These also include statements about the future, including what “will” happen, which reflect Krane’s current beliefs. These estimates and assumptions are inherently uncertain and are subject to numerous business, industry, market, regulatory, geo-political, competitive, and financial risks that are outside of Krane’s control. The inclusion of forward-looking statements herein should not be regarded as an indication that Krane considers forward-looking statements to be a reliable prediction of future events and forward-looking statements should not be relied upon as such. Neither Krane nor any of its representatives has made or makes any representation to any person regarding forward-looking statements and neither of them intends to update or otherwise revise such forward-looking statements to reflect circumstances existing after the date when made or to reflect the occurrence of future events, even in the event that any or all of the assumptions underlying such forward-looking statements are later shown to be in error. Any investment strategies discussed herein are as of the date of the writing of this presentation and may be changed, modified, or exited at any time without notice.

This material represents an assessment of the market environment at a specific point in time and is not intended to be a forecast of future events, or a guarantee of future results. This information should not be relied upon by the reader as research or investment advice regarding the funds or any stock in particular.