



TESLA'S (TSLA) WIRELESS EV CHARGER CAN INDUCE FRESH GROWTH MOMENTUM IN THE WIRELESS EV CHARGING MARKET

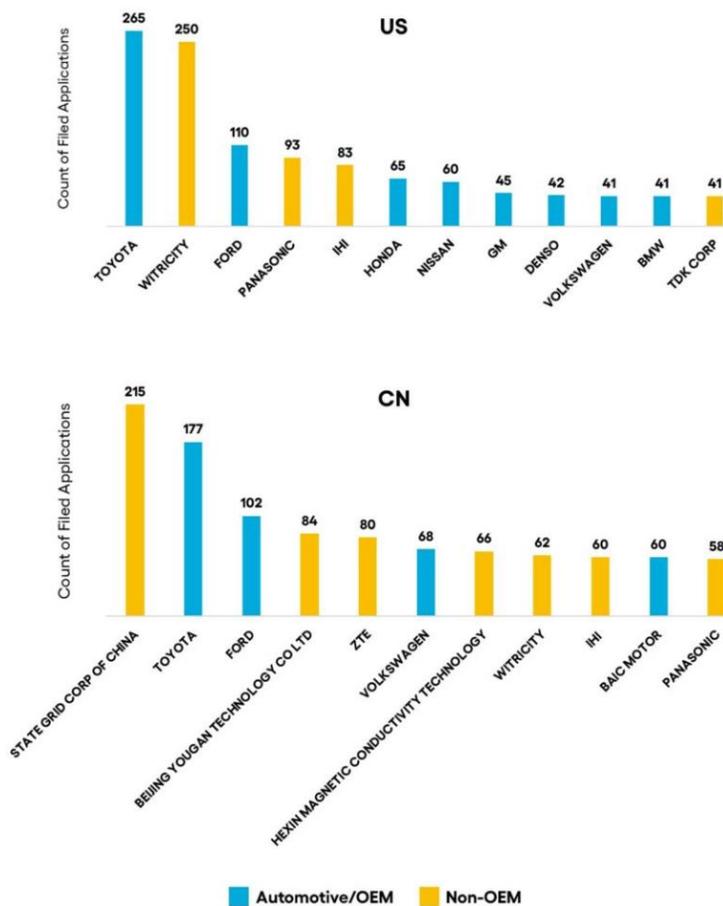
Key takeaway: *Wireless EV charging offers several advantages – including enhanced convenience, accessibility, and lower maintenance – over traditional charging methods. As this technology approaches commercialization, it is set to emerge as a solution to some of the industry-specific and macro challenges faced by the charging industry last year. Leading this charge is EV major Tesla (TSLA) which is working on an induction charger and has also made some inorganic moves in this space to stay ahead of competition. Among the private names, Witricity and Hevo are working on disruptive wireless EV charging technology solutions and should be on investors' radar.*

Wireless EV charging technology, with its several advantages, is inching closer to reality and could be a solution to the challenges faced by EV charging sector. The electric vehicle (EV) revolution is gaining momentum, but concerns regarding the convenience and accessibility of charging infrastructure continue to linger. Leading EV charging stocks had a weak 2023 year as they struggled with challenges such as rising interest rates, market volatility, delayed profitability and infrastructure concerns, increased competition, and supply chain disruptions. These challenges are reflected in their stock performance as most EV charging stocks lost between 50% to 95% of their market cap in the past year. Traditional plug-in charging, while effective, has limitations. The process can be cumbersome, requiring drivers to physically connect the car to charging station. Concerns regarding the availability of charging stations, especially in urban areas and on long journeys, further hinder widespread EV adoption. Additionally, the reliance on cables introduces potential safety hazards like electrical shocks and connector wear and tear. Wireless EV charging technology eliminates the need for physical cables, offering several compelling advantages, such as:

- **Enhanced convenience:** Drivers simply park their EV over a charging pad, eliminating the need to fumble with cables. This significantly improves the user experience and encourages more frequent charging, even for short durations.
- **Improved accessibility:** Wireless charging pads can be embedded in various locations, such as parking lots, driveways, even public roads, potentially creating a seamless charging network. This eliminates the need for dedicated charging stations and increases accessibility, especially in areas with limited space.
- **Reduced maintenance:** Eliminating cables minimizes wear and tear, potentially reducing maintenance costs for both charging providers and EV owners.
- **Enhanced safety:** Wireless charging eliminates the risk of electrical shocks associated with traditional plug-in methods, promoting a safer charging experience.
- **Grid integration:** Wireless charging systems can potentially integrate with the power grid, allowing for bi-directional charging. This means EVs could not only receive power but also feed it back to the grid during peak demand periods, contributing to grid stability and potentially reducing reliance on fossil fuels.
- **AV-ready:** Wireless charging aligns seamlessly with the development of autonomous vehicles. Self-driving cars could autonomously park over charging pads, further enhancing convenience and efficiency.

Given the above advantages, players across the EV ecosystem are lining up for Wireless Charging patents. Its potential to enhance convenience, accessibility, and safety while offering environmental and grid integration benefits makes wireless charging a technology that most top EV and Traditional OEMs are working on. UnitedLex recently conducted an analysis of patents related to this technology and found that several leading companies, from leading automotive and EV OEMs, battery technology companies, and EV charging infrastructure companies, along with some electric utilities are among the top assignees of patents related to this technology. (See chart below.)

Chart 1: Top Assignees of Wireless EV Charging Technology Patents in the U.S. and China



Source: Intro-act, UnitedLex analysis on patent data set, JD Supra.

As wireless EV charging continues to gradually move toward commercialization, TSLA’s entry can be a big step for this market. Wireless EV charging with all its promise has still some distance to go before it appears in mass consumer cars. Technology companies have been developing solutions with commercial fleet operators in mind, and large OEMs are working with focused private players – Witricity and Hevo – that are working toward advancing the technology, standardization, and commercialization of this technology. However, last year in August 2023, Tesla (TSLA) acquired a German wireless charging company Wiferion and sold it within a couple of months to another German company Puls, while retaining its engineers. Later in December 2023, TSLA confirmed that it is working on a wireless inductive home charger for its electric cars. We believe if Tesla can launch such a product, it can be a game changer, for consumer adoption of this technology. We have profiled TSLA and Witricity below:

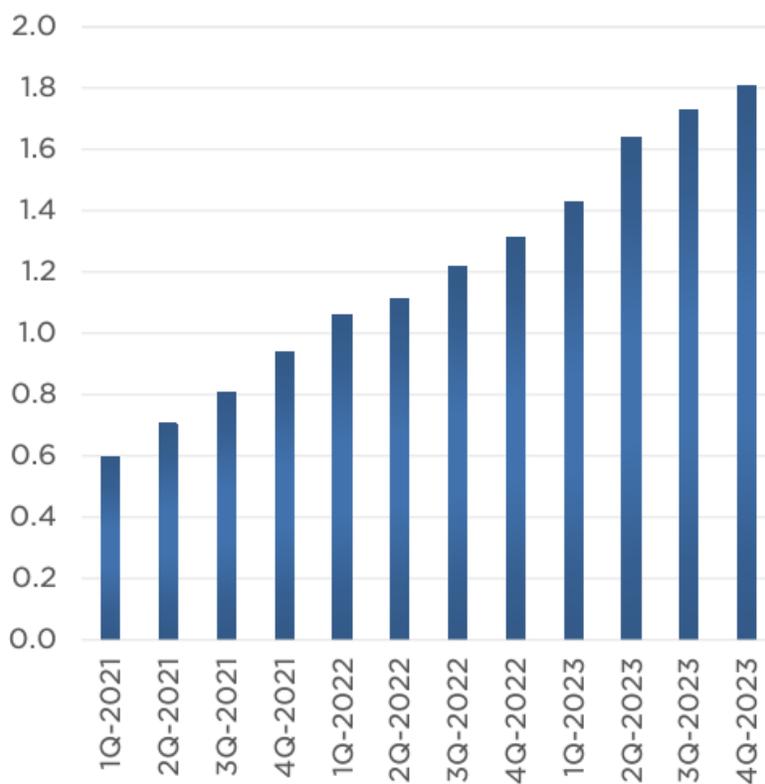
Company Spotlight: Tesla (TSLA)

Tesla, Inc., a pioneer in electric vehicles (EVs) and renewable energy solutions, continues to redefine the transportation and energy sectors through innovation and strategic initiatives. Headquartered in Palo Alto, California, Tesla's mission is to accelerate the world's transition to sustainable energy. The company operates in several key segments: electric vehicles, battery energy storage systems, and solar energy products. Tesla's product lineup includes the Model S, Model 3, Model X, Model Y, Cybertruck, Roadster, and the Tesla Semi, alongside its energy products such as the Powerwall, Powerpack, and Solar Roof. Tesla's footprint spans across the globe with manufacturing facilities in the United States, China, and Europe, ensuring a significant presence in major automotive and energy markets. The company's

Gigafactories are instrumental in achieving economies of scale, reducing battery costs, and meeting the growing demand for electric vehicles and energy storage solutions.

In recent developments, Tesla has shown a clear focus on enhancing the EV charging experience through innovative technologies, notably in the realm of wireless charging. Tesla's interest in wireless EV charging technology is evidenced by its acquisition of Wiferion, a Germany-based startup specializing in inductive charging technology. This acquisition marks Tesla's strategic move into the wireless charging domain, highlighting its commitment to advancing EV charging solutions. Even though it sold the company, it retained engineering talent and its work on a new wireless inductive home charger further underscores its dedication to improving the EV ownership experience. This wireless charging solution aims to offer a convenient, cable-free method of recharging EVs, simply by parking the vehicle over a charging pad. Tesla's Chief Designer, Franz von Holzhausen, mentioned in an interview that the company is exploring inductive charging, which would eliminate the need to plug in vehicles manually. This innovative charging method aligns with Tesla's vision for a future where EVs can autonomously recharge, complementing the company's advancements in self-driving technology.

Chart 2: Tesla Quarterly Vehicle Deliveries



Source: Intro-act, Investor Presentation

For 4Q23 and CY23, TSLA's revenue, net income, EPS, and free cash flow all experienced significant y/y increases. 4Q23 revenue topped \$24 billion, up 37% y/y, whereas the EPS grew by 60% y/y. This reflects continued strong financial performance for the company. Vehicle deliveries and production also remained robust, exceeding expectations, and demonstrating sustained demand for Tesla vehicles. The company delivered 1.85 million vehicles in 2023, up 35% y/y. However, a slight decrease in gross margin from 30.5% in 4Q22 to 28.3% in 4Q23 raises concerns and warrants monitoring as it could impact future profitability.

Company Spotlight: WiTricity Corp.

WiTricity Corp. Established in 2007 as a spin-off from the Massachusetts Institute of Technology (MIT), WiTricity Corp. is a leading developer of wireless power transfer technology for various applications, with a strong focus on the EV industry. WiTricity is headquartered in Watertown, Massachusetts, USA. It maintains a global presence with offices in China, Japan, South Korea, and Germany, reflecting its focus on expanding its technology worldwide. The company collaborates with automakers and Tier 1 suppliers to develop and integrate wireless charging systems into electric vehicles, aiming to eliminate the need for physical charging cables and enhance user experience.

Chart 3: Snapshots of WiTricity Halo™ Wireless Charger



Source: Intro-act, WiTricity Website

WiTricity Halo™ is the core technology platform that enables wireless power transfer over short distances using magnetic resonance. It forms the basis for various wireless charging applications, and the company has made significant progress in commercializing its wireless charging technology.

- **Partnerships:** It has established numerous partnerships with leading automakers and Tier 1 suppliers, including BMW, Hyundai, Daimler, and Delphi. These partnerships are crucial for integrating WiTricity's technology into future electric vehicle models.
- **Standards development:** WiTricity actively participates in developing global standards for wireless EV charging. It also holds a significant role in organizations like the SAE International and the International Organization for Standardization (ISO), influencing the future direction of technology.
- **Pilot projects:** WiTricity is collaborating with various stakeholders on pilot projects to test and demonstrate the feasibility of wireless charging in real-world settings. These projects provide valuable data and insights for further development and refinement.

According to Dealroom, the company has raised \$158 million so far. It closed its last funding in August 2022, which was a Late VC round of \$65 million. Investors in this round included Siemens, Mirae Asset Capital, Stage 1 Ventures, Delta Electronics Capital, Japan Energy Fund, and Air Waves Wireless Electricity. The company was valued at \$500 million in this round.

MOBILITY NEWS

INDUSTRY TRENDS

Mark Moore ranks the eVTOL industry leaders. Mark Moore, a leading figure in electric aviation, offers insights on the industry's development and ranks various eVTOL developers based on critical factors. Joby and Archer emerge as leaders, with Joby being the pioneer and Archer following closely. Other players face challenges and uncertainties, with companies like Volocopter and EHang focusing on short-term gains despite limitations in their designs. Airbus and Supernal are noted for their long-term strategies and substantial investments. [Read More](#) (Aviation Week Network)

Chart 4: Average Ranking Positions from Best Positioned to Worst Positioned



Source: Intro-act, Aviation Week

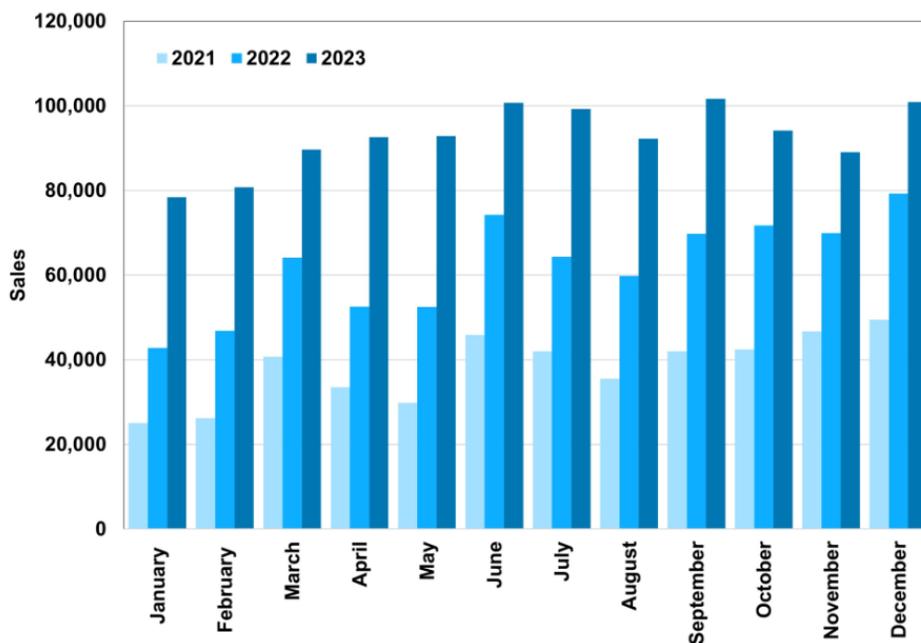
Apple reportedly scraps multibillion-dollar plan to build electric car. Apple has reportedly decided to cancel its electric car project, known as Project Titan, after years of heavy investment. During an internal meeting, executives announced layoffs and a shift towards generative artificial intelligence. The company's plans for a car had been in flux since 2014, facing setbacks and delays. Apple's move to focus on AI aligns with CEO Tim Cook's recent emphasis on the technology during earnings calls. [Read More](#) (The Guardian)

Asia well placed for leading role in Advanced Air Mobility. Multiple projects in the Asia-Pacific region are underway to introduce advanced air mobility (AAM) services, focusing on electric vertical takeoff and landing (eVTOL) aircraft. Companies like Eve Air Mobility and Supernal are collaborating with local partners to establish air taxi and public service applications. Governments are supporting these initiatives to alleviate urban congestion and decarbonize aviation. Key players like Joby, Archer, and Wisk are aiming for commercial flights by 2025, while China's EHang achieved a notable milestone with autonomous eVTOL certification. [Read More](#) (Aviation International News)

Researchers predict more autonomous vehicles by 2030, better ADAS tech needed. By 2030, the majority of vehicles are expected to offer SAE Level 2+ or higher autonomous driving features. ABI Research's paper emphasizes the need for a scalable approach to active safety, semi-autonomous, and fully driverless applications in the automotive industry. It highlights the common technologies enabling these systems and advocates for maximizing component re-use. The paper also discusses the importance of safety ratings agencies and addresses consumer concerns about autonomous vehicle safety. [Read More](#) (Repairer Driven News)

Tesla US auto market share tops Volkswagen, BMW, Subaru, & Mercedes. Tesla's presence in the U.S. automotive market grew significantly in 2023, reaching 4.2% market share and experiencing a 25.4% increase in vehicle sales. Despite a decrease in EV market share, Tesla surpassed established brands like Mercedes-Benz and BMW. Meanwhile, GM, Toyota, and Ford maintained their positions as top automotive brands. Overall EV market share rose to 7.6%, with Tesla leading in sales. Continued EV growth is expected, with EVs becoming increasingly competitive in pricing. [Read More](#) (CleanTechnica)

Chart 5: EV Sales by Month – 2021, 2022, 2023



Source: Intro-act, CleanTechnica, US Department of Energy

T&E study: Carmakers in Europe are failing to deliver affordable electric cars, holding back EV adoption. European carmakers are criticized for lacking affordable electric car options, hindering EV adoption. Only 17% of electric cars sold are in the cheaper B segment, compared to 37% for combustion engines. Analysis by Transport & Environment (T&E) shows disproportionate focus on large luxury models, driving up electric car prices by 39% since 2015. T&E urges setting targets for 100% electric corporate fleets by 2030 to accelerate electrification in Europe. [Read More](#) (Green Car Congress)

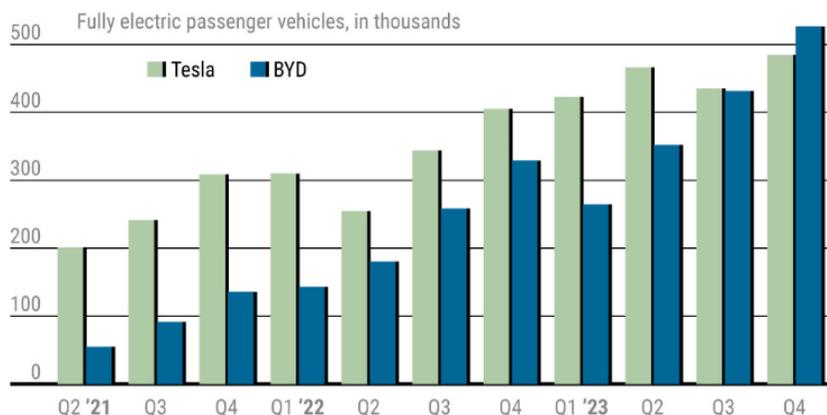
Telematics will unleash the power of data for EV fleets. Electric vehicles (EVs) are transforming the automotive industry, with a focus shifting from hardware to advanced technologies like battery telematics software. This software monitors and manages battery performance, improving operational efficiency and reducing costs for fleet managers. It also benefits EV manufacturers by providing real-world performance insights and enabling proactive maintenance. As the EV market grows, businesses must adapt to e-mobility regulations, with battery telematics playing a crucial role in optimizing fleet management and reducing environmental impact. [Read More](#) (Automotive World)

Cost of public EV charging increased in 2023, Zapmap data shows. In 2023, the UK's public EV charging network saw an 11% increase in average costs, per Zapmap data. Rapid and ultra-rapid charger usage costs rose from 73p to 81p per kWh, while slow and fast charging increased from 49p to 55p. Factors like operator consolidation and demand for faster charging contributed to this rise. Despite ongoing cost pressures, EV drivers may still find lower overall costs compared to traditional fueling methods. [Read More](#) (Business Car)

Global eVTOL sector is attracting increased interest from professional investors. New Horizon Aircraft's global research reveals that professional investors are increasingly interested in the electric Vertical Takeoff and Landing (eVTOL) sector, which has the potential to transform urban transportation. Investors see the sector's potential in various markets like air passenger taxi services, cargo transportation, and military applications. Horizon's Cavorite X7, a hybrid-electric eVTOL, aims to address demands in medical evacuation, business aviation, and commercial cargo sectors, offering high speed, long range, and quick recharging capabilities. [Read More](#) (Aviation Today)

Tesla vs. BYD. Tesla and BYD, major players in the electric vehicle (EV) market, vie for dominance amid intensifying competition. In 2022, BYD outpaced Tesla in China, notably in Q4 2023 for all-battery electric vehicles (BEVs). Tesla faces challenges with declining earnings and slower delivery growth, while BYD expands globally, eyeing markets like Indonesia and possibly the U.S. Despite Tesla's global presence, BYD's diversified offerings and profitability pose formidable competition. Both companies grapple with market fluctuations and production challenges, shaping the trajectory of their respective stocks. [Read More](#) (Investor Business Daily News)

Chart 6: BYD Surpasses Tesla in Terms of BEV Share



Source: Intro-act, Investors.com

Wireless EV charging is slowly gaining traction. Charging electric vehicles (EVs) remains less convenient than refueling gas-powered cars due to fewer charging stations and longer charging times. However, wireless charging technology offers a potential solution by allowing vehicles to charge while in motion or parked. While this technology could address charging concerns, its high cost presents a challenge for both automakers and consumers. Nonetheless, advancements in wireless charging may eventually make EVs more appealing to a broader market. [Read More](#) (Extreme Tech)

EV charging station blues banished by fresh flood of money. Federal funds are driving the expansion of EV charging stations nationwide, with initiatives like NEVI aiming to bolster infrastructure. Star Charge, a global company, plans to produce 20,000 chargers annually in Ohio, targeting gas stations as key locations. States like California and Illinois are ramping up charging networks, but Mississippi lags behind due to limited planning. However, efforts are underway to boost EV adoption and infrastructure, including a major battery factory investment. [Read More](#) (CleanTechnica)

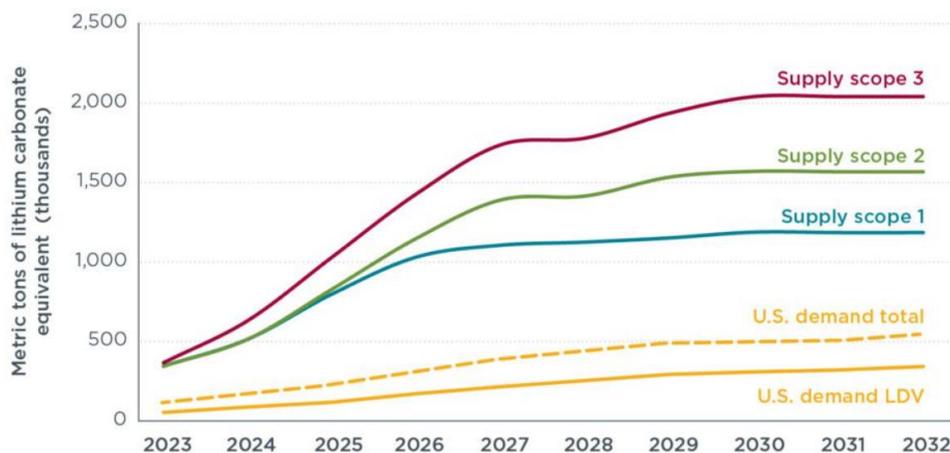
European, US carmakers race to lower EVs costs as China competition heats up. Major European and US automakers are intensifying efforts to reduce electric vehicle (EV) costs in response to heightened competition from Chinese rivals. Stellantis and Renault aim to develop more affordable EVs to match combustion-engine prices, while Ford and GM explore partnerships to cut costs. The push comes as lower-priced Chinese EVs challenge market dominance. Manufacturers seek to balance reducing EV prices with maintaining profitability amid investor pressure. Innovations in battery design and falling material costs offer potential solutions. [Read More](#) (Reuters)

24M unveils Eternalyte liquid electrolyte to increase cycle life of lithium-metal batteries. 24M introduced Eternalyte, a liquid electrolyte designed for lithium-metal batteries, promising enhanced cycle life and rate capability. This innovation, along with previous breakthroughs like 24M ETOP and Impervio, addresses challenges faced by solid-state electrolytes (SSE) such as safety concerns and inconsistent cycle life. Eternalyte, combined with Impervio, mitigates metal dendrite formation, ensuring improved cycle stability even during rapid charging. The suite of 24M technologies aims to enhance safety, cycle life, and energy density for next-gen batteries. [Read More](#) (Green Car Congress)

Goldman Sachs insists our future transportation is all electric. The Library of Congress recounts the evolution of the automotive industry, from the invention of the gas-powered car to modern-day electric vehicles (EVs). Goldman Sachs predicts a significant shift towards EVs, estimating they could constitute nearly half of global car sales by 2035. This transition necessitates a transformation in the industry's value chain, as EVs require more metals and minerals. Challenges include securing the necessary resources and building new global supply chains for EV batteries. [Read More](#) (CleanTechnica)

Investigating the US battery supply chain and its impact on electric vehicle costs through 2032. The U.S. faces a challenge in scaling battery production to meet the demand for electric vehicles (EVs). Analysis projects a significant increase in lithium demand by 2032 due to EV sales growth. However, with over 100 new lithium projects underway, supply may exceed demand. The study examines potential price scenarios for key battery materials and concludes that continued cost reductions for batteries and EVs are expected, especially with incentives for production and purchases in the U.S. [Read More](#) (ICCT)

Chart 7: Analysis of Lithium Demand and Supply in US by 2032



Source: Intro-act, ICCT

As demand grows for electric cars, so does the market for green jobs in the EV industry. The electric vehicle (EV) industry is witnessing a surge in jobs across various sectors, including software development, regional planning, vehicle assembly, and construction. In the U.S., EV sales are increasing, with projections suggesting a potential market share of 67% within the next decade. This transition not only addresses climate change but also creates employment opportunities. [Read More](#) (NRDC)

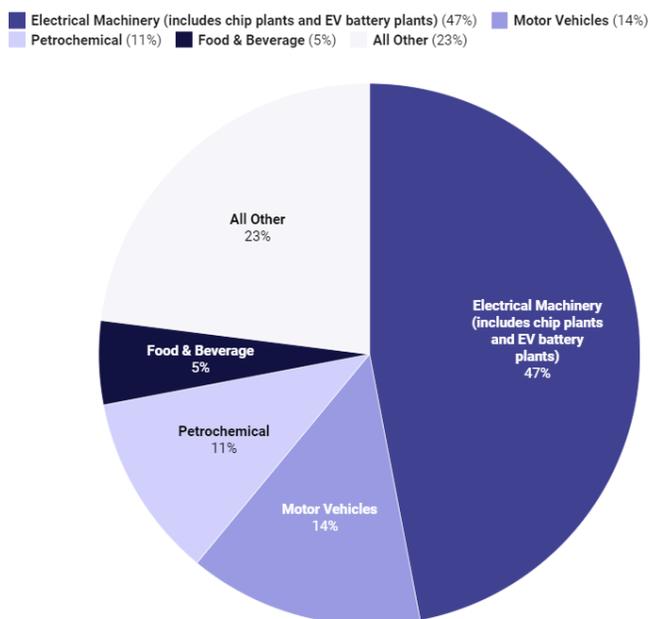
EV charging void has drivers trying new routes to power up. Electric vehicle drivers facing challenges in home charging are resorting to alternative solutions provided by U.S. and European firms, such as renting chargers online and utilizing mobile charging services. Despite attempts to address the public charging infrastructure issue, these initiatives are unlikely to fully resolve it due to regulatory hurdles and slow adoption rates. [Read More](#) (Reuters)

Limited consumer experience represents a challenge and opportunity for future EV adoption. Limited consumer experience with electric vehicles (EVs) presents both a challenge and an opportunity for future adoption. While nearly one-third of Americans are open to buying or leasing an EV now, direct exposure to EVs remains low. Consumer Reports' EV Experience Index shows a correlation between experience and willingness to purchase EVs. However, awareness of EV incentives, such as tax credits, is also lacking, potentially hindering adoption. [Read More](#) (Consumer Reports)

The US and China embrace contrasting Wireless Charging technologies to revolutionize the future of EVs. The traditional plug-in charging stations have been pivotal in the initial adoption of electric vehicles (EVs), but wireless EV charging technology is now emerging as a transformative shift. Major players are heavily investing in research and development to advance this technology, with China leading in patents and standards. The US and China have different focuses in their patent strategies, and monitoring their engagement in the wireless EV charging market is crucial for decision-making and competitive advantage. [Read More](#) (JD Supra)

EV battery plant construction booms even as automakers hit the brakes. To meet the anticipated surge in electric vehicle (EV) demand by 2030, the US may require around 60 billion batteries and 40 large-scale gigafactories. Despite recent setbacks in EV production due to lower consumer adoption, economists project continued growth in manufacturing construction. Contractors like JE Dunn and Clayco foresee sustained activity in EV-related projects. However, challenges such as changes to EV tax credits and interest rates could impact the growth trajectory of the industry. [Read More](#) (Automotive Dive)

Chart 8: Electric Machinery made up about 47% of Manufacturing Construction in 2023

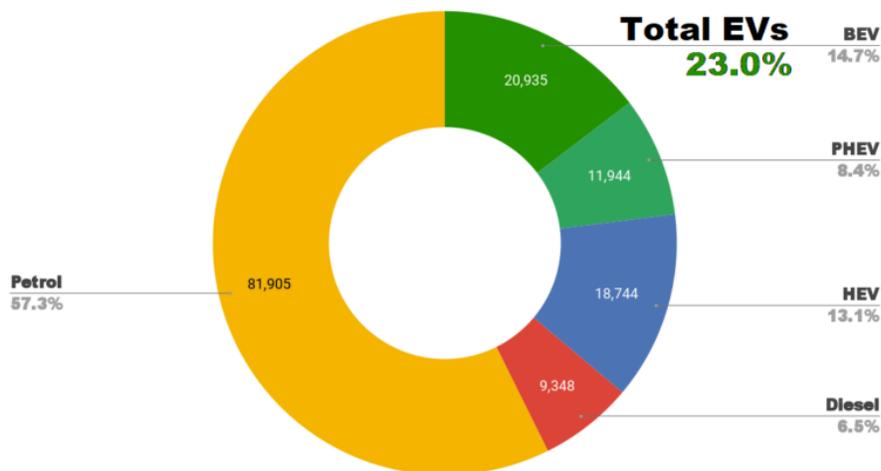


Source: Intro-act, Automotive Dive

Lithium-Air EV batteries tapped for net zero economy of the future. The pursuit of high-energy dense EV batteries is progressing, particularly with lithium-air batteries. Initially deemed risky, the US Department of Energy is funding various lithium-air projects aimed at powering aircraft, trains, and ships. Efforts date back to 2010, but challenges have slowed progress. Recent developments include solid-state variations and integration into flow batteries. ARPA-E also explores fuel cells for heavy-duty transport, emphasizing emerging technologies for future energy storage needs. [Read More](#) (CleanTechnica)

EVs at 23.0% share in UK – BMW leading BEV brand. In January, plugin electric vehicles (EVs) in the UK auto market increased to 23.0%, up from 20.0% YoY. Full electric volume rose by 1.21x YoY, and plugin hybrids by 1.31x. BMW led in BEV sales. A new zero-emissions vehicle (ZEV) mandate requires 22% ZEV sales for brands in 2024. Some brands strategically increased EV deliveries in January to meet targets. Despite economic challenges, EV sales surged, signaling a shifting automotive landscape. [Read More](#) (CleanTechnica)

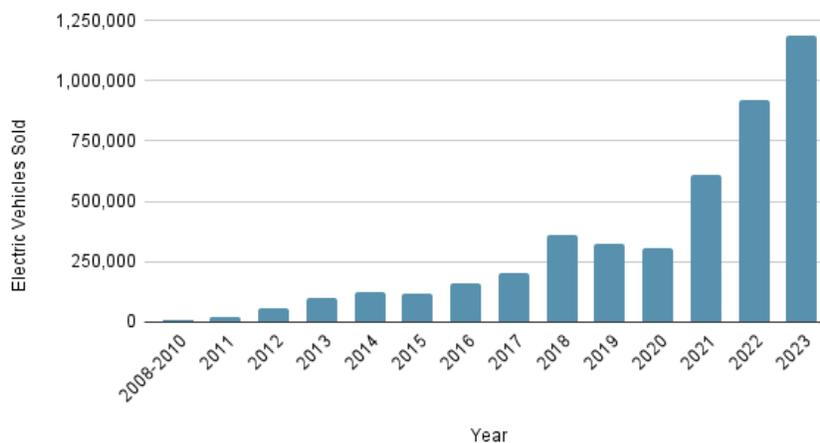
Chart 9: UK Passenger Auto Registration in January 2024



Source: Intro-act, CleanTechnica

The US added 1.2 million EVs to the grid last year & electricity use went down. In 2023, the United States witnessed a record-breaking 1.2 million electric vehicle (EV) sales, comprising 7.6% of total vehicle sales. Despite the surge in EVs, electricity generation only declined by 1.1%, challenging the assumption of increased demand. The remarkable stability in electricity consumption over the past two decades is attributed to technological advancements and efficiency gains in electric appliances. This efficiency magic, marked by a 50% improvement in energy intensity from 1980 to 2014, allows for the incorporation of new loads, like EVs, without a corresponding rise in overall electricity use. [Read More](#) (CleanTechnica)

Chart 10: Electric Vehicles Sold in the United States



Source: Intro-act, CleanTechnica

New vehicle sales rose to over 1.2M in February. New vehicle sales in the U.S. saw a rebound in February, with an estimated 6.3% year-over-year increase and a 12.4% month-over-month increase, according to Cox Automotive. Factors contributing to this included mild weather, strong inventory levels, and larger incentives and discounts. Sales are projected to reach a seasonally adjusted annual rate of nearly 15.4 million units in 2024. The increase is also attributed to an extra selling day compared to last year. [Read More](#) (Automotive Dive)

EARNINGS

Hertz misses estimates on EV fleet rethink, plans cost cuts. Hertz Global Holdings Inc. missed fourth-quarter estimates due to losses from selling its fleet of Tesla electric vehicles. It reported an adjusted loss of \$1.36 per share, worse than analysts' projections. To cut costs, Hertz plans to sell off more EVs and reduce expenses by \$250 million, potentially through layoffs. The company's shares fell 5%, reflecting investor concern. Hertz aims to transition to EVs gradually while addressing current financial challenges. [Read More](#) (Yahoo Finance)

Uber achieves profit milestone, stock value soars. Uber Technologies Inc (NYSE: UBER) reported its first annual operating profit, a historic milestone after years of losses. The \$1.1 billion profit in 2023 contrasts sharply with the \$1.8 billion loss the previous year. Speculation about share buybacks or dividends arose among investors, and Uber's stock saw a 1% increase post-announcement, surging over 20% in 2024. CEO Dara Khosrowshahi's focus on sustainable growth and regulatory compliance has contributed to Uber's turnaround, with total bookings rising by 22% in Q4 2023. [Read More](#) (Value The Market)

Toyota reports strong earnings as hybrid sales boom. Toyota Motor Corp. lifted its fiscal year 2024 operating profit forecast by nearly 9% after a robust Q3 earnings report. Factors including a weak yen, strong sales of high-margin and hybrid vehicles, and price adjustments in Europe and North America drove operating income up. Toyota anticipates further profit gains from cost efficiencies and a refined sales mix, particularly from increased hybrid sales amidst tepid electric vehicle demand. Despite criticisms, Toyota remains a dominant player in electrified vehicles, with hybrids comprising the majority of sales. [Read More](#) (Automotive Dive)

Visteon reports record sales, eyes strong 2024 growth. Visteon Corporation reported record sales of \$3.95B in 2023, with a 12% increase in base sales. Adjusted EBITDA for the year was \$434M. Sales growth is projected to continue in 2024, with an anticipated increase of 10% to 12%. The company aims for \$5B in sales and an adjusted EBITDA margin target of 13.5% by 2026. Strong performance in EV programs and significant new business wins are highlighted, with a positive outlook for future growth. [Read More](#) (Investing.com)

REGULATORY UPDATES

Another EV startup gets stern NYSE warning. California-based EV startup Fisker faces potential delisting from the New York Stock Exchange due to its stock prices consistently closing below \$1 for 30 consecutive trading days. Despite ongoing challenges, including production delays and quality issues, Fisker aims to regain compliance within six months. Additionally, the company is under scrutiny for "unintended vehicle movement" in its Ocean EVs. Amidst criticisms from influencers like MKBHD, Fisker struggles amidst a competitive EV market and economic pressures, but retains hope for recovery. [Read More](#) (Electrek)

Tesla sued by California counties over hazardous waste. Tesla is facing a lawsuit from 25 California counties, including Los Angeles and San Francisco, alleging mishandling of hazardous waste at its facilities. The lawsuit, filed on Tuesday, accuses Tesla of violating state laws by improperly labeling and disposing of waste materials in landfills not authorized for hazardous materials. The waste includes paint materials, brake fluids, batteries, antifreeze, and diesel fuel. The legal action seeks civil penalties and an injunction for proper waste management. This is not the first time Tesla has faced such allegations, having settled with the EPA in 2019 over hazardous waste violations. [Read More](#) (The Print)

U.S. safety agency deepens probe of Tesla power steering loss. U.S. safety regulators have elevated their investigation into Tesla vehicles' power steering loss to an engineering analysis, a necessary step before potential recalls. Covering about 334,000 2023 Model 3 and Model Y vehicles, the probe follows reports of premature suspension and steering failures since 2016. NHTSA identified 2,388 complaints, with some drivers experiencing steering wheel difficulties. Tesla, facing its tenth recall, may incur significant costs if physical parts need replacement. The move coincides with Tesla recalling 2.2 million U.S. electric vehicles due to small warning light fonts, while NHTSA reviews a recent Autopilot-related recall. [Read More](#) (Reuters)

US issues \$135 million in advance EV tax rebates since Jan 1, Treasury says. The US government has reimbursed auto dealers approximately \$135 million for advance point-of-sale consumer electric vehicle tax credit payments since January 1. Before 2024, buyers could only claim credits when filing taxes the following year. Now, consumers can transfer credits to dealers at the time of purchase, lowering vehicle prices. Over 25,000 reports have been received, with 78% requesting advance payment. [Read More](#) (Reuters)

Truck rule is first test drive of federal autonomous vehicle oversight. The federal government is considering proposed standards for self-driving commercial vehicles, aiming to address issues such as safety, training, and certification. While some lawmakers advocate for regulations for passenger vehicles as well, the focus for now is on commercial trucks. The evolving technology is prompting a shift in regulatory roles, with federal oversight potentially preempting state and local regulations. [Read More](#) (Roll Call)

Autonomous vehicle bill approved by full house, heads to senate. House Bill 7, sponsored by Representative Josh Bray, passed the House, allowing autonomous vehicles (AVs) in Kentucky to address truck driver shortages and boost the economy. The bill requires a human driver in autonomous semi-trucks for two years and mandates compliance with federal safety standards. Bray stressed Kentucky's need to remain competitive and innovate in logistics, citing similar legislation in other states. [Read More](#) (The Bottom Line News)

California Energy Commission approves latest EV charging infrastructure assessment. The California Energy Commission approved Assembly Bill 2127 for Electric Vehicle Charging Infrastructure Assessment. The report projects the need for 1.01 million chargers by 2030 to support 7.1 million electric vehicles and 2.11 million chargers by 2035 for 15.2 million vehicles. Medium- and heavy-duty EVs require additional chargers. Grid investment is vital, alongside charger reliability standards. Job training for installation is needed. California exceeded its EV sales goals ahead of schedule. [Read More](#) (Green Car Congress)

With Arrival in administration, are Europe's E-Van dreams over? Arrival, once valued at \$13 billion during its Nasdaq listing in 2021, now faces administration for its UK arm, following failure to file accounts and delisting. The vision of building cost-effective electric vans globally, championed by founder Denis Sverdlov, attracted significant investments, including from Hyundai and BlackRock. However, Arrival's ambitious strategy, delayed revenue, and reliance on in-house components led to financial struggles. [Read More](#) (Sifted.eu)

Ampcera's solid-state batteries surpass US DoE's fast-charging benchmarks. Tucson-based Ampcera announced its all-solid-state battery (ASSB) achieved fast-charging of 0-80% SOC in under 15 minutes at 4C rate, surpassing DOE benchmarks. Their technology features IP-protected sulfide solid-state electrolytes for safety and uses NMC cathodes and silicon-based anodes for high energy density. Ampcera aims to address EV charging anxiety with their ASSB technology, backed by a \$2.1 million grant from ARPA-E. [Read More](#) (ETN News)

M&A

Auto OEM-maker Remsons Industries to buy out Uni-Automation. Remsons Industries, a top producer of automotive cables and shifters, is making a majority investment in Uni-Automation's automotive sensor division, enhancing its innovation and expansion efforts. This strategic move strengthens Remsons' position in complete systems manufacturing with embedded sensors, broadening its product range for domestic and global markets. [Read More](#) (The Hindu)

Mitsubishi set to enter Indian car market with over 30% stake in TVS Mobility. Mitsubishi intends to enter India's car sales market by acquiring over 30% stake in TVS Mobility, pending regulatory approval. The investment, estimated at 5-10 billion yen, aims to establish exclusive stores for various car brands leveraging TVS Mobility's network. Mitsubishi prioritizes Japanese car brands, including EVs, and plans to introduce innovative services like smartphone app-based maintenance scheduling. [Read More](#) (Hindustan Times)

AltEnergy acquisition combining with Car Tech in \$80 million deal. Car Tech, a subsidiary of Korean supplier Shinyoung Co., and AltEnergy Acquisition have agreed to combine their businesses. Car Tech plans to expand its U.S. manufacturing operations, particularly in EV battery-related body parts. The deal involves a merger consideration of \$80 million, with an additional \$40 million in earnout shares. AltEnergy, which initially raised \$230 million in a 2021 IPO, focuses on clean energy companies. [Read More](#) (Spac Conference)

CAPITAL MARKETS

Exicom Tele-Systems to float IPO on Feb 27; aims to raise Rs 329 crore via fresh issue. Exicom Tele-Systems Ltd is launching its IPO on February 27, with bidding for anchor investors on February 26. The IPO includes a fresh issue of equity shares worth Rs 329 crore and an Offer For Sale (OFS) component by promoter NextWave Communications. Proceeds will fund production lines, R&D, debt repayment, and working capital. [Read More](#) (Economic Times)

Stellantis and Mercedes-Benz raise \$4.7 billion to build 4 new gigafactories. Stellantis and Mercedes-Benz have raised €4.4 billion to construct four new EV gigafactories in the EU, aiming to compete with China in the electric vehicle market. The funding, among the largest in the European auto sector, involves various banks and government support. These factories, operated by ACC, will create 6,000 jobs and are crucial for Europe's auto industry to counter China's dominance in EV production and battery supply. [Read More](#) (Electrek)

Toyota invests another \$1.3B in US factory to build all-new, 3-row electric SUV. Toyota is injecting \$1.3 billion into its North American factories, notably its Kentucky plant, to initiate electric vehicle (EV) production, including the bZ4X SUV. The investment is part of a \$17 billion commitment to U.S. manufacturing, supporting over 10,000 workers. This move aligns with Toyota's focus on EVs and enhances eligibility for government EV subsidies, potentially lowering prices for consumers and ensuring competitiveness in the EV market. [Read More](#) (The Manual)

New hope for EV sales sparked by new \$400 million factory. Addionics, an Israeli startup, plans to invest \$400 million in a new factory in the USA, aiming to revolutionize EV battery technology. Despite concerns about EV sales, the market remains strong. Addionics' innovative 3-D battery architecture promises cost reduction and improved performance. [Read More](#) (CleanTechnica)

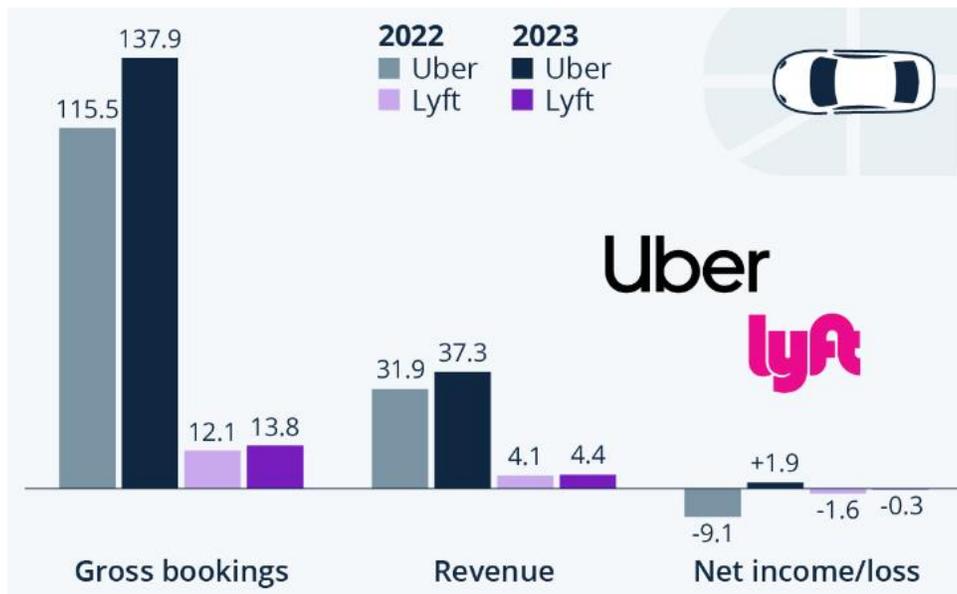
COMPANY NEWS

Mercedes-Benz drastically backtracks EV plans, will build gas cars well into 2030s. In 2021, Mercedes-Benz announced its ambition to become fully electric by the end of the decade, conditional on market readiness. The brand committed to transitioning all its vehicle architectures to electric from 2025, boasting a diverse electric vehicle (EV) lineup, including models such as the EQS and EQE in both sedan and SUV forms, alongside the EQB electric SUV. However, in a recent turn of events, Mercedes-Benz has revised its strategy, signaling a continuation of gas-powered vehicle production into the 2030s. The luxury car manufacturer now anticipates that electrified vehicles, including hybrids, will constitute half of its sales by 2030, scaling back from its initial all-electric vision. [Read More](#) (Electrek)

Ford's EV price cuts boost demand as all-electric sales climb 80% in February. Ford's EV sales rebounded strongly in February, jumping 80.8% year-over-year to 6,368 units. This surge comes after a January slump and production adjustments. Price cuts and potential access to Tesla's supercharger network fueled the growth. While Ford scaled back some EV plans, their EV sales momentum stands out against industry trends of cautious investments and rising competition. [Read More](#) (Electrek)

How Uber and Lyft measure up. Lyft's recent financial report showed the stock market's volatility due to a typo that inflated its stock price before correcting. Despite improvements, it still trails Uber, which saw significant growth and its first net profit in 2023. Lyft focuses on the U.S. market, while Uber operates globally. Both face discontent from drivers, with thousands striking on Valentine's Day over employment conditions. [Read More](#) (Statista)

Chart 11: Key Financial Metrics for Ride-Hailing Companies Uber and Lyft (in \$ Billion)



Source: Intro-act, Statista

General Motors (GM) inks a \$19 billion deal for EV battery materials. General Motors (GM) and LG Chem signed a \$19 billion deal to fortify the electric vehicle (EV) market. LG Chem will supply cathode materials for EV batteries, supporting GM's ambitious production targets. The materials will come from LG Chem's plant in Tennessee, aligning with GM's regional production strategy. This deal underscores GM's commitment to EVs and signals a shift towards sustainable transportation, shaping the automotive industry's future. [Read More](#) (Yahoo Finance)

Airbus and LCI to partner on development of Advanced Air Mobility Ecosystems. Airbus and LCI are collaborating to develop Advanced Air Mobility (AAM) ecosystems, focusing on strategy, commercialization, and financing. Their partnership combines LCI's operational and financial expertise with Airbus' technical innovation in flight technologies. LCI will also provide financial support for Airbus' AAM projects, including CityAirbus NextGen, which is undergoing testing. [Read More](#) (Airbus)

Hyundai's Supernal and Embraer-backed Eve Air Mobility see future in electric-powered air taxis. Companies like Embraer and Hyundai are investing in air taxis, aiming to make air travel more sustainable and less polluting. These electric aircraft, developed by Hyundai's Supernal and Embraer's Eve Air Mobility, are designed to take off and land vertically, providing a sustainable transportation option for densely populated cities. [Read More](#) (ABC News)

Apple has quietly tripled its testing of autonomous cars, records show. Apple is significantly increasing its testing of autonomous vehicles in California, with a threefold increase in miles tested over the past year. Despite facing scrutiny and challenges in the industry, Apple's efforts indicate confidence in the potential of automated driving. While the company is moving more slowly compared to other leaders like Waymo, it is reportedly focusing on creating driving-assistance features rather than fully self-driving vehicles. [Read More](#) (Washington Post)

Chart 12: Apple rams up Autonomous Vehicle Testing



Source: Intro-act, California Department of Motor Vehicles, Washington Post. Note: All of Apple's autonomous mileage came from cars with a safety driver, while companies like Waymo, Zoox, Cruise, and Nuro have mileage with and without safety drivers. Reporting period: Dec. through Nov.

CAAS, EDB and Supernal partner to develop Advanced Air Mobility in Asia-Pacific region. Supernal LLC, Hyundai Motor Group's Advanced Air Mobility (AAM) company, signed MOUs with Singapore Economic Development Board (EDB) and Civil Aviation Authority of Singapore (CAAS) at Singapore Airshow 2024. Partnerships aim to enhance AAM capabilities in the Asia-Pacific region. Activities include R&D, identifying use cases, supporting safety regulations, and public engagement. EDB partnership focuses on R&D, operational strategies, and market analyses. CAAS collaboration aims at aircraft certification frameworks, infrastructure standards, and public awareness efforts. [Read More](#) (Urban Mobility)

Tesla to bring LFP battery supply chain to US. Tesla is expanding its battery facility in Nevada to produce cheaper lithium iron phosphate batteries in the United States. They will purchase idle equipment from their Chinese supplier, CATL, with an initial capacity of about 10 gigawatt hours. This move aims to reduce dependence on foreign sources, especially China, for battery materials like nickel, cobalt, and lithium. The expansion aligns with regulations and offsets the loss of tax credits for Tesla's Model 3 due to sourcing regulations. [Read More](#) (Reuters)

EHang's eVTOL air taxi will cost buyers less than \$350,000 (in China). EHang's EH 216 eVTOL has received clearance for commercial air taxi operations in China. The company has announced the retail price of 2.39 million RMB (approximately 332,304 US dollars) for the EH 216-S model, effective from April 1st. The aircraft is autonomous, accommodating two passengers and flying up to 30 km at a speed of 130 km/h. It has received certificates and completed commercial flight demonstrations in December. eHang aims to meet market demands and enhance the value of urban air mobility. [Read More](#) (New Atlas)

Tesla to update 2.2M vehicles in largest-ever recall. The National Highway Traffic Safety Administration issued a recall for nearly 2.2 million Tesla vehicles due to small brake, park, and anti-lock warning lights. This affects various models, and Tesla will fix the issue through a software update. Additionally, NHTSA is investigating sudden power steering losses in certain Model 3 and Model Y vehicles. These recalls add to a series of quality issues found in Tesla vehicles, including inaccurate range estimates and Autopilot system concerns. [Read More](#) (Automotive Dive)

BYD is launching newly developed smart driving ADAS tech next month. BYD is set to introduce its own smart driving technology, starting with the launch of its city pilot assist feature on the Denza N7 SUV. This move comes as BYD aims to compete in the premium electric vehicle (EV) segment, following the lead of other EV makers offering advanced driving features. With a significant investment in intelligent driving and a focus on in-house development, BYD is poised to expand its market presence with integrated software stacks and advanced features. [Read More](#) (Electrek)

Shell to permanently close all of its hydrogen refuelling stations for cars in California. Shell has permanently closed six of its seven hydrogen refueling stations for passenger cars in California due to supply complications and market factors. Only three H2 filling stations for heavy-duty vehicles remain operational along with one light-duty station in Torrance. Shell discontinued plans for additional light-duty vehicle fueling stations and prioritized hydrogen for heavy-duty mobility. The decision may also reflect low demand, with hydrogen-powered vehicle registrations in California in 2023 being less than 1% of battery-electric cars. [Read More](#) (Hydrogen Insights)

Panasonic Energy partners with NOVONIX for securing supply of synthetic graphite. Panasonic Energy has signed an offtake agreement with NOVONIX Ltd to supply synthetic graphite for electric vehicle (EV) batteries. This partnership will enable Panasonic to utilize synthetic graphite in its U.S. EV battery manufacturing facilities starting in 2025. The agreement supports Panasonic's goal of strengthening its North American supply chain and reducing its carbon footprint. NOVONIX's technology aims to reduce CO2 emissions during production, aligning with Panasonic's environmental sustainability efforts. [Read More](#) (ETN)

Waymo autonomous vehicle vandalized, set on fire in San Francisco. A Waymo autonomous vehicle in Chinatown, San Francisco, was vandalized and set on fire by a group of people, according to firefighters. The incident occurred on Saturday night when the vehicle was surrounded by about 10 to 15 individuals who broke a window and threw a firework inside, causing the vehicle to ignite. No passengers were onboard, and there were no reported injuries. Authorities are investigating the incident. [Read More](#) (Fox KTVU News)

Volkswagen Group to convert to R744 for all BEVs by 2030. Volkswagen Group plans to transition all battery electric vehicle (BEV) models' mobile air conditioning heat pumps to CO2 (R744) by 2030, aiming to mitigate per- and polyfluoroalkyl substances (PFAS) release. The European Chemicals Agency proposes a ban on PFAS to protect the environment, supported by several European countries. Volkswagen suggests exemptions for certain applications like fluoropolymers in lithium-ion batteries, electronics, seals, lubricants, and metal plating, citing technical challenges and safety concerns. [Read More](#) (Greencar Congress)

HEULIEZ secures contract to supply 200 e-buses to Marseille. HEULIEZ, part of Iveco Group, secured a contract worth 125 million euros from Marseille's public transport operator, RTM, to provide 200 electric buses. This move accelerates Marseille's transition to electric public transport, aiming for over a third of the fleet to be electric by 2027. The chosen GX 337 ELEC buses will feature innovative charging via roof rails, with an initial 35 units expected by 2024-end and the rest by 2027, supporting Marseille's sustainability goals. [Read More](#) (Iveco Group)

BorgWarner inks manufacturing deal with BYD subsidiary. Auto supplier BorgWarner recently signed an 8-year deal with FinDreams Battery, a subsidiary of Chinese EV maker BYD, to manufacture lithium iron phosphate battery packs globally. BorgWarner will use FinDreams' blade cells and secure an IP license. This move is part of BorgWarner's strategy to meet the rising demand for LFP batteries, driven by their cost-effectiveness. The company is also investing in manufacturing capacity and expanding its presence in China's EV market. [Read More](#) (Automotive Dive)

Stellantis increasing production of electric drive modules to support growth in electrification portfolio. Stellantis expands its electrified propulsion manufacturing with EDM production in France, USA, and Hungary, and eDCTs in Italy. The €103 million investment in Hungary supports the Dare Forward 2030 plan for electrification. Production in Szentgotthard will begin in late 2026, utilizing existing facilities and upskilling employees. Stellantis aims to achieve 100% BEV sales in Europe and 50% in the US by 2030, investing €50 billion in electrification and targeting carbon neutrality by 2038. [Read More](#) (Stellantis)

GM expands Super Cruise network to 750,000 hands-free miles, largest in North America. GM continues to advance hands-free driving with Super Cruise, now covering about 750,000 miles of roads across the U.S. and Canada, nearly six times the coverage of other systems. Anantha Kancharla emphasizes the importance of expanding road networks, enhancing Super Cruise's capabilities and consumer trust. The update includes minor highways, allowing for hands-free driving between rural areas. GM expects this expansion to benefit customers, especially those with trailers, further enhancing the driving experience. [Read More](#) (GM)

Volkswagen, Mahindra sign supply agreement for EV components. Volkswagen and Mahindra & Mahindra have entered a supply deal for electric components and plan to explore further collaboration opportunities in India. The agreement includes supplying electric components for Volkswagen's modular electric drive platform and battery cells for Mahindra's electric-vehicle platform. The deal, spanning several years, is expected to involve around 50 gigawatt hours of supply. Financial details were not disclosed. The companies began their collaboration in 2022 and aim to expand their relationship. [Read More](#) (Morningstar)

New Tesla software update makes cold-weather charging easier. Tesla's 2024.2.6 software update enhances cold-weather charging by automatically warming the charging port, facilitating easier cable detachment. It also estimates battery warm-up time for efficient charging. The update improves EV performance in cold climates and addresses frozen door handles. Sport and Off-Road modes offer better ride quality and safety features include adaptive high beams and ultrawideband technology for phone keys, with new contextual lock button features for convenience. [Read More](#) (Driven Car Guide)

Octopus Energy kick-starts vehicle-to-grid tariff for EVs in UK. Octopus Energy introduces Octopus Power Pack, the UK's first mass-market vehicle-to-grid (V2G) tariff, promoting green transport. Utilizing V2G tech and Octopus Energy's 'Kraken' platform, it optimizes grid balance by charging EVs during off-peak hours and discharging stored energy when needed. Drivers get free charging by plugging in for 170+ hours monthly, saving over £850 annually. The initiative aims to leverage EV batteries for grid stability, urging car manufacturers to adopt V2G compatibility. [Read More](#) (ETN News)

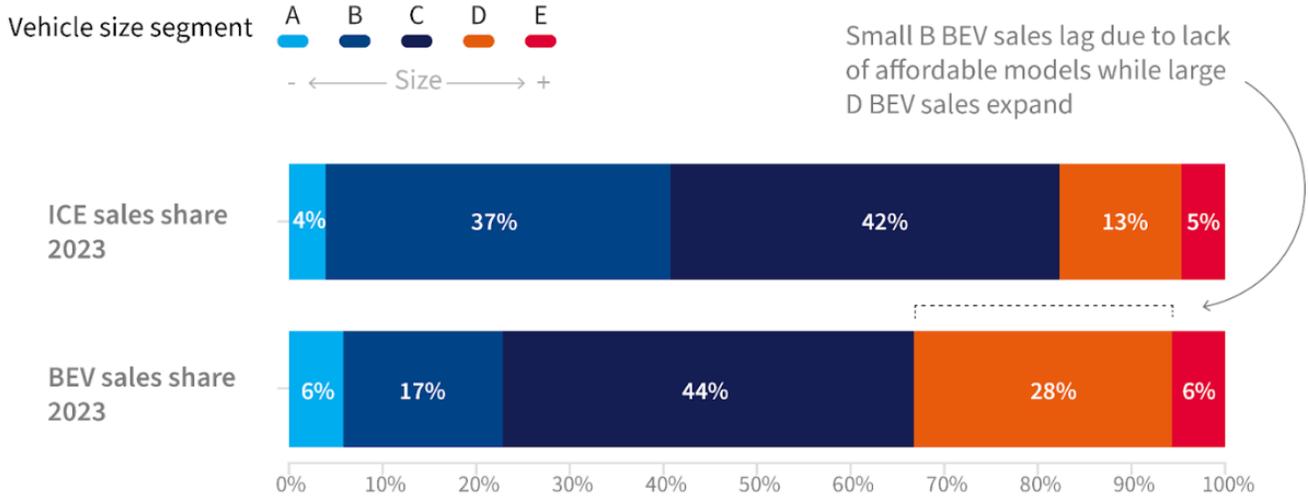
Joby to launch Air Taxi Service in UAE. Joby Aviation has signed a definitive agreement with Dubai's Road and Transport Authority (RTA), granting Joby exclusive rights to operate air taxis in Dubai for six years, with service expected to launch by early 2026. Skyports will build and operate four vertiports in Dubai. The agreement, aimed at revolutionizing air travel, includes regulatory approaches, financial support, and infrastructure development. Joby's all-electric aircraft promises fast, clean, and quiet travel, aligning with Dubai's commitment to future transportation technologies. [Read More](#) (Business Wire)

Joby completes third stage of FAA certification process. Joby Aviation achieved a milestone by completing the third stage of FAA certification for its electric vertical take-off and landing (eVTOL) aircraft. This involved submitting comprehensive plans covering structural, mechanical, electrical systems, cybersecurity, human factors, and noise. These plans were accepted by the FAA, paving the way for Joby to commence testing. They've completed 30 tests in the fourth quarter of 2023, marking progress towards commercializing their electric air taxi service. [Read More](#) (Urban Mobility)

Ayvens to buy up to 500,000 Stellantis vehicles. Fleet leasing firm Ayvens inked a multi-billion euro deal with Stellantis, aiming to purchase up to 500,000 vehicles across Europe by 2026. The agreement offers flexibility, adjusting order quantities based on fleet needs. First deliveries are expected in 2024. This marks Stellantis' second significant commitment this year, following a deal with Sixt in January. Ayvens' affiliates can select various vehicle models, from city cars to electric vehicles, enhancing competitive pricing and value for stakeholders. [Read More](#) (Automotive Dive)

MOBILITY CHART OF THE MONTH

Chart 13: Lack of Small Affordable EVs Hurting Adoption



Source: Intro-act, Green Car Congress, Transport and Environment, Dataforce Registrations 2023. Scope: EU+UK. Note: ICE and BEV sales don't sum up to 100% due to rounding

EV SALES UPDATES

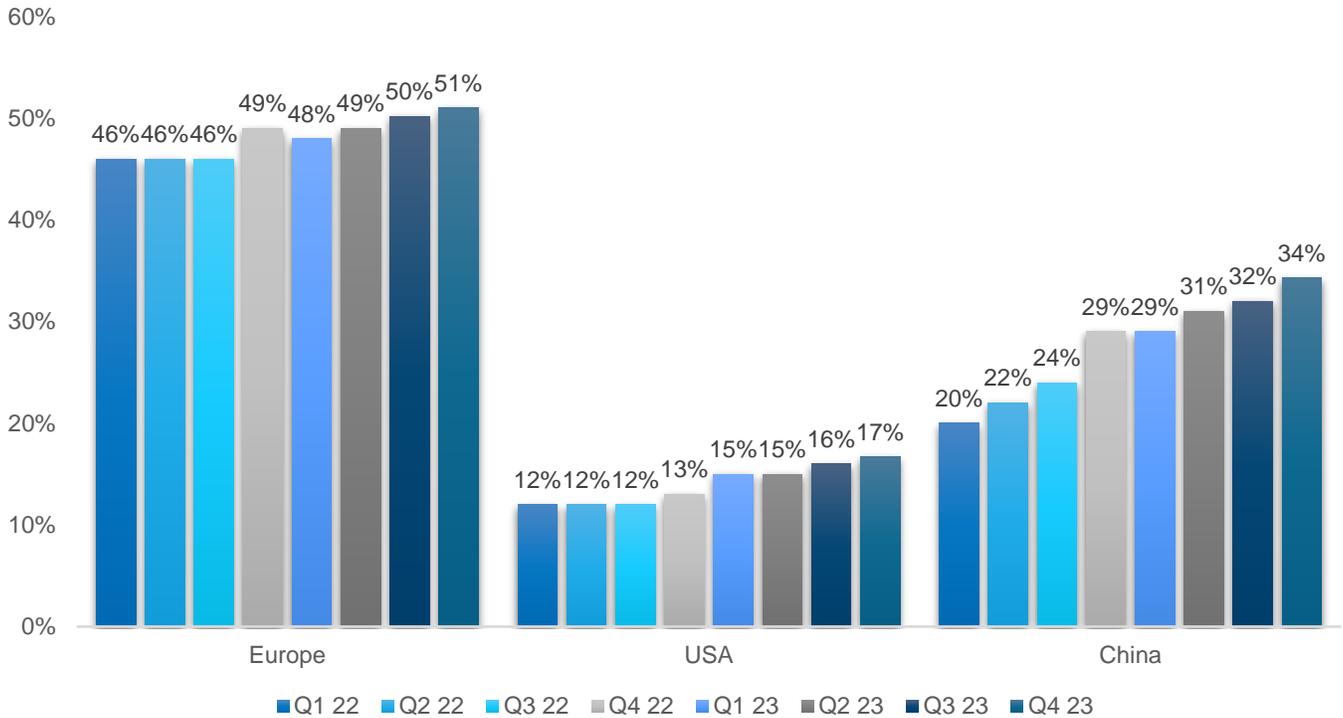
Chart 14: News Related to EV Sales from February 2024

Date	Update
1-Feb-24	25% of new car sales in China were 100% electric in 2023
2-Feb-24	EVs take 52.5% share in Sweden
2-Feb-24	Electric vehicles & hybrids surpass 16% of total 2023 U.S. light-duty vehicle sales
3-Feb-24	24% Plugin vehicle share in Europe
16-Feb-24	US EV sales up 385% since 2019, normal “ICE” vehicle sales down 14%
16-Feb-24	US EV sales — strong increases year over year every month of the year
16-Feb-24	16% of new cars were BEVs in France in January
18-Feb-24	Germany EV sales report: back to the past
16-Feb-24	Latin America EV sales report
16-Feb-24	Netherlands starts the year with 23% BEV share!
16-Feb-24	Europe sales jump 11% in January on pent-up demand
21-Feb-24	Tesla Model Y & Model 3 top California auto sales in 2023
21-Feb-24	California rises to 21.4% BEV market share, 33.8% of US BEV market
21-Feb-24	New monthly EV sales record to kickstart 2024
26-Feb-24	Geely & Aito shine in China — in rising 18% market share in January
29-Feb-24	100% Electric vehicles = 12% of new car sales in Europe in January
1-Mar-24	EVs take 51.8% share in Sweden — Fleet update

Source: Intro-act, Clean Technica, Automotive News, Carbon Credits

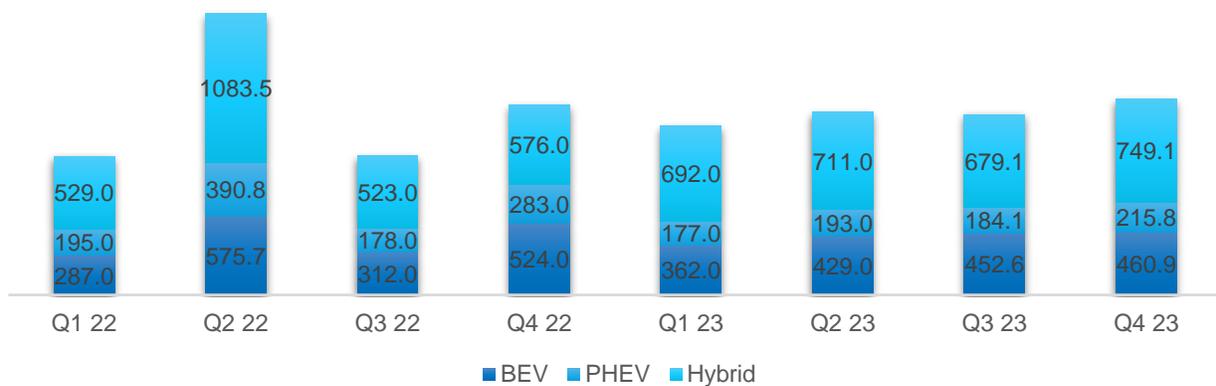
EV SALES METRICS

Chart 15: Share of EV Registrations to Total Registrations in Key Geographies



Source: Intro-act, PWC

Chart 16: Sales of BEV, PHEV and Hybrid Vehicles in Europe (Sales in '000s)



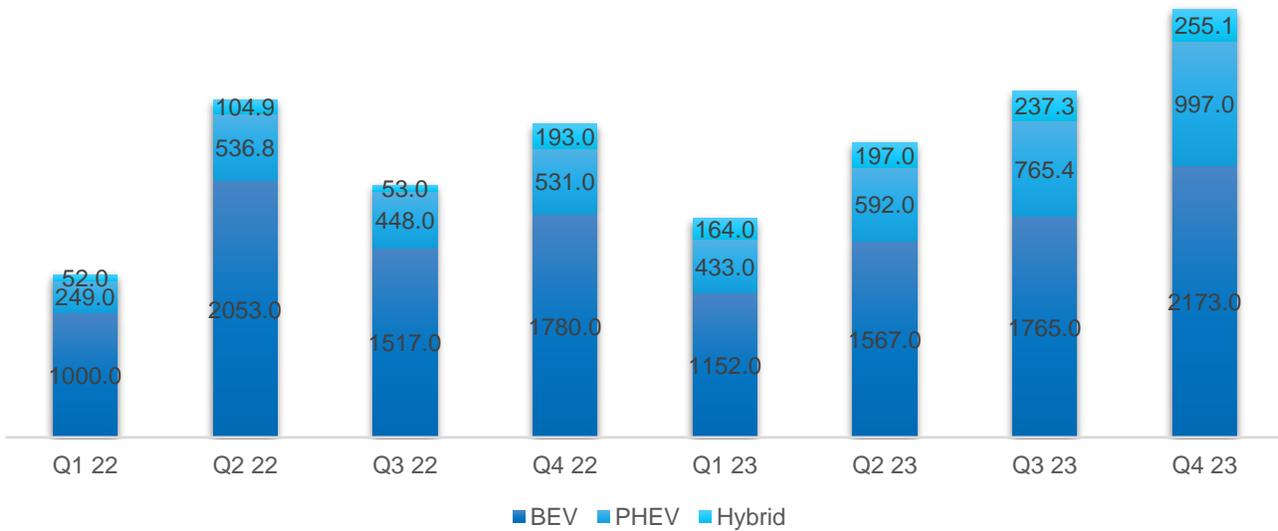
Source: Intro-act, PWC

Chart 17: Sales of BEV, PHEV and Hybrid Vehicles in the U.S. (Sales in '000s)



Source: Intro-act, PWC

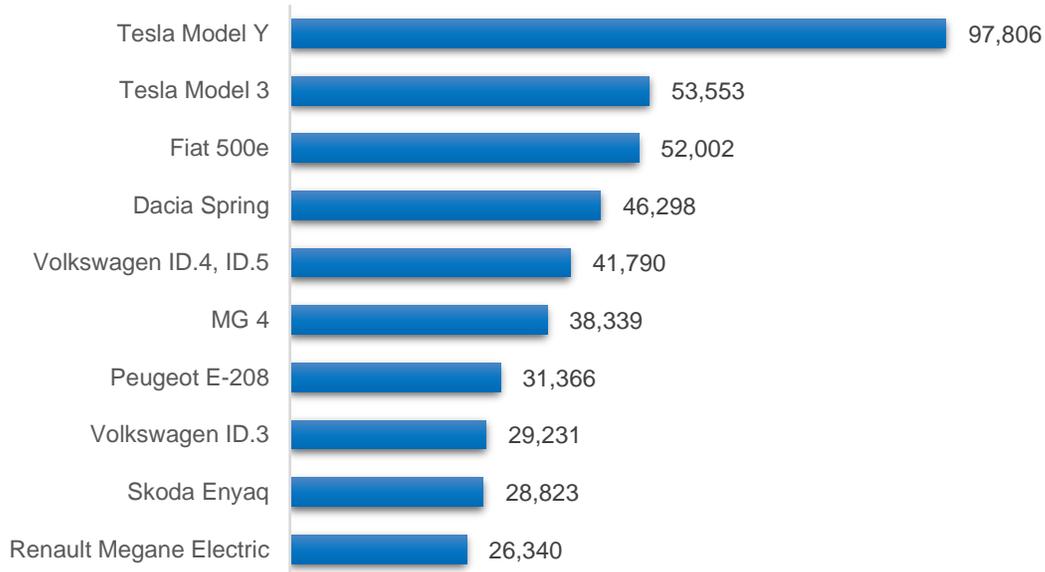
Chart 18: Sales of BEV, PHEV and Hybrid Vehicles in China (Sales in '000s)



Source: Intro-act, PWC

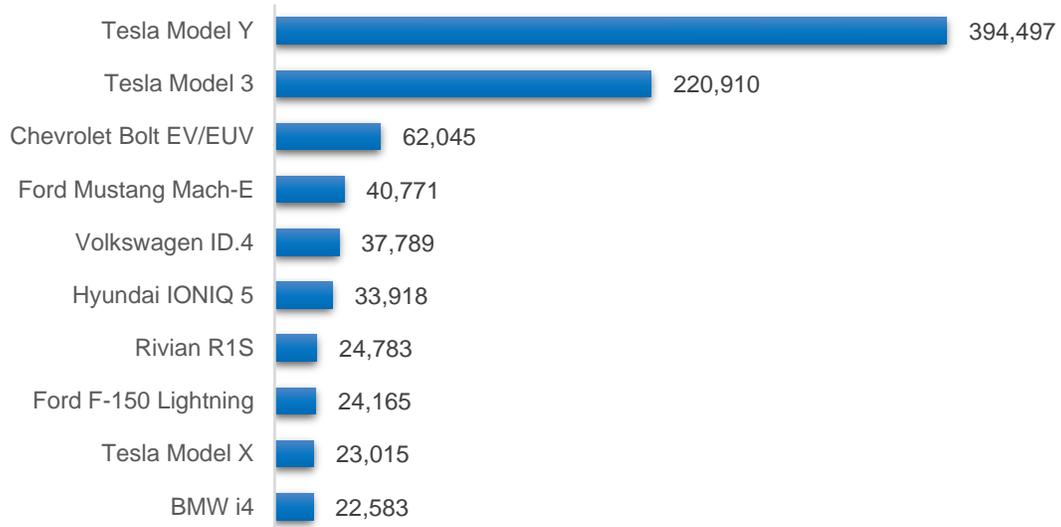
TOP SELLING ELECTRIC VEHICLES

Chart 19: Top 10 BEVs by Sales in Europe (Sales Volume 2023)



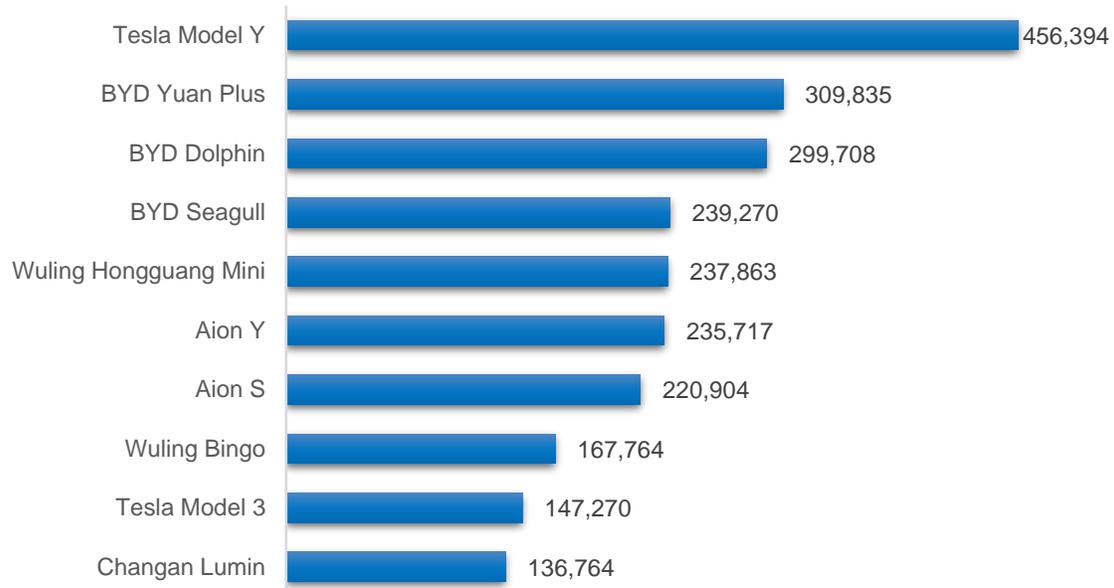
Source: Intro-act, PWC

Chart 20: Top 10 BEVs by Sales in US (Sales Volume 2023)



Source: Intro-act, PWC

Chart 21: Top 10 BEVs by Sales in China (Sales Volume 2023)



Source: Intro-act, PWC

NEW AND UPCOMING EV LAUNCHES

Chart 22: BEV Model Launches 2024 (not exhaustive)

S.No	Brand	Model	Launch	Quarter
1	BYD	Sealion 07	2024	Q4
2	Cadillac	Symboliq	2024	Q3
3	Dodge	Daytona	2024	Q4
4	IM	L5	2024	Q3
5	Jeep	Recon	2024	Q4
6	Kia	EV3	2024	Q3
7	Lancia	Ypsilon	2024	Q4
8	Lingxi	Lingxi L	2024	Q4
9	Maruti-Suzuki	eVX	2024	Q4
10	Mercedes-Benz	EQG	2024	Q4
11	MI	SU7	2024	Q3
12	Mini	Aceman	2024	Q4
13	Renault	5	2024	Q3
14	Venucia	Star EV	2024	Q3
15	VinFast	VF 3	2024	Q3

Source: Intro-act, PWC

Chart 23: Expected BEV Model Launches 2025–2028 (not exhaustive)

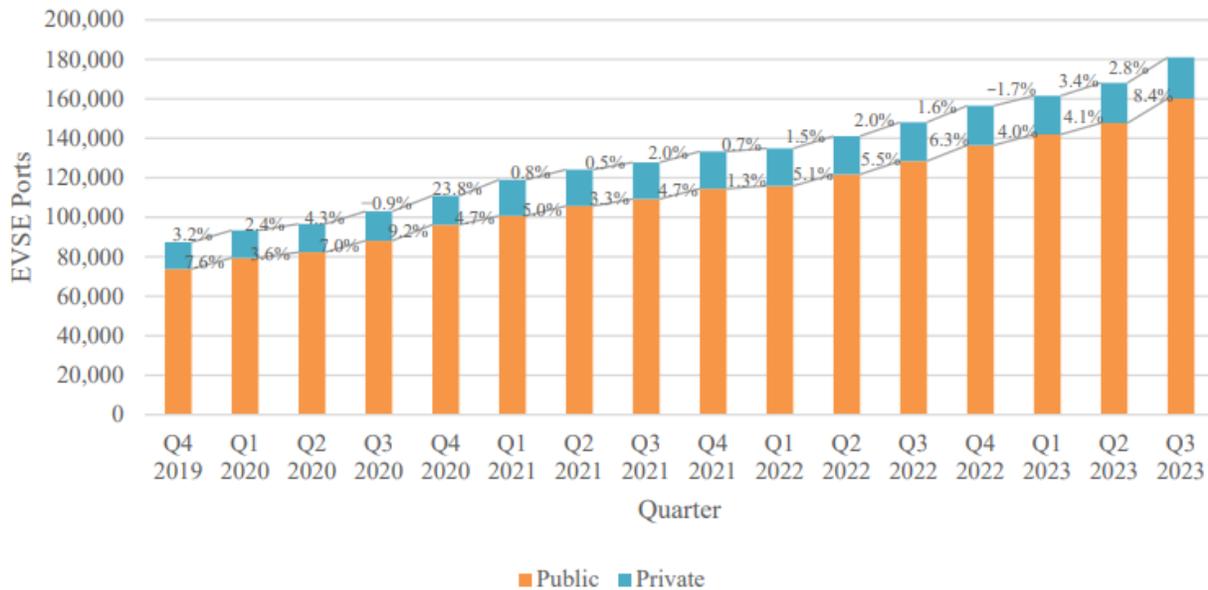
S.No	Brand	Model	Launch
1	Acura	RDX EV	2025
2	Audi	A4 e-tron	2028
3	Audi	A8 e-tron	2027
4	Audi	Urbansphere	2025
5	BMW	iX5	2026
6	Buick	Regal EV	2025
7	Buick	Verano Pro	2027
8	Chery	Omoda 3	2025
9	Chevrolet	Monza	2026
10	Chrysler	Pacifica EV	2028
11	Fisker	PEAR	2025
12	Ford	Maverick EV	2028
13	Foxtron	Model B	2026
14	Foxtron	Project X	2026
15	Honda	Passport EV	2027
16	Honda	Pilot EV	2027
17	Hyundai	Ioniq 4	2026
18	Hyundai	Ioniq 8	2026
19	Kia	EV8	2027

20	Lotus	Elise	2027
21	Mahindra	BE.05	2025
22	Maruti-Suzuki	Ertiga	2025
23	Polestar	Polestar 5	2025
24	Polestar	Polestar 6	2026
25	Polestar	Polestar 7	2027
26	Skyworth	Skyhome	2025
27	Toyota	bZ2	2028
28	Toyota	Granvia EV	2028
29	Volkswagen	ID.2	2026
30	Volkswagen	ID.3 X	2026

Source: Intro-act, PWC

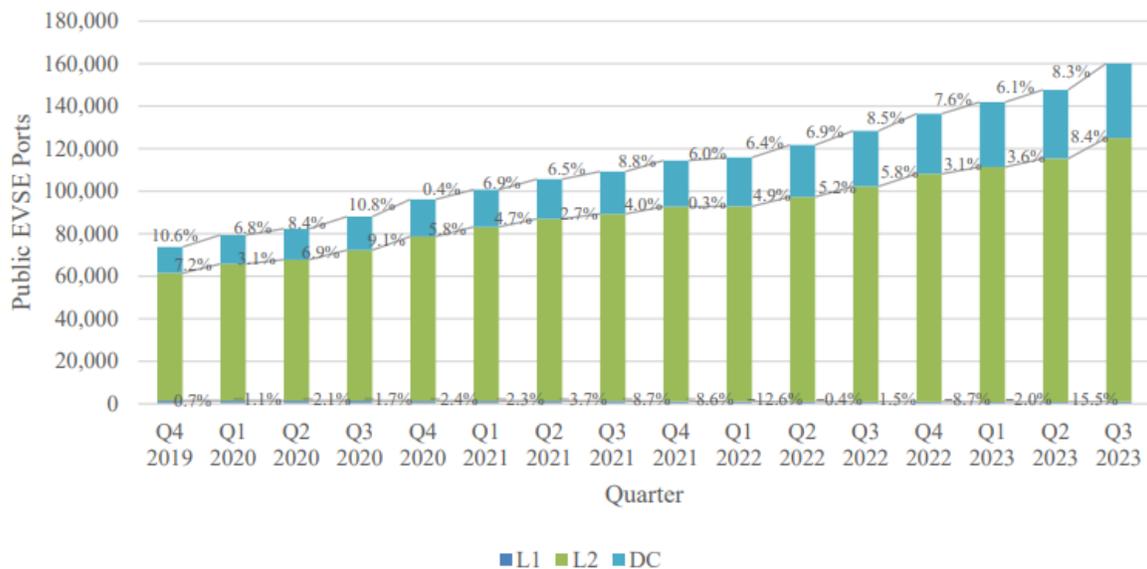
EV CHARGING INFRASTRUCTURE – U.S.

Chart 24: Quarterly Growth of Public and Private Electric Vehicle Supply Equipment (EVSE) Ports



Source: Intro-act, [U.S. Department of Energy](#). Note: The percentages in this figure indicate the percent growth between each quarter. Data as of Q3, 2023

Chart 25: Quarterly Growth of Electric Vehicle Supply Equipment (EVSE) Ports by Type of Charging Level



Source: Intro-act, [U.S. Department of Energy](#). Note: Figure excludes legacy EVSE ports that are not classified by charging level and are no longer manufactured. As of Q3, there were 26 public legacy EVSE ports in the Station Locator. Additionally, the percentages in this figure indicate the percent growth between each quarter. Data as of Q3, 2023

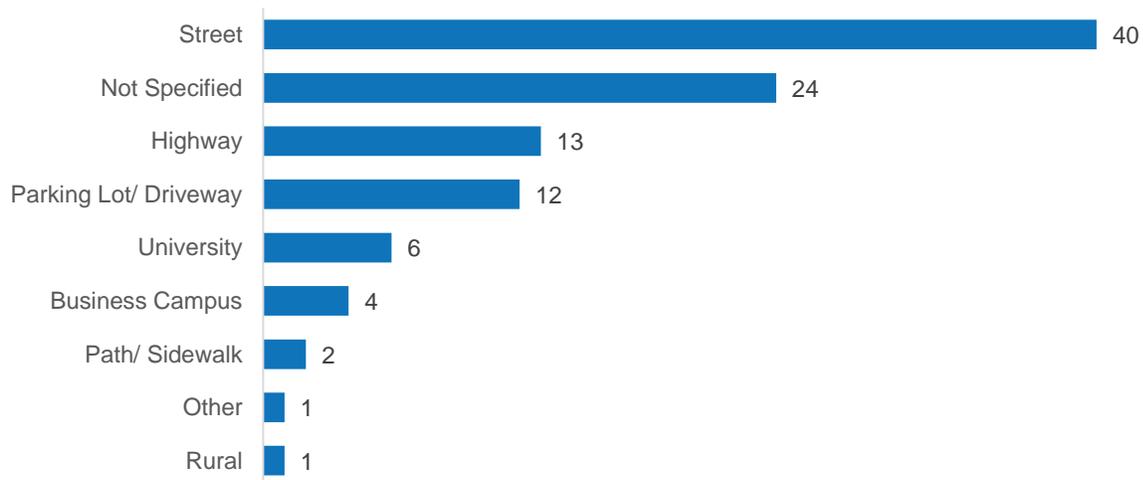
AUTONOMOUS VEHICLES (AV) TESTING LOCATIONS – U.S.

Chart 28: Distribution of AV Testing Locations in the U.S. (as of March 1, 2024)



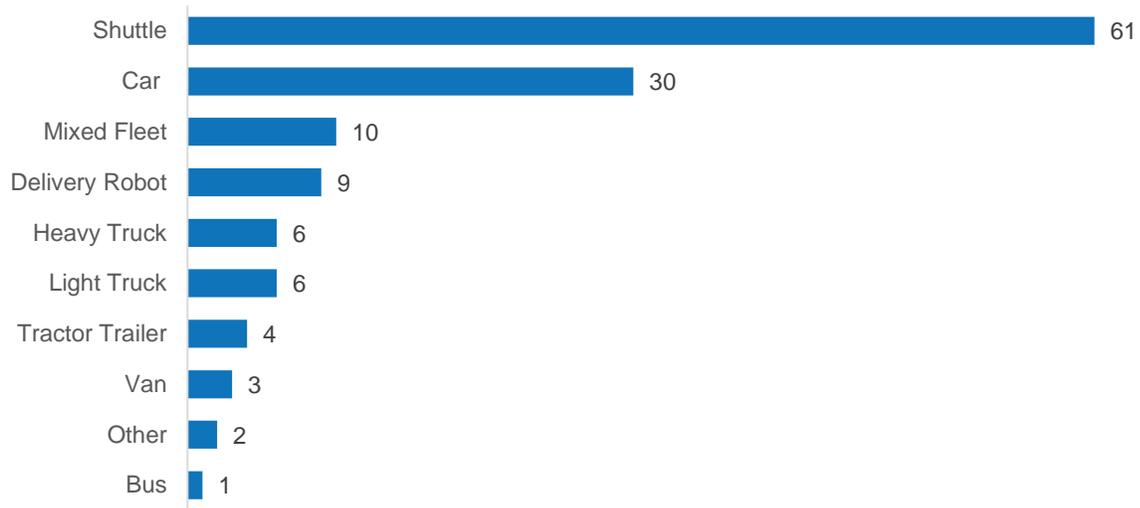
Source: Intro-act, ESRI, TomTom, U.S. Department of Commerce, U.S. Census Bureau, [NHTSA](#). The above map presents a snapshot of regions where AV Testing infrastructure is being built in the United States. Snapshot as of March 1, 2024.

Chart 29: Distribution of AV Testing Sites by Road Type



Source: Intro-act, [NHTSA](#). Data as of March 1, 2024. This chart compares the relative distribution of different types of AV testing infrastructure.

Chart 30: Distribution of AV Testing Sites by Vehicle Type



Source: Intro-act, [NHTSA](#), Data as of March 1, 2024. This chart compares the relative distribution of AV testing infrastructure that can be used to test different types of vehicles.

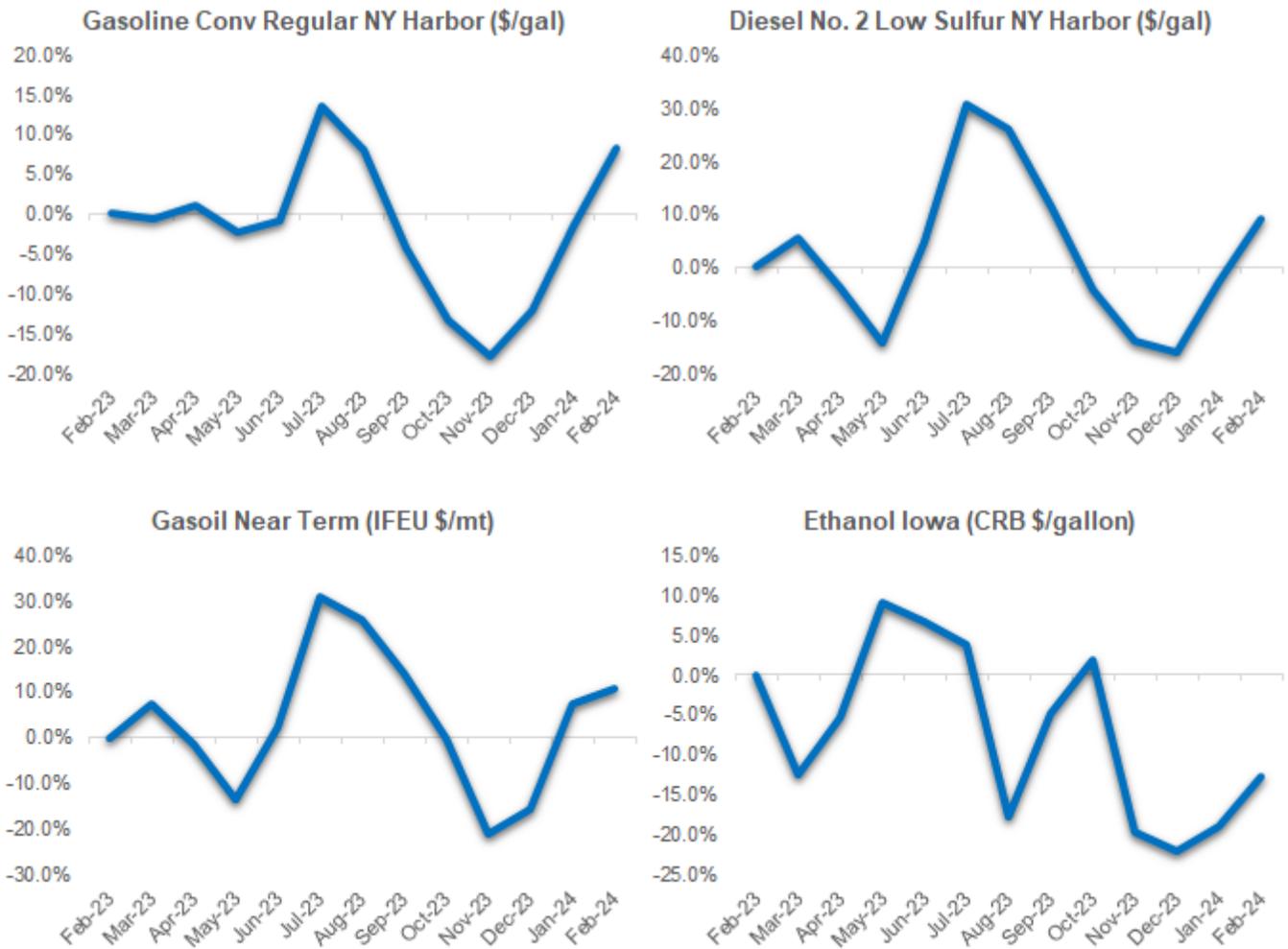
AUTOMOTIVE COMMODITIES

Chart 31: Automotive Commodities Price Returns

Energy Commodities	Price as of 29th Feb 2024	1M	3M	6M	1Y	YTD
Refined Products						
Gasoline Conv Regular NY Harbor (\$/gal)	2.34	▲ 3.77%	▲ 2.00%	▼ -16.93%	▼ -10.44%	▲ 8.43%
Diesel No. 2 Low Sulfur NY Harbor (\$/gal)	2.76	▼ -1.01%	▼ -4.80%	▼ -12.44%	▲ 11.30%	▲ 8.97%
Gasoil Near Term (IFEU \$/mt)	826.75	▼ -3.30%	▲ 3.15%	▼ -7.68%	▲ 16.57%	▲ 10.12%
Ethanol Iowa (CRB \$/gallon)	1.42	▼ -6.60%	▼ -23.51%	▼ -30.30%	▼ -42.55%	▼ -12.44%
Metal Commodities						
Metal Commodities	Price as of 29th Feb 2024	1M	3M	6M	1Y	YTD
Base Metals and Bulks						
Aluminum Cash Official LME (\$/mt)	2163.00	▼ -3.09%	▲ 0.25%	▼ -0.12%	▲ 3.17%	▼ -7.39%
Iron Ore 62% Fe CFR China Cash (TSI) CRB (\$/mt)	124.86	▼ -7.60%	▼ -4.29%	▲ 14.13%	▲ 10.92%	▼ -8.44%
US Midwest Domestic HRC Steel (CRU) Near Term (NYM \$/st)	795.00	▼ -17.45%	▼ -23.85%	▲ 9.05%	▼ -9.76%	▼ -29.96%
Battery Materials						
Lithium Carbonate 99%Min China (CNY/ tonne)	94500.00	▲ 9.25%	▼ -12.09%	▼ -51.66%	▼ -72.33%	▲ 9.25%
Nickel Cash Official LME (\$/mt)	17435.00	▲ 8.49%	▲ 6.73%	▼ -13.79%	▼ -13.37%	▲ 6.96%
Cobalt Cash Official LME (\$/mt)	28200.00	▼ -1.67%	▼ -14.57%	▼ -14.52%	▼ -8.91%	▼ -1.78%
Precious Metals						
Palladium New York (\$/ozt)	965.00	▼ -1.73%	▼ -7.21%	▼ -21.86%	▼ -24.31%	▼ -14.22%
Platinum Indust (Engelhard) (\$/ozt)	895.00	▼ -3.76%	▼ -5.09%	▼ -9.14%	▼ -1.10%	▼ -12.25%
Rhodium Johnson Matthey Base Price London (\$/oz)	4400.00	▼ -1.12%	▼ -2.22%	▲ 7.32%	▼ -2.22%	▼ -0.56%

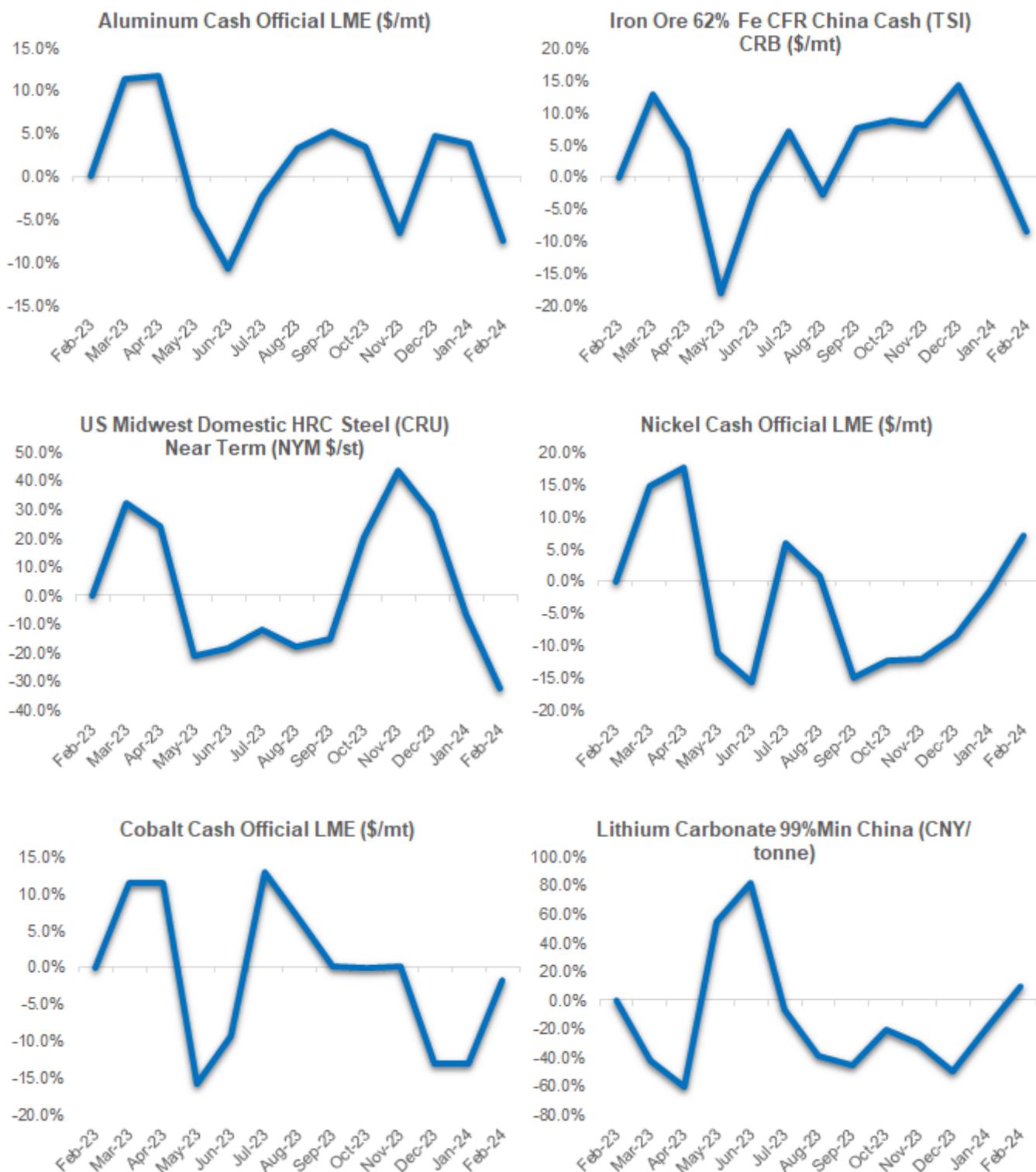
Source: Intro-act, FactSet, Investing.com. Data as of 02/29/2024.

Chart 32: Indexed Change in Refined Products Prices in Last 12 Months



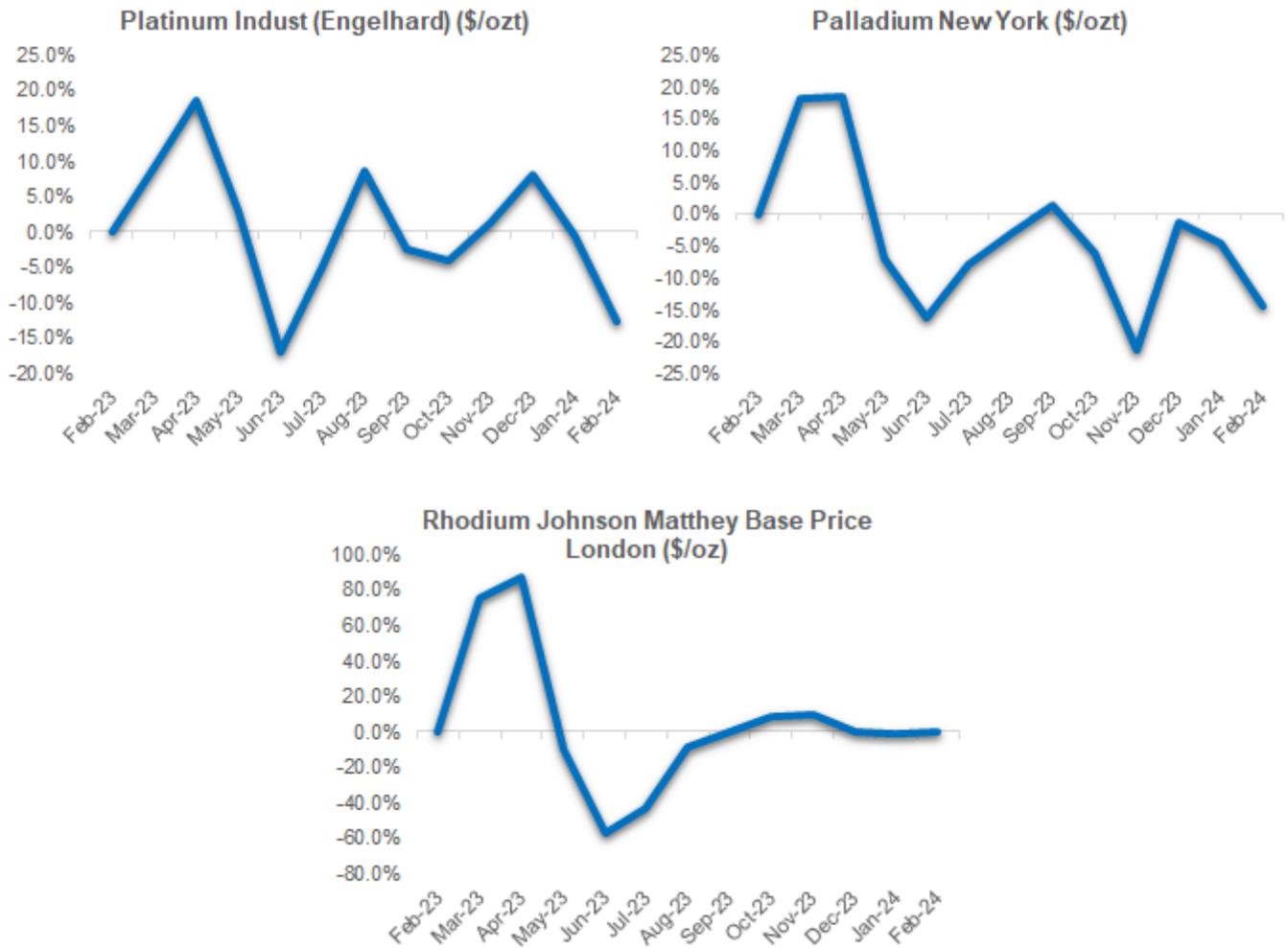
Source: Intro-act, FactSet. Data as of 02/29/2024.

Chart 33: Indexed Change in Base Metals, Bulks, and Battery Materials in Prices Last 12 Months



Source: Intro-act, FactSet. Data as of 02/29/2024.

Chart 34: Indexed Change in Precious Metals Prices Last 12 Months



Source: Intro-act, FactSet. Data as of 02/29/2024.

MOBILITY CAPITAL MARKET ACTION (FEBRUARY 2024)

IPO Activity

Company	Stock Exchange	Offer Date	Gross Proceeds (\$m)
Exicom Tele-Systems Ltd	BSE, NSE	27 Feb-24	-

Source: Intro-act,

M&A Activity

Target	Target Industry	Target Country	Acquirer	Deal Size (\$m)	Announcement Date
Proterra Inc	Industrial Machinery Manufacturing	United States	Volvo	210	05-Feb-2024
Cityscoot	Truck Transportation	France	Cooltra	-	22-Feb-2024
Spirii	Software Development	Denmark	Edenred	-	27-Feb-2024
EnerSys	Appliances, Electrical, and Electronics Manufacturing	United States	Federated Hermes Inc.	-	01-Mar-2024
Uni-Automation	Appliances, Electrical, and Electronics Manufacturing	India	Remsons Industries	-	17- Feb-2024

Source: Intro-act, FactSet

PE/ VC Funding Activity

Company	Funding Round	Fund raised (\$m)	Investors	Date
Amber	Series C	29.0	ASX-listed billing, CRM provider Gentrack, Rubio Impact Ventures, Commonwealth Bank, NRMA, Alberts, Square Peg, Main Sequence	1-Feb-2024
Heart Aerospace	Series B	107.0	Sagitta Ventures, Air Canada, Breakthrough Energy Ventures, European Innovation Council Fund, EQT Ventures, Lower Carbon Capital, Norrsken VC, United Airlines, Y Combinator.	1-Feb-2024
CitySwift	-	6.4	Gresham House Ventures, Irelandia Investments, Western Development Commission, ACT Venture Capital	1-Feb-2024
Energy Source	Seed	1.2	InMotion Ventures	2-Feb-2024
Snap-E Cabs	Pre-series A	2.5	Inflection Point Ventures	5-Feb-2024
Oto	-	10.0	MO Venture Partners, Turbostart, KL Rahul, Prime Venture Partners, Matrix Partners, 9Unicorns funds	6-Feb-2024
River EV	Series B	40.0	Yamaha Motor Co, Japan, AI-Futtaim Automotive, Lowercarbon Capital, Toyota Ventures, Maniv Mobility	6-Feb-2024
Elroy Air	-	48.9	SV Pacific Ventures, Yes VC, Lockheed Martin Ventures, Catapult Ventures	7-Feb-2024
Gensol Engineering	-	108.0	Elara India Opportunity Fund, Aries Opportunity Fund, Tano Investment Opportunity Fund	7-Feb-2024
Guided Energy	-	5.2	Sequoia, Dynamo Ventures	7-Feb-2024
Lyten	Grant	4.0	DOE	8-Feb-2024
Project3 Mobility	Series A	91.0	Kia, SiteGround, Infinum, Rimac Group	9-Feb-2024
Lohum	Series B	23.0	Baring Private Equity Partners, Cactus Partners, Chhattisgarh Investment Limited, Ventureast Proactive Fund, Michael B Schwab Living Trust, Singularity Growth, Stride Ventures, Anish Vora, Kunal Babani, Manas Tondon	9-Feb-2024
ACC	-	4,700.0	BNP Paribas, Deutsche Bank, ING, Intesa Sanpaolo, the French public bank Bpifrance, Euler Hermes, SACE	12-Feb-2024
Moove	-	10.0	Stride Ventures	14-Feb-2024
Daze	Series A	13.7	CDP Venture Capital, Green Transition fund	16-Feb-2024
Celadyne	Seed	4.5	Maniv, Dynamo Ventures, EPS Ventures	17-Feb-2024
Roam	-	24.0	Equator Africa, At One Ventures, TES Ventures, Renew Capital, The World We Want, One Small Planet	19-Feb-2024
EVIOS	Series A	3.2	Beringea	19-Feb-2024
SK On Co	-	1,500.0	-	19-Feb-2024
Pure EV	-	8.0	Benett Coleman and Company, Hindustan Times Media Ventures, Ushodaya Enterprises	20-Feb-2024
EST-Floatech	-	3.6	Energy Transition Fund Rotterdam, Rotterdam Port Fund, PDENH, Ponooc, Yard Energy	21-Feb-2024
Celadyne	Seed	4.5	Maniv, Dynamo Ventures, EPS Ventures	17-Feb-2024

Uhnder	Series D	50.0	ACME Capital, Magna, Qualcomm Ventures, El Camino Capital, Monta Vista Capital, Sagitta Ventures, HT Capital	21-Feb-2024
Fastned	-	25.0	-	21-Feb-2024
Ascend Elements	-	162.0	Just Climate, Clearvision Ventures, IRONGREY	21-Feb-2024
Altilium	Series A	9.4	SQM Lithium Ventures	22-Feb-2024
Antora Energy	-	150.0	Emerson Collective, GS Futures, The Nature Conservancy, LLC, Trust Ventures, Lowercarbon Capital, Breakthrough Energy Ventures, BHP Ventures, Overture VC, Grok Ventures	22-Feb-2024
Haomo	Series B	14.0	Chengdu Wufa Private Equity Fund Management	22-Feb-2024
Yulu	-	19.3	Bajaj Auto, Magna International	23-Feb-2024
EV.energy	Grant	29.1	-	23-Feb-2024
ChargeSini	Series A	6.0	-	27-Feb-2024

Source: Intro-act, FactSet

MOBILITY INSTITUTIONAL INVESTOR LEAGUE

Chart 35: Mobility Institutional Owners League (Current)

Rank	Institution Name	Invested in Mobility (\$)	Q/Q Change (\$)	# Mobility Positions	% of Instit Ownership
1	The Vanguard Group, Inc.	879,353,171,763	(19,202,600,900)	350	11.4%
2	BlackRock Fund Advisors	500,137,984,532	(11,335,273,954)	325	6.5%
3	SSgA Funds Management, Inc.	400,299,367,145	(1,161,722,622)	364	5.2%
4	Fidelity Management & Research Co. LLC	258,675,037,116	(6,746,095,243)	249	3.4%
5	Geode Capital Management LLC	206,236,014,025	(1,761,264,371)	347	2.7%
6	T. Rowe Price Associates, Inc. (Investment Management)	151,140,220,149	(8,970,245,076)	133	2.0%
7	Norges Bank Investment Management	150,683,137,676	148,934,082,186	262	2.0%
8	Capital Research & Management Co. (World Investors)	117,242,132,322	(5,876,520,767)	64	1.5%
9	JPMorgan Investment Management, Inc.	103,020,552,365	(3,917,204,801)	241	1.3%
10	Northern Trust Investments, Inc.(Investment Management)	91,012,835,117	(2,645,964,745)	323	1.2%
11	Capital Research & Management Co. (Global Investors)	87,659,966,264	(4,112,416,914)	42	1.1%
12	BlackRock Advisors (UK) Ltd.	81,972,816,107	(914,005,917)	298	1.1%
13	Wellington Management Co. LLP	79,427,421,127	(9,536,375,190)	172	1.0%
14	Capital Research & Management Co. (International Investors)	76,440,352,016	(2,906,400,588)	48	1.0%
15	Charles Schwab Investment Management, Inc.	73,378,621,438	(2,019,097,062)	318	1.0%
16	BlackRock Investment Management (UK) Ltd.	72,722,383,407	(5,226,947,346)	276	0.9%
17	Massachusetts Financial Services Co.	57,497,221,536	1,813,839,640	75	0.7%
18	Morgan Stanley Smith Barney LLC (Investment Management)	54,278,174,746	(1,241,194,831)	206	0.7%
19	Goldman Sachs Asset Management LP	49,975,679,386	(963,973,898)	288	0.6%
20	Legal & General Investment Management Ltd.	49,569,212,296	180,230,975	311	0.6%
21	Dimensional Fund Advisors LP	48,522,108,769	(988,188,531)	308	0.6%
22	AllianceBernstein LP	46,574,877,841	(3,065,761,606)	256	0.6%
23	Columbia Management Investment Advisers LLC	45,523,632,670	(3,593,446,916)	216	0.6%
24	Managed Account Advisors LLC	43,934,715,923	(2,451,141,722)	123	0.6%
25	Parametric Portfolio Associates LLC	42,420,329,449	(2,080,432,206)	241	0.6%
	Others	3,923,862,430,614	(139,013,752,552)	166,033	51.0%
	TOTAL	7,691,560,395,799	(88,801,874,957)	171,869	100.0%

Source: Intro-act, 13F Filings

Chart 36: Top 25 Mobility Buyers (Q/Q)

Rank	Institution Name	Invested in Mobility (\$)	Q/Q Change (\$)	# Mobility Positions	% of Instit Ownership
1	Norges Bank Investment Management	150,683,137,676	148,934,082,186	262	2.0%
2	LGIM Singapore Pte Ltd.	14,788,198,998	14,788,198,998	67	0.2%
3	Jane Street Capital LLC	12,771,287,226	5,816,639,672	185	0.2%
4	DWS Investments (UK) Ltd.	21,247,219,028	4,109,816,195	283	0.3%
5	Morgan Stanley & Co. LLC	32,907,773,691	4,083,124,742	202	0.4%
6	RBC Global Asset Management, Inc.	15,385,658,555	3,987,159,447	178	0.2%
7	Barclays Bank Plc (Private Banking)	27,281,894,691	3,906,289,349	188	0.4%
8	JPMorgan Chase Bank, NA (Investment Management)	19,229,695,592	3,859,105,149	165	0.3%
9	BMO Asset Management Corp.	18,173,060,897	3,695,843,492	144	0.2%
10	TCI Fund Management Ltd.	3,379,597,963	3,379,597,963	2	0.0%
11	The Bank of Nova Scotia (Private Banking)	7,661,575,481	3,023,165,062	73	0.1%
12	Citigroup Global Markets, Inc. (Investment Management)	10,497,463,896	2,321,357,043	186	0.1%
13	Citadel Securities LLC	5,077,649,789	1,949,679,493	166	0.1%
14	Massachusetts Financial Services Co.	57,497,221,536	1,813,839,640	75	0.7%
15	Degroof Petercam Asset Management SA	2,254,186,548	1,759,141,269	130	0.0%
16	Aegon Asset Management UK PLC	1,628,999,097	1,611,351,846	18	0.0%
17	Kodai Capital Management LP	1,413,159,028	1,413,159,028	24	0.0%
18	Invesco Capital Management LLC	35,420,454,291	1,352,195,851	325	0.5%
19	GQG Partners LLC	14,980,728,346	1,291,302,486	15	0.2%
20	Canada Pension Plan Investment Board	10,178,731,393	1,283,626,372	82	0.1%
21	Olayan Europe Ltd.	1,244,982,465	1,244,982,465	10	0.0%
22	BNP Paribas Financial Markets	9,119,080,901	1,087,848,403	124	0.1%
23	Groupama Asset Management SA	1,072,064,019	1,072,064,019	46	0.0%
24	MSD Capital LP	986,147,127	986,147,127	2	0.0%
25	Mitsubishi UFJ Asset Management Co., Ltd.	17,977,275,798	911,187,764	180	0.2%

Source: Intro-act, 13F Filings

Chart 37: Top 25 Mobility Sellers (Q/Q)

Rank	Institution Name	Invested in Mobility (\$)	Q/Q Change (\$)	# Mobility Positions	% of Instit Ownership
1	The Vanguard Group, Inc.	879,353,171,763	(19,202,600,900)	350	11.4%
2	National Pension Service of Korea	18,231,015,067	(14,049,447,912)	60	0.2%
3	BlackRock Fund Advisors	500,137,984,532	(11,335,273,954)	325	6.5%
4	Wellington Management Co. LLP	79,427,421,127	(9,536,375,190)	172	1.0%
5	T. Rowe Price Associates, Inc. (Investment Management)	151,140,220,149	(8,970,245,076)	133	2.0%
6	Union Investment Privatfonds GmbH	12,045,897,205	(6,910,186,643)	14	0.2%
7	Fidelity Management & Research Co. LLC	258,675,037,116	(6,746,095,243)	249	3.4%
8	Capital Research & Management Co. (World Investors)	117,242,132,322	(5,876,520,767)	64	1.5%
9	BlackRock Investment Management (UK) Ltd.	72,722,383,407	(5,226,947,346)	276	0.9%
10	Northern Trust Global Investments Ltd.	8,371,505,150	(4,744,404,263)	252	0.1%
11	Capital Research & Management Co. (Global Investors)	87,659,966,264	(4,112,416,914)	42	1.1%
12	JPMorgan Investment Management, Inc.	103,020,552,365	(3,917,204,801)	241	1.3%
13	Columbia Management Investment Advisers LLC	45,523,632,670	(3,593,446,916)	216	0.6%
14	Mellon Investments Corp.	36,015,700,067	(3,131,019,130)	304	0.5%
15	AllianceBernstein LP	46,574,877,841	(3,065,761,606)	256	0.6%
16	Capital Research & Management Co. (International Investors)	76,440,352,016	(2,906,400,588)	48	1.0%
17	JPMorgan Securities LLC (Investment Management)	11,753,509,589	(2,869,089,287)	187	0.2%
18	Jennison Associates LLC	38,531,576,435	(2,868,509,462)	52	0.5%
19	Northern Trust Investments, Inc. (Investment Management)	91,012,835,117	(2,645,964,745)	323	1.2%
20	Citigroup Global Markets, Inc. (Broker)	3,005,931,915	(2,633,351,744)	165	0.0%
21	BlackRock Investment Management LLC	27,105,253,622	(2,618,643,397)	237	0.4%
22	T. Rowe Price Investment Management, Inc.	19,714,699,247	(2,518,711,488)	31	0.3%
23	Managed Account Advisors LLC	43,934,715,923	(2,451,141,722)	123	0.6%
24	Bank of America, NA (Private Banking)	18,801,475,155	(2,387,309,989)	198	0.2%
25	Parametric Portfolio Associates LLC	42,420,329,449	(2,080,432,206)	241	0.6%

Source: Intro-act, 13F Filings

ETF SPOTLIGHT

ARK Autonomous Tech. & Robotics ETF (ARKQ)

Closing Price (\$)	CUSIP	Expense Ratio	Inception
54.35	00214Q203	0.75	30/09/2014
AUM (\$ million)	Shares Outstanding (#)	Fund Flows (1M, \$)	Fund Flows (YTD, \$)
95.6	1,68,00,000	(54,166,600.00)	(78,427,850.00)

Fund Description

ARKQ is an actively managed Exchange Traded Fund (ETF) dedicated to achieving long-term capital growth. The fund strategically allocates its assets primarily (at least 80%) to both domestic and foreign equity securities of autonomous technology and robotics companies. These companies are positioned to benefit from disruptive innovation across various sectors like energy, automation, manufacturing, materials, artificial intelligence, and transportation. By focusing on businesses at the forefront of technological advancements, ARKQ aims to capitalize on their potential to drive transformative changes and deliver substantial returns.

ETF Returns Annualized (As of 1/31/2024)

1 Year	3 Year	5 Year	Since Inception
7.95%	-15.34%	9.97%	11.72%

ETF Returns Cumulative (As of 1/31/2024)

1 Month	3 Month	YTD	Since Inception
-9.13%	11.58%	-9.13%	181.45%

Top 10 Holdings (updated as of 2/29/2024)

Holdings	% Allocation	Market Value
TESLA INC	11.10%	\$100,651,074.96
KRATOS DEFENSE & SECURITY	8.95%	\$81,126,146.36
UIPATH INC - CLASS A	8.88%	\$80,508,137.60
TRIMBLE INC	8.46%	\$76,745,747.26
TERADYNE INC	6.93%	\$62,881,317.00
IRIDIUM COMMUNICATIONS INC	5.82%	\$52,748,200.19
AEROVIRONMENT INC	4.22%	\$38,227,104.08
KOMATSU LTD -SPONS ADR	3.87%	\$35,069,108.10
ARCHER AVIATION INC-A	3.84%	\$34,809,759.28
DEERE & CO	3.32%	\$30,144,250.30

Source: Intro-act, FactSet

For more information on ARKQ visit <https://ark-funds.com/funds/arkq/>

Autonomous & Electric Vehicles ETF (DRIV)

Closing Price (\$)	CUSIP	Expense Ratio	Inception
24.15	37954Y624	0.68	13/04/2018
AUM (\$ million)	Shares Outstanding (#)	Fund Flows (1M, \$)	Fund Flows (YTD, \$)
65.5	2,61,13,952	(28,636,366.23)	(63,983,814.40)

Fund Description

The Global X Autonomous & Electric Vehicles ETF (DRIV) is strategically designed to invest in enterprises actively engaged in the advancement of autonomous vehicle technology, electric vehicles (EVs), and the production of EV components and essential materials. This encompasses companies at the forefront of autonomous vehicle software and hardware development, as well as those contributing to the manufacture of EVs, critical components like lithium batteries, and essential materials such as lithium and cobalt. With a resolute aim, DRIV seeks to mirror the price and yield performance of the Solactive Autonomous & Electric Vehicles Index, offering investors an opportunity to align with the dynamic growth potential of the autonomous and electric vehicles sector, while aiming for optimal investment outcomes.

ETF Returns Annualized (As of 1/31/2024)

1 Year	3 Year	5 Year	Since Inception
-1.92%	-2.93%	13.23%	8.98%

ETF Returns Cumulative (As of 1/31/2024)

YTD	1 Month	3 Months	Since Inception
-7.40%	-7.40%	11.03%	64.78%

Top 10 Holdings (updated as of 2/2/2024)

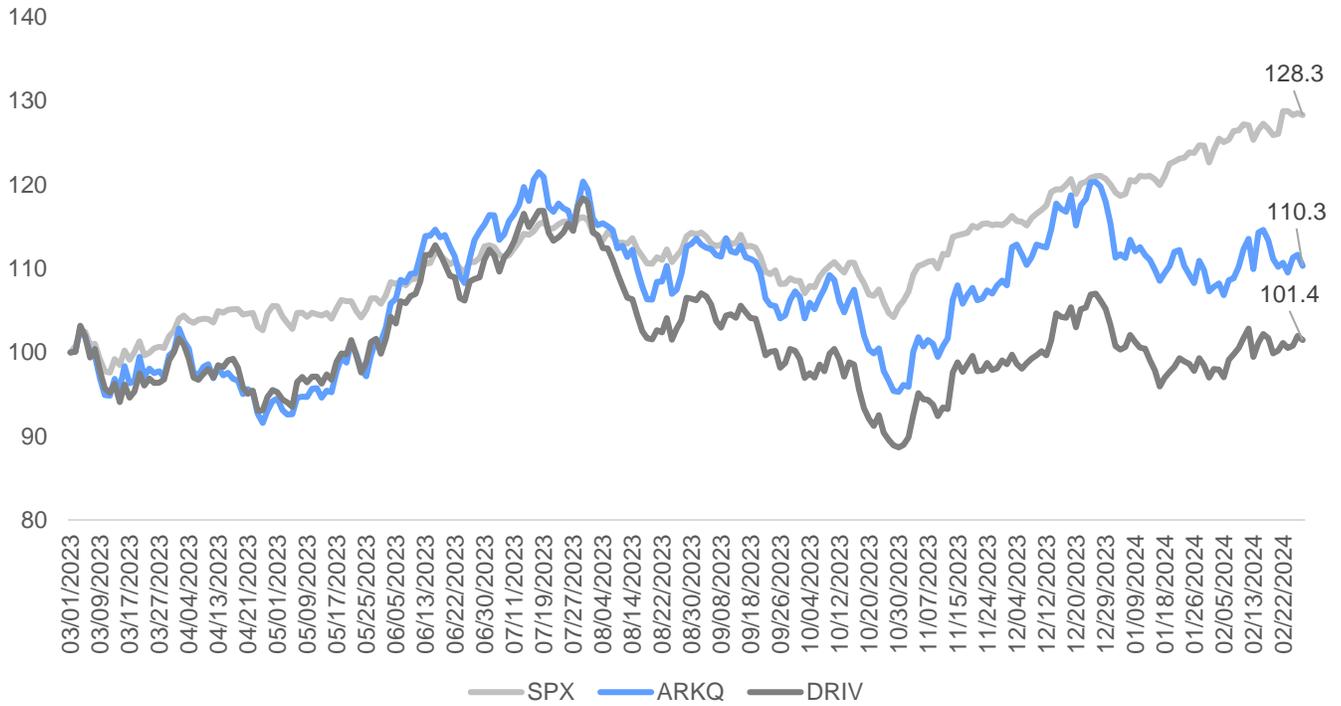
Holdings	% Allocation	Market Value
NVIDIA CORP	4.21%	\$26,497,773.28
TOYOTA MOTOR CORP	3.50%	\$22,026,455.66
MICROSOFT CORP	3.10%	\$19,527,530.76
APPLE INC	2.83%	\$17,820,865.50
ALPHABET INC-CL A	2.83%	\$17,800,832.98
QUALCOMM INC	2.81%	\$17,731,493.46
TESLA INC	2.68%	\$16,912,698.88
INTEL CORP	2.66%	\$16,752,046.50
HONEYWELL INTL	2.24%	\$14,107,643.97
HITACHI LTD	1.81%	\$11,412,377.60

Source: Intro-act, FactSet

For more information on DRIV visit: <https://www.globalxetfs.com/funds/driv/>

ETF COMPARISON

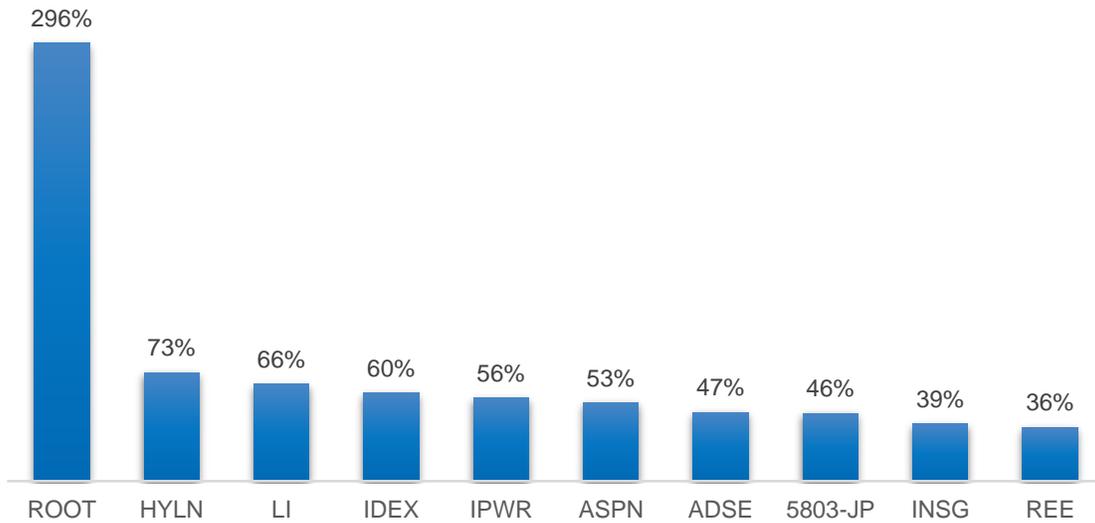
Chart 38: ARKQ, DRIV VS SPX



Source: Intro-act, FactSet

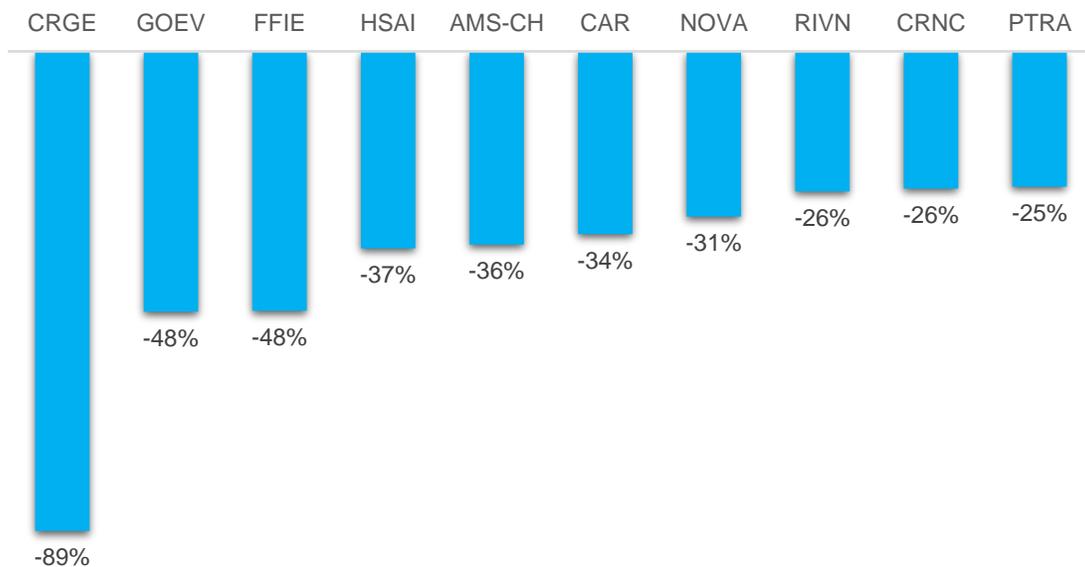
GAINERS AND LOSERS – MOBILITY STOCKS

Chart 39: Top 10 M/M Mobility Gainers (February 2024)



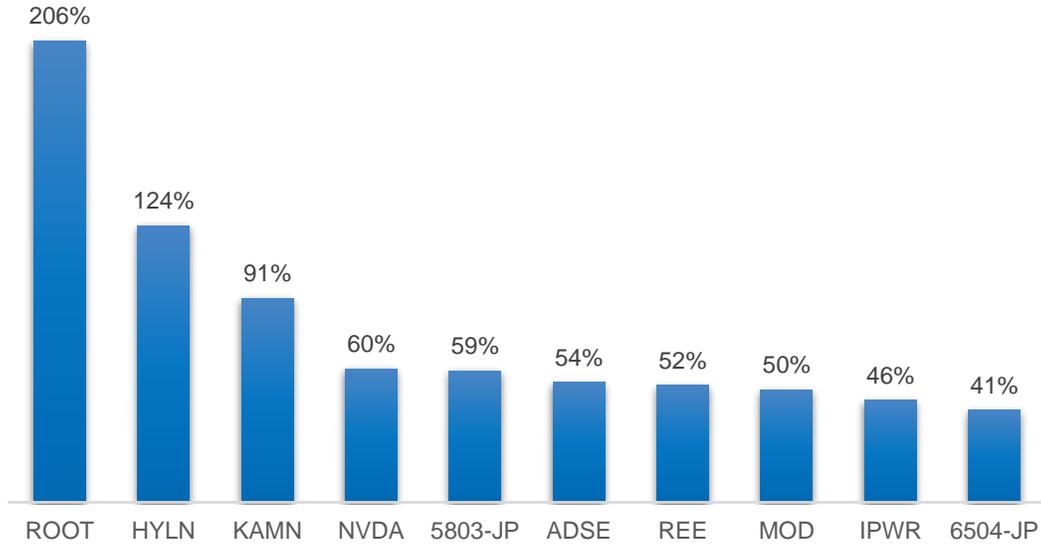
Source: Intro-act, FactSet

Chart 40: Top 10 M/M Mobility Losers (February 2024)



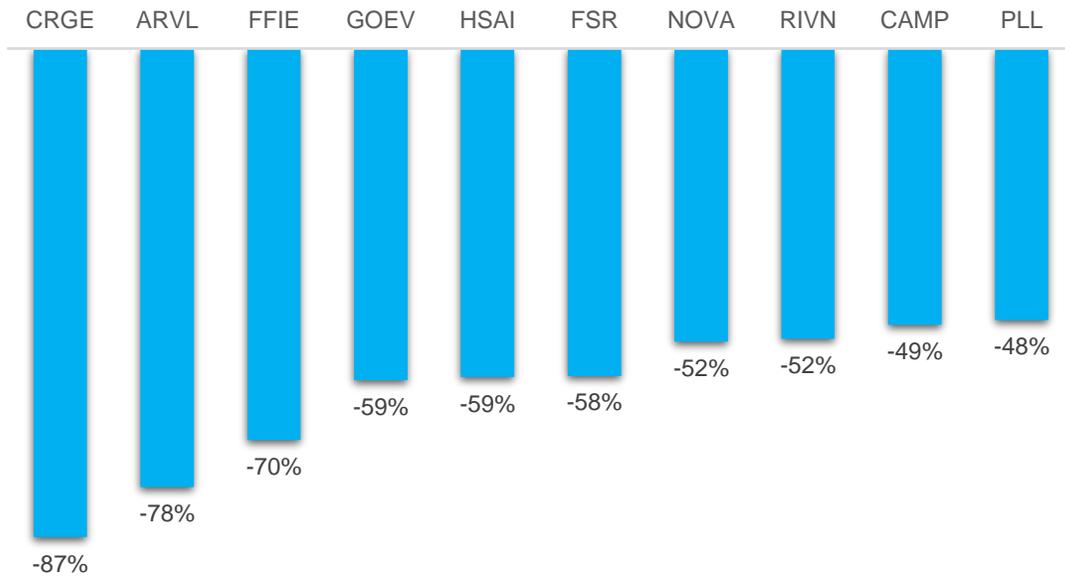
Source: Intro-act, FactSet

Chart 41: Top 10 YTD Mobility Gainers



Source: Intro-act, FactSet. YTD Data Through end of February 2024.

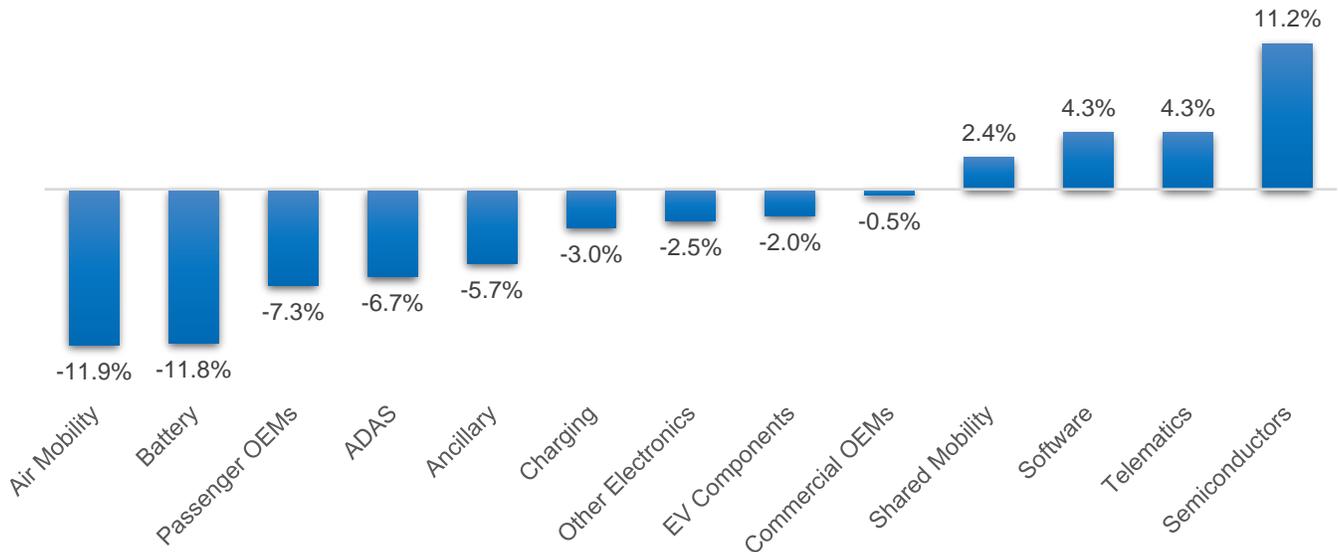
Chart 42: Top 10 YTD Mobility Losers



Source: Intro-act, FactSet. YTD Data Through end of February 2024.

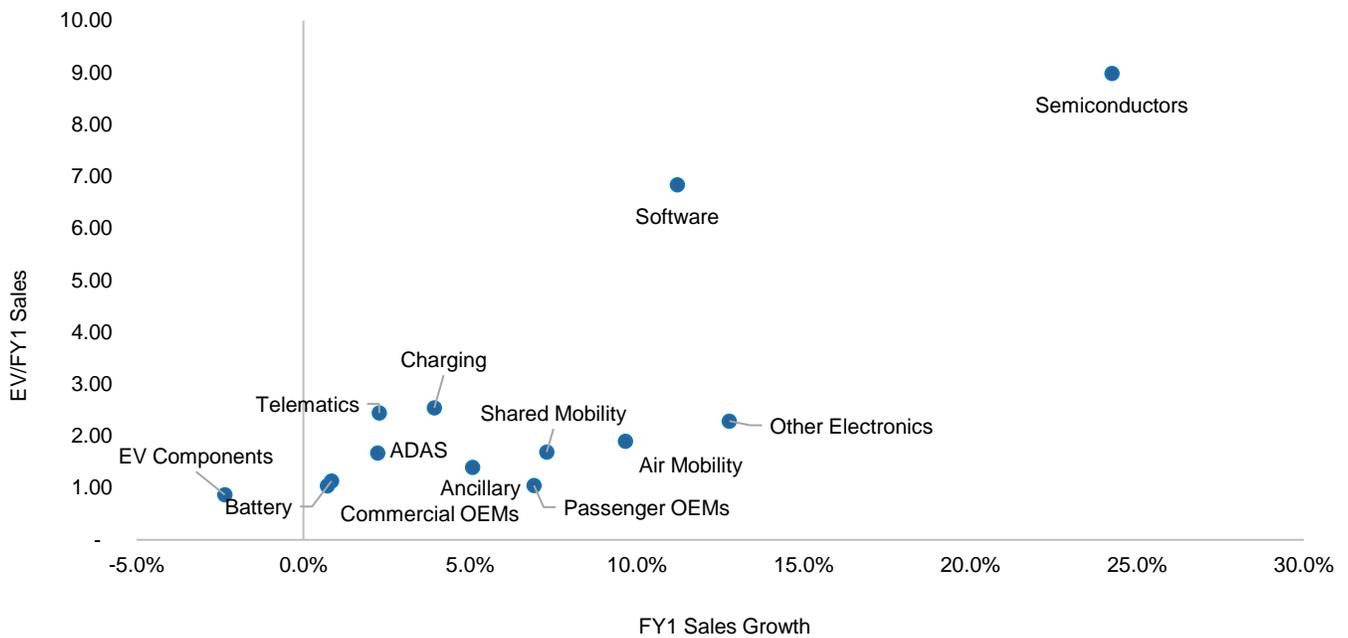
SEGMENT RETURN AND VALUATION

Chart 43: YTD Stock Price Returns by Segment



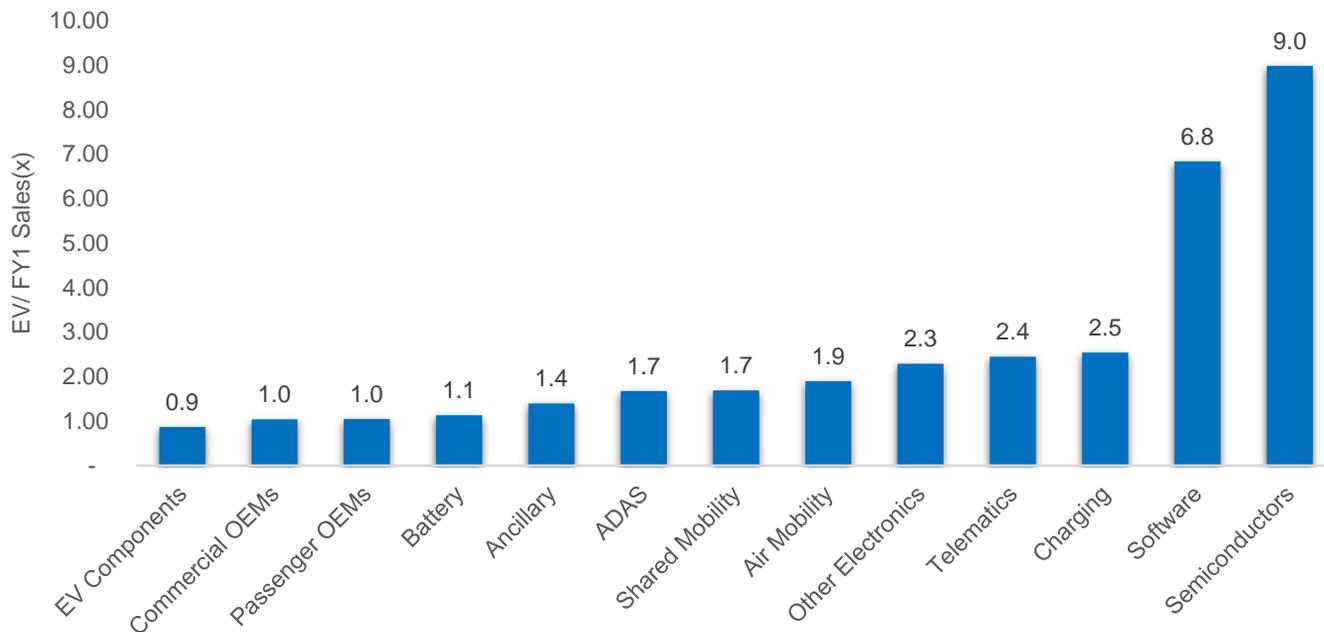
Source: Intro-act, FactSet. YTD Data Through end of February 2024.

Chart 44: Mobility Industry Growth and Valuation by Segment



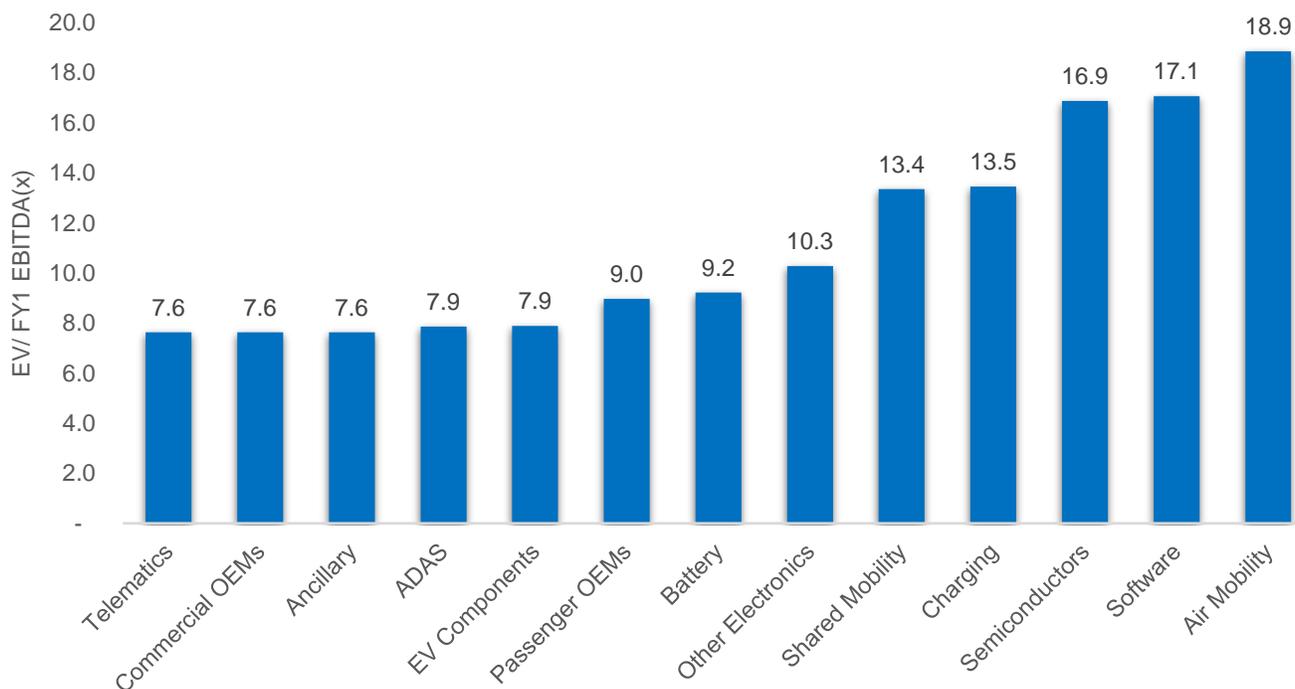
Source: Intro-act, FactSet. Data Through end of February 2024. FY0 = last reported year. FY1 = first unreported year.

Chart 45: EV/ FY1 Sales Multiple by Segment



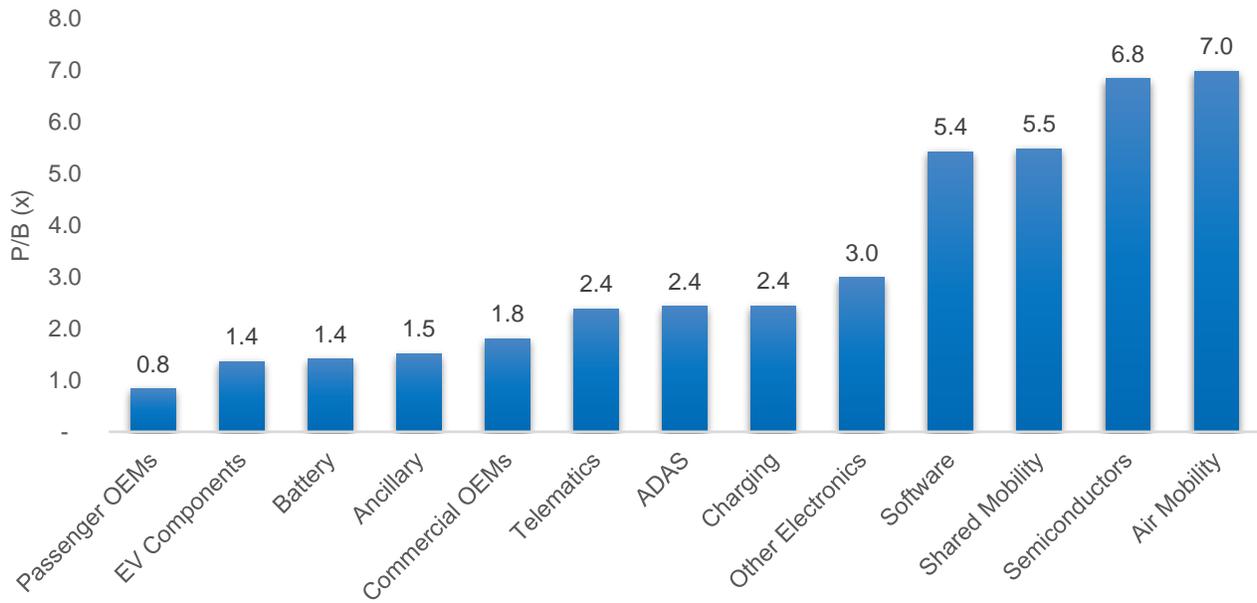
Source: Intro-act, FactSet. Data Through end of February 2024. FY0 = last reported year. FY1 = first unreported year.

Chart 46: EV/ FY1 EBITDA Multiple by Segment



Source: Intro-act, FactSet. Data Through end of February 2024. FY0 = last reported year. FY1 = first unreported year.

Chart 47: Price-to-Book Multiple by Segment



Source: Intro-act, FactSet. Data Through end of February 2024. FY0 = last reported year. FY1 = first unreported year.

CAPITAL MARKETS TRENDS

Chart 48: Mobility VC Funding Activity



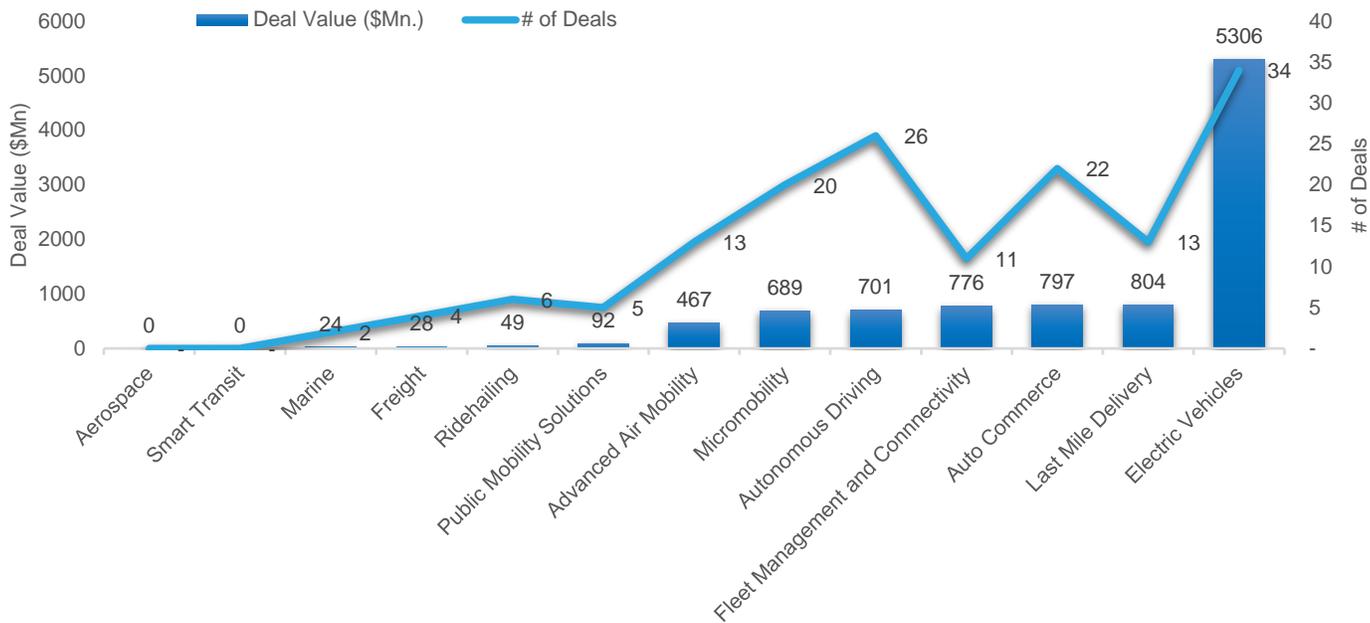
Source: Intro-act, Pitchbook, *As of September 30, 2023.

Chart 49: Mobility VC Exit Activity



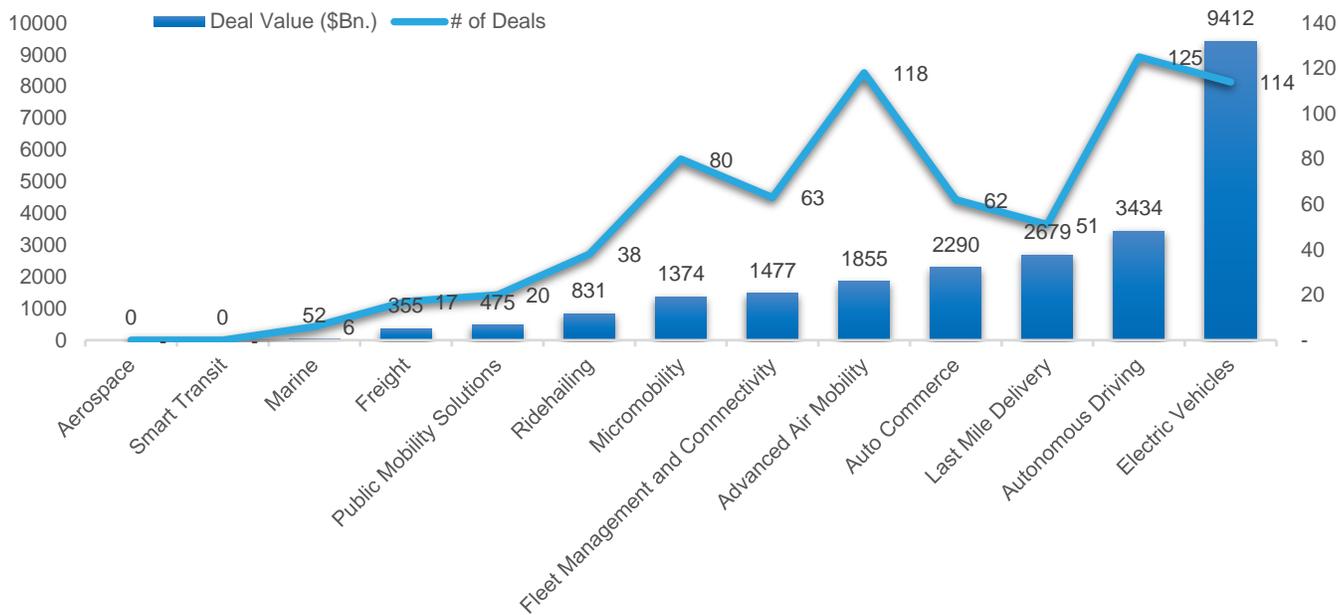
Source: Intro-act, Pitchbook, *As of September 30, 2023.

Chart 50: Q3 2023 Mobility Tech VC Deal Activity by Segment*



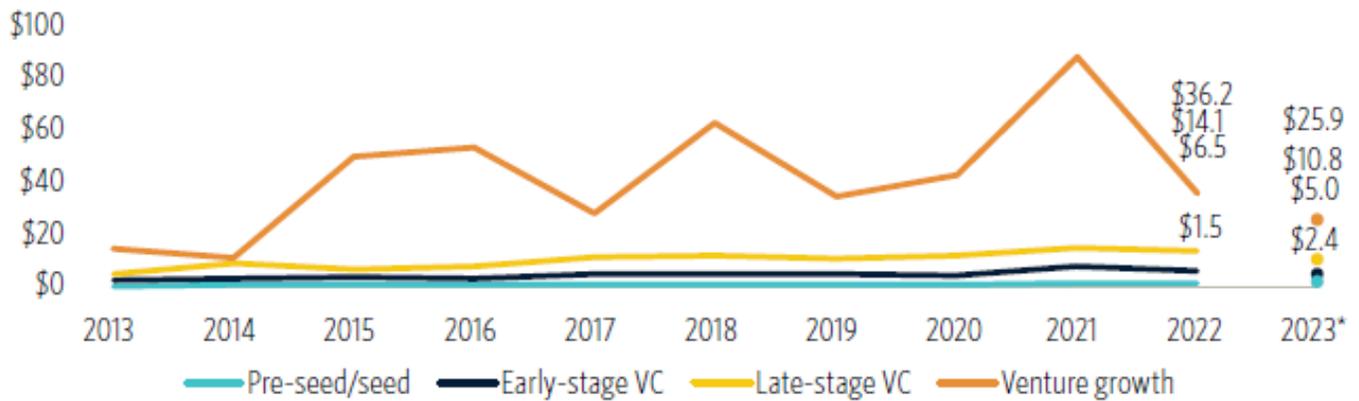
Source: Intro-act, Pitchbook, *As of September 30, 2023.

Chart 51: Trailing 12-Month Mobility Tech VC Deal Activity by Segment*



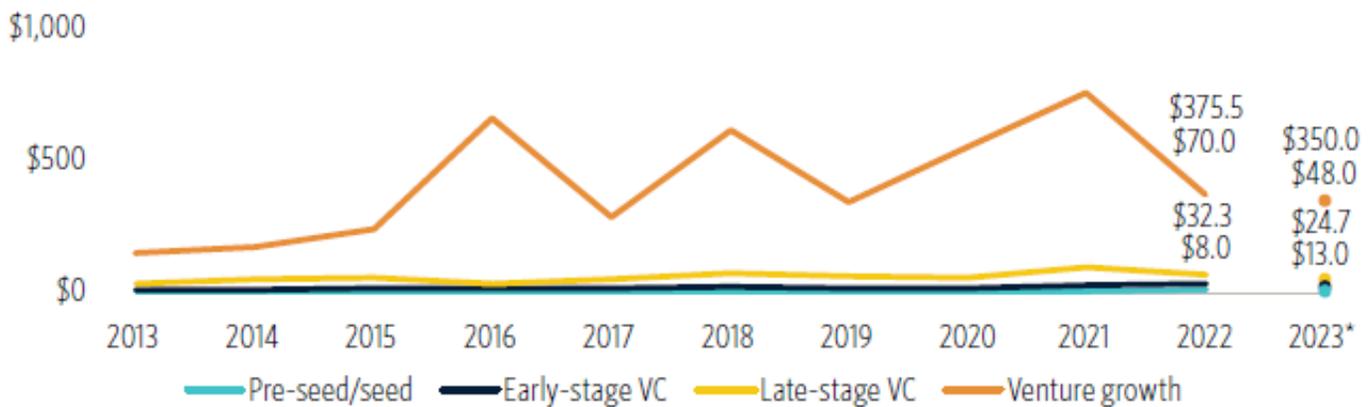
Source: Intro-act, Pitchbook, *As of September 30, 2023.

Chart 52: Median Mobility Tech VC Deal Value (\$ Million) by Stage



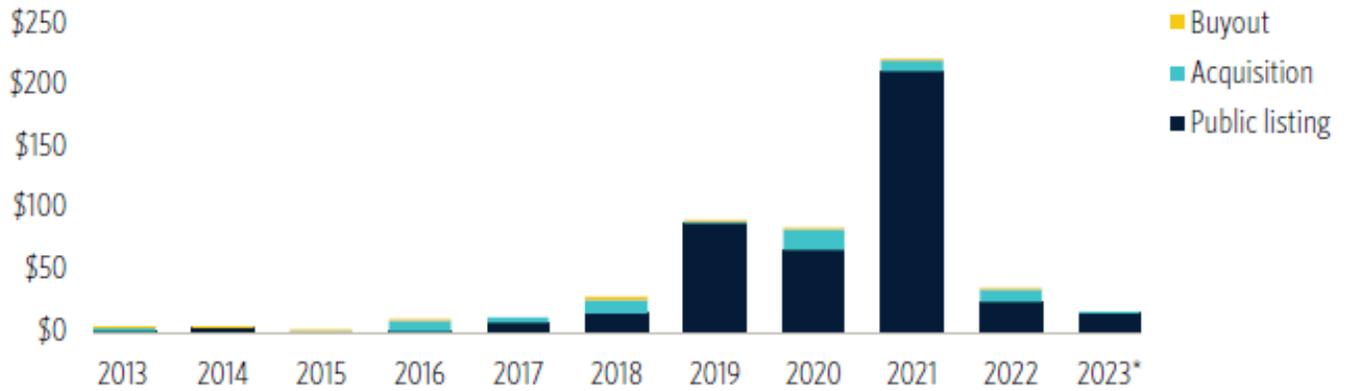
Source: Intro-act, Pitchbook, *As of September 30, 2023.

Chart 53: Median Mobility Tech VC Pre-money Valuation (\$ Million) by Stage



Source: Intro-act, Pitchbook, *As of September 30, 2023.

Chart 54: Mobility Tech VC Exit Value (\$ Million) by Type



Source: Intro-act, Pitchbook, *As of September 30, 2023.

Chart 55: Mobility Tech VC Exit Count by Type



Source: Intro-act, Pitchbook, *As of September 30, 2023.

Chart 56: Top VC Funding Deals – Q3 2023

Company	Close date (2023)	Segment	Subsegment	Deal value (\$M)	Post-money valuation (\$M)	Deal type	Stage	Lead investor(s)
Verkor	September 14	EVs	Batteries, battery tech & materials	\$1,567.1	N/A	Late-stage VC	Series C	Macquarie Group
Redwood Materials	August 29	EVs	Battery recycling & reuse	\$997.2	\$5,250.0	Late-stage VC	Series D	Capricorn Investment Group, Goldman Sachs Asset Management
Neta Auto	August 29	EVs	Consumer BEVs	\$969.4	N/A	Late-stage VC	N/A	N/A
Conigital	September 11	Fleet management & connectivity	Connectivity & data management	\$631.6	N/A	Late-stage VC	Series A	N/A
Getir	September 8	Last-mile delivery	Delivery	\$500.0	\$2,500.0	Late-stage VC	N/A	Mubadala Investment Company
Ascend Elements	September 5	EVs	Battery recycling & reuse	\$460.1	\$1,400.0	Late-stage VC	Series D	Decarbonization Partners, Qatar Investment Authority, Temasek Holdings
AVATR Technology	August 31	EVs	Consumer BEVs	\$414.8	\$2,362.4	Early-stage VC	Series B	N/A
Ola Electric	September 7	Micromobility	Vehicle suppliers	\$380.0	\$5,400.0	Late-stage VC	Series E	Temasek Holdings
Lendbuzz	July 19	Auto commerce	Financing & subscriptions	\$365.0	N/A	Late-stage VC	N/A	Delaware Life Insurance
Mapbox	September 19	Autonomous driving	Localization/mapping	\$280.0	\$1,780.0	Late-stage VC	Series E	SoftBank Group

Source: Intro-act, Pitchbook

Chart 57: Top VC Funding Exits – Q3 2023

Company	Close date (2023)	Segment	Subsegment	Exit value (\$M)	Post-money valuation (\$M)	Exit type	Stock exchange	Acquirers(s)
Maplebear	September 19	Last-mile delivery	Delivery	\$7,453.6	\$7,876.6	Public listing	Nasdaq	N/A
Tuhu	September 26	Auto commerce	Repair, maintenance & inspection	\$2,882.7	\$3,034.4	Public listing	N/A	BP Castrol, Gotion High-tech, Leapmotor, Tencent Investment, Zizhu Park Incubator
Hesai Technology	February 9	Autonomous driving	Lidar	\$2,201.8	\$2,391.8	Public listing	Nasdaq	N/A
Yaoshibang	June 28	Auto commerce	Digital marketplaces	\$1,574.4	\$1,614.8	Public listing	N/A	Zhongguancun Development Group
VIA	January 31	EVs	Commercial BEVs	\$630.0	\$630.0	Acquisition	N/A	Ideanomics
Tigerair Taiwan	August 15	N/A	N/A	\$590.6	\$608.2	Public listing	Gretai Securities Market	N/A
Surf Air	July 26	N/A	N/A	\$360.3	\$360.3	Public listing	New York Stock Exchange	N/A
U Power	April 20	EVs	Other EVs	\$300.0	\$314.5	Public listing	Nasdaq	N/A
GEO Semiconductor	March 3	Autonomous driving	Cameras	\$270.0	\$270.0	Acquisition	N/A	indie Semiconductor
Martí	July 10	Micromobility	Network operators	\$235.4	\$532.0	Public listing	N/A	Galata Acquisition

Source: Intro-act, Pitchbook

MOBILITY SPAC ACTION

Chart 58: Mobility SPACs (Searching)

S. No	SPAC Name	Ticker	Trust Value (\$ Mn)	IPO Date	Completion Date
1	Arogo Capital Acquisition Corp.	AOGO	104	12-23-20	12-29-24
2	Battery Future Acquisition Corp.	BFAC	345	12-14-21	6-17-24
3	Enphys Acquisition Corp.	NFYS	345	10-05-21	06-08-24
4	EVe Mobility Acquisition Corp	EVE	250	12-14-21	06-14-24
5	Greencity Acquisition Corp	GRCY	40	07-24-20	10-28-23
6	Target Global Acquisition I Corp.	TGAA	215	12-08-21	05-08-24

Source: Intro-act, Boardroom Alpha

Chart 59: Mobility SPACs (Business Combination Agreement Announced)

S.No.	SPAC Name	Ticker	Target Company	EV (\$ Mn)	Expected Closing
1	AlphaVest Acquisition Corp.	ATMV	Wanshun Technology Industrial Group	300	4Q24
2	Bannix Acquisition Corp.	BNIX	-	-	1Q24
3	Direct Selling Acquisition Corp.	DSAQ	FlyBlade (India) Private Limited (Hunch Mobility)	223	1Q24
4	Feutune Light Acquisition Corp	FLFV	Thunder Power	400	1Q24
5	Mountain Crest Acquisition Corp. IV	MCAF	CH-AUTO	1,250	3Q24
6	Revelstone Capital Acquisition Corp.	RCAC	Set Jet, Inc.	80	1Q24

Source: Intro-act, Boardroom Alpha

Chart 60: Mobility SPACs (Closed Deals Since January 2022)

S. No	SPAC Name	Ticker (Old)	DE-SPAC	Ticker	Closing Date
1	Yellowstone Acquisition Co	YSAC	Sky Harbour LLC	SKYH	25-Jan-22
2	ECP Environmental Growth Opportunities Corp.	ENNV	Fast Radius, Inc.	FSRD	4-Feb-22
3	CITIC Capital Acquisition Corp	CCAC	Quanergy Systems	QNGY	8-Feb-22
4	Growth Capital Acquisition Corp.	GCAC	Cepton Technologies, Inc	CPTN	10-Feb-22
5	Queens Gambit Growth Capital	GMBT	Swvl	SWVL	31-Mar-22
6	Archimedes Tech SPAC Partners Co	ATSPT	SoundHound	SOUN	27-Apr-22
7	Zanite Acquisition Corp.	ZNTE	Eve	EVEX	9-May-22
8	Gores Guggenheim, Inc	GGPI	Polestar Automotive Holding UK Plc	PSNY	23-Jun-22
9	Global SPAC Partners Co.	GLSPT	Gorilla Technology Group Inc.	GRRR	13-Jul-22
10	Ventoux CCM Acquisition Corp.	VTAQ	Presto	PRST	21-Sep-22
11	AEA-Bridges Impact Corp	IMPX	LiveWire	LVWR	26-Sep-22
12	ACE Convergence Acquisition Corp	ACEV	Tempo Automation	TMPO	22-Nov-22
13	InterPrivate II Acquisition Corp.	IPVA	Getaround	GETR	8-Dec-22

14	Pacifico Acquisition Corp.	PAFO	Caravelle International Group	CACO	16-Dec-22
15	Crescent Cove Acquisition Corp.	COVA	ECARX	ECX	20-Dec-22
16	Jack Creek Investment Corp.	JCIC	Bridger Aerospace Group	BAER	24-Jan-23
17	PONO Capital Corp	PONO	AERWINS Technologies Inc.	AWIN	3-Feb-23
18	HPX Corp	HPX	Ambipar Emergency Response	AMBI	3-Mar-23
19	GX Acquisition Corp. II	GXII	Niocorp Developments Ltd	NB	17-Mar-23
20	CIIG Capital Partners II, Inc.	CIIG	Zapp	ZAPP	28-Apr-23
21	Goldenbridge Acquisition Limited	GBRG	Auto Services Group Limited	SDA	17-May-23
22	Jupiter Wellness Acquisition Corp.	JWAC	Chijet Motor Company	CJET	1-Jun-23
23	GoGreen Investments Corp	GOGN	Lifefone Metals Ltd	LZM	6-Jul-23
24	PROOF Acquisition Corp I	PACI	Volato, Inc.	SOAR	1-Dec-23
25	Prospector Capital Corp.	PRSR	LeddarTech	LDTG	21-Dec-23
26	EG Acquisition Corp.	EGGF	flyExclusive	FLYX	27-Dec-23
27	Innovative International Acquisition Corp.	IOAC	Zoomcar	ZCAR	28-Dec-23
28	Pono Capital Three, Inc	PTHR	Horizon Aircraft	HOVR	12-Jan-24

Source: Intro-act, Boardroom Alpha

MOBILITY EVENTS CALENDAR

S. No.	Event	Place	Dates
1	AeroTech, SAE International's Premier Professional Conference	North Carolina, US	12-Mar to 14-Mar-2024
2	CAEV Expo	Bangalore, India	14-Mar to 15-Mar-2024
3	Electrify Expo Orlando	Florida, US	16-Mar to 17-Mar-2024
4	14th Automotive Cybersecurity Detroit AI in Automotive Cybersecurity 2024	Michigan, US	19-Mar to 21-Mar-2024
5	4th Connected Vehicles USA 2024	Michigan, US	19-Mar to 21-Mar-2024
6	Autonomy Mobility World Expo 2024	Paris, France	20-Mar to 21-Mar-2024
7	EV Charging Summit & Expo 2024 EVCS	Las Vegas, US	20-Mar to 22-Mar-2024
8	Start Summit 2024	St. Gallen, Switzerland	21-Mar to 22-Mar-2024
9	Nordic EV Summit 2024	Oslo, Norway	04-Apr to 05-Apr-2024
10	Tires & Rubber 2024	Moscow, Russian Federation	15-Apr to 18-Apr-2024
11	WCX World Congress Experience 2024	Michigan, US	16-Apr to 18-Apr-2024
12	Automotive Week	Paris, France	16-Apr to 19-Apr-2024
13	Asia Sustainable Plastics Summit 2024	Singapore	18-Apr to 19-Apr-2024
14	The 3rd International Conference on Advanced Robotics and Automation Engineering (ARAE 2024)	Shanghai, China	19-Apr to 21-Apr-2024
15	ITS America Annual Meeting 2024	Arizona, US	22-Apr to 25-Apr-2024
16	Auto China 2024 - 18th Beijing International Automotive Exhibition	Beijing, China	25-Apr to 4-May-2024
17	ICITSSM 2024: International Conference on Intelligent Transport Systems and Smart Mobility	Istanbul, Turkey	26-Apr to 27-Apr-2024
18	The 10th International Conference on Vehicle Technology and Intelligent Transport Systems (VEHITS 2024)	Angers, France	02-May to 04-May-2024
19	E-TECH Europe	Bologna, Italy	07-May to 08-May-2024
20	Future of the Car Summit 2024	London, UK	07-May to 09-May-2024
21	EcoMotion Week	Tel Aviv, Israel	07-May to 09-May-2024
22	Advanced Automotive Battery Conference (AABC Europe)	Strasbourg, France	13-May to 16-May-2024
23	Vehicle Electrification Expo	Birmingham,	15-May to 16-May-2024
24	Green Tech Festival	Berlin, Germany	15-May to 17-May-2024
25	Automotive Europe	Munich, Germany	22-May to 23-May-2024
26	Polis Mobility	Cologne, Germany	22-May to 24-May-2024

Source: Intro-act, Multiple Web Sources

MOBILITY COMP TABLE

			Price Performance						Sales			EBITDA			Book Value	
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
	ADAS	Ticker		549,977	570,192			-7%	333,040	340,463	1.7 x	71,708	72,577	7.9 x		2.4 x
1	Intel Corporation	INTC	43.1	182,142	209,864	19%	-43%	-14%	54,228	57,604	3.6 x	13,104	16,372	12.8 x	24.97	1.7 x
2	Qualcomm Incorporated	QCOM	148.5	165,864	170,777	7%	-32%	3%	35,832	38,110	4.5 x	12,729	14,277	12.0 x	20.62	7.2 x
3	Stellantis N.V.	FCAU	22.0	69,049	40,489	22%	-31%	-1%	203,987	207,029	0.2 x	33,313	30,976	1.3 x	29.85	0.7 x
4	Infineon Technologies	IFX-DE	36.7	47,869	50,672	21%	-22%	-12%	17,721	17,150	3.0 x	6,418	5,501	9.2 x	13.30	2.8 x
5	Microchip Technology	MCHP	85.2	46,086	51,882	11%	-19%	-5%	8,439	7,638	6.8 x	4,176	3,501	14.8 x	13.10	6.5 x
6	Teledyne Technologies	TDY	418.5	19,745	22,547	7%	-13%	-7%	5,636	5,876	3.8 x	1,358	1,460	15.4 x	194.82	2.1 x
7	Allegro MicroSystems	ALGM	25.9	4,993	4,677	105%	-5%	-15%	974	1,046	4.5 x	328	361	13.0 x	5.88	4.4 x
8	Coherent Corp.	COHR	47.5	7,201	13,013	34%	-45%	9%	5,160	4,620	2.8 x	1,194	959	13.6 x	36.05	1.3 x
9	Ambarella Inc	AMBA	52.6	2,115	1,898	82%	-17%	-14%	226	250	7.6 x	(22)	(26)	-	14.71	3.6 x
10	Luminar Technologies	LAZR	2.7	829	1,454	288%	-23%	-19%	70	119	12.2 x	(301)	(255)	-	(0.41)	-6.6 x
11	Navitas Semiconductor	NVTS	5.7	1,023	853	95%	-17%	-29%	79	124	6.9 x	(29)	(26)	-	2.26	2.5 x
12	Indie Semiconductor	INDI	6.1	979	1,061	83%	-23%	-25%	223	283	3.8 x	(30)	(30)	-	2.40	2.5 x
13	Hesai Group	HSAI	5.8	557	167	236%	-44%	-35%	174	259	0.6 x	(43)	(57)	-	4.65	1.3 x

14	nLIGHT Inc	LASR	13.0	606	516	23%	-37%	-5%	210	211	2.4 x	(4)	(8)	-	5.38	2.4 x
15	Innoviz Technologies	INVZ	1.7	282	110	183%	-24%	-32%	21	39	2.8 x	(123)	(117)	-	1.41	1.2 x
16	Aeva Technologies	AEVA	0.9	223	(36)	135%	-45%	12%	4	4	-8.3 x	(130)	(134)	-	1.10	0.8 x
17	Ouster Inc	OUST	5.2	212	79	145%	-39%	-32%	41	83	1.0 x	(140)	(100)	-	4.78	1.1 x
18	Arbe Robotics	ARBE	1.9	150	101	284%	-12%	-11%	4	5	20.0 x	(38)	(32)	-	0.61	3.2 x
19	Cepton Inc	CPTN	2.6	42	90	316%	-9%	-17%	7	11	8.5 x	(53)	(45)	-	(2.00)	-1.3 x
20	AEye Inc	LIDR	1.3	8	(22)	1775%	-12%	-44%	4	2	-15.0 x	-	-	-	8.57	0.1 x

			Price Performance						Sales			EBITDA			Book Value	
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
	Ancillary	Ticker		903,847	1,025,004			-6%	698,675	734,123	1.4 x	106,010	134,220	7.6 x		1.5 x
21	Samsung Electronics	005930-KR	54.5	325,181	316,071	13%	-18%	-11%	194,013	226,705	1.4 x	33,505	56,630	5.6 x	39.05	1.4 x
22	Honeywell International	HON	202.3	131,910	145,828	4%	-14%	-4%	36,662	38,611	3.8 x	9,474	10,147	14.4 x	24.31	8.3 x
23	Eaton Corp.	ETN	246.1	98,260	106,025	18%	-37%	2%	23,196	24,988	4.2 x	4,961	5,465	19.4 x	46.04	5.3 x
24	Dow Inc	DOW	53.6	37,595	50,412	10%	-12%	-2%	44,622	45,485	1.1 x	5,364	6,255	8.1 x	26.49	2.0 x
25	Cummins Inc.	CMI	239.3	33,920	39,859	14%	-15%	0%	34,065	33,073	1.2 x	3,017	4,958	8.0 x	62.41	3.8 x
26	LyondellBasell Industries	LYB	94.1	30,529	40,327	8%	-14%	-1%	41,107	40,382	1.0 x	5,195	5,311	7.6 x	39.85	2.4 x
27	Westinghouse Air Brake	APTV	81.3	23,005	28,175	48%	-13%	-8%	20,051	21,515	1.3 x	2,788	3,273	8.6 x	41.39	2.0 x
28	Aptiv PLC	WAB	131.6	23,572	27,406	8%	-30%	5%	9,677	10,209	2.7 x	1,880	2,065	13.3 x	58.98	2.2 x
29	Celanese Corporation	CE	146.3	15,924	29,154	9%	-34%	-6%	10,940	11,217	2.6 x	2,441	2,718	10.7 x	65.11	2.2 x
30	Prysmian S.p.A.	603799-CN	3.5	5,936	12,899	149%	-13%	-24%	9,157	9,727	1.3 x	1,209	1,460	8.8 x	2.76	1.3 x
31	Sumitomo Electric	PRY-IT	44.5	12,313	14,643	14%	-21%	-1%	16,757	16,801	0.9 x	1,720	1,707	8.6 x	16.03	2.8 x
32	United States Steel	5802-JP	13.5	10,733	15,701	12%	-24%	8%	29,421	28,914	0.5 x	2,661	2,752	5.7 x	17.39	0.8 x
33	ITT Inc	EMN	83.6	9,804	14,649	9%	-18%	-7%	9,210	9,447	1.6 x	1,591	1,805	8.1 x	46.53	1.8 x
34	Eastman Chemical	002709-CN	2.6	5,006	5,665	162%	-14%	-25%	3,241	2,320	2.4 x	1,074	513	11.0 x	0.96	2.7 x
35	Autoliv Inc.	ALV	107.1	9,014	10,415	9%	-26%	-1%	10,475	11,023	0.9 x	1,238	1,575	6.6 x	30.96	3.5 x

36	SKF AB	ITT	120.8	9,916	9,835	5%	-37%	1%	3,283	3,628	2.7 x	665	758	13.0 x	30.79	3.9 x
37	Gentex Corporation	SKF.B-SE	19.9	8,490	10,315	11%	-26%	0%	10,054	9,671	1.1 x	1,500	1,543	6.7 x	11.19	1.8 x
38	Zhejiang Huayou Cobalt	GNTX	33.1	7,728	7,394	11%	-22%	2%	2,299	2,514	2.9 x	590	681	10.9 x	9.99	3.3 x
39	Allison Transmission	361610-KR	55.6	3,964	4,595	69%	-22%	-9%	492	570	8.1 x	140	193	23.7 x	23.88	2.3 x
40	Guangzhou Tinci Materials	7276-JP	15.6	4,795	3,364	31%	-20%	0%	6,447	6,396	0.5 x	659	714	4.7 x	13.90	1.1 x
41	Koito Manufacturing	X	47.0	10,518	11,734	7%	-57%	-3%	18,053	16,552	0.7 x	2,139	1,902	6.2 x	49.39	1.0 x
42	Nexans SA	ALSN	60.5	5,417	7,324	26%	-31%	7%	3,035	3,097	2.4 x	1,108	1,107	6.6 x	14.07	4.3 x
43	Sk le Technology	600885-CN	3.1	3,259	3,802	65%	-7%	-20%	1,707	1,820	2.1 x	375	426	8.9 x	1.05	3.0 x
44	Johnson Matthey	002340-CN	0.6	3,183	5,989	83%	-12%	-18%	4,234	3,848	1.6 x	456	406	14.8 x	0.51	1.2 x
45	Modine Manufacturing	600884-CN	1.4	3,139	5,006	90%	-10%	-27%	3,156	3,046	1.6 x	665	503	10.0 x	1.45	1.0 x
46	Stanley Electric	JMAT-GB	20.7	3,801	4,989	28%	-16%	-4%	5,182	5,214	1.0 x	786	758	6.6 x	16.83	1.2 x
47	Hongfa Technology	600563-CN	12.0	2,696	2,541	91%	-7%	-8%	558	570	4.5 x	180	181	14.1 x	2.71	4.4 x
48	CIE Automotive	ADNT	34.7	3,167	5,207	34%	-13%	-5%	15,395	15,485	0.3 x	911	985	5.3 x	25.04	1.4 x
49	GEM Co.	NEX-FR	92.1	4,028	4,277	14%	-28%	5%	8,384	8,030	0.5 x	716	716	6.0 x	38.74	2.4 x
50	Adient plc	600549-CN	2.1	3,013	5,594	57%	-12%	-12%	6,999	5,174	1.1 x	626	526	10.6 x	1.06	2.0 x
51	Toyota Boshoku	CIE-ES	26.6	3,188	4,904	21%	-6%	-6%	4,298	4,436	1.1 x	774	810	6.1 x	11.53	2.3 x
52	Ningbo Shanshan	018880-KR	4.7	2,488	5,105	65%	-6%	-18%	7,159	7,415	0.7 x	650	725	7.0 x	3.53	1.3 x
53	Carpenter Technology	002240-CN	2.8	2,604	2,845	97%	-15%	-12%	1,749	959	3.0 x	1,004	142	20.1 x	2.02	1.4 x
54	Xiamen Tungsten	3116-JP	16.8	3,149	2,668	20%	-14%	6%	11,959	13,129	0.2 x	698	950	2.8 x	15.59	1.1 x

55	Xiamen Faratronic	6923-JP	19.4	3,325	2,364	18%	-22%	9%	3,215	3,163	0.7 x	562	486	4.9 x	20.32	1.0 x
56	Chengxin Lithium	CRS	61.6	3,043	3,727	20%	-38%	-13%	2,550	2,772	1.3 x	274	457	8.2 x	29.83	2.1 x
57	Toyoda Gosei	7282-JP	19.7	2,510	2,907	23%	-21%	5%	7,097	7,089	0.4 x	606	757	3.8 x	25.87	0.8 x
58	Hanon Systems	DAN	13.6	1,957	4,753	46%	-18%	-7%	10,555	10,909	0.4 x	845	920	5.2 x	10.91	1.2 x
59	Fujikura Ltd	5803-JP	8.4	2,476	2,971	51%	-23%	17%	5,923	5,219	0.6 x	716	579	5.1 x	7.53	1.1 x
60	Garrett Motion	002484-CN	2.0	1,651	1,614	79%	-12%	-14%	657	728	2.2 x	130	150	10.7 x	0.88	2.2 x
61	Dana Incorporated	002837-CN	2.7	1,511	1,572	90%	-11%	-31%	425	541	2.9 x	53	68	23.2 x	0.57	4.7 x
62	TS Tech	GTX	8.6	2,082	3,555	14%	-25%	-10%	3,886	3,907	0.9 x	635	639	5.6 x	(3.09)	-2.8 x
63	Nantong Jianghai Capacitor	020150-KR	23.6	1,090	1,109	145%	-2%	-28%	610	730	1.5 x	63	102	10.9 x	23.62	1.0 x
64	KCC Corporation	THRM	48.2	1,579	1,596	41%	-21%	-4%	1,469	1,548	1.0 x	181	201	7.9 x	20.44	2.4 x
65	Gentherm Incorporated	MOD	69.1	3,607	3,895	34%	-72%	16%	2,298	2,412	1.6 x	212	311	12.5 x	13.93	5.0 x
66	Tokai Rika	1316-HK	0.5	1,133	993	79%	-13%	-28%	3,840	4,252	0.2 x	356	367	2.7 x	0.78	0.6 x
67	Shenzhen Envicool	7313-JP	12.9	1,750	855	10%	-17%	13%	3,006	2,921	0.3 x	190	-	-	16.32	0.8 x
68	Hyundai Wia	6995-JP	16.1	1,517	1,117	6%	-30%	8%	4,148	4,168	0.3 x	271	388	2.9 x	22.33	0.7 x
69	Nexteer Automotive	002380-KR	184.7	1,641	4,507	17%	-23%	26%	4,736	4,750	0.9 x	542	607	7.4 x	528.91	0.3 x
70	SL Corporation	005850-KR	24.1	1,117	1,082	39%	-22%	-12%	3,681	4,024	0.3 x	397	414	2.6 x	30.83	0.8 x
71	Lotte Energy Materials	011210-KR	43.7	1,188	1,615	25%	-13%	-12%	6,436	6,699	0.2 x	388	426	3.8 x	95.57	0.5 x
72	American Axle Mfg.	AXL	8.1	947	3,305	20%	-22%	-8%	6,631	6,180	0.5 x	693	725	4.6 x	5.17	1.6 x
73	Exedy Corporation	9696-HK	4.4	723	7,540	77%	-9%	-20%	5,881	5,407	1.4 x	4,950	4,452	1.7 x	4.40	1.0 x

74	Standard Motor	MRE-CA	10.3	814	1,648	10%	-22%	-5%	3,937	3,917	0.4 x	454	494	3.3 x	14.03	0.7 x
75	Aspen Aerogels	7278-JP	19.5	946	783	4%	-34%	10%	2,080	2,061	0.4 x	209	224	3.5 x	33.19	0.6 x
76	Martinrea International	SMP	40.4	877	1,124	3%	-25%	0%	1,358	1,392	0.8 x	127	132	8.5 x	28.98	1.4 x
77	Musashi Seimitsu	7220-JP	11.6	756	1,293	25%	-19%	8%	2,215	2,285	0.6 x	195	226	5.7 x	11.75	1.0 x
78	Tianqi Lithium	HLLY	4.8	567	1,165	69%	-60%	-2%	660	664	1.8 x	130	134	8.7 x	3.73	1.3 x
79	F.C.C.Co. Ltd.	7296-JP	13.2	695	268	12%	-19%	13%	1,618	1,584	0.2 x	184	-	-	23.41	0.6 x
80	IRISO Electronics	6908-JP	23.8	585	462	65%	-18%	-5%	394	368	1.3 x	98	87	5.3 x	20.46	1.2 x
81	Holley Inc	6619-JP	5.3	291	817	108%	-11%	-17%	340	335	2.4 x	119	89	9.2 x	6.56	0.8 x
82	Nippon Ceramic	ASPN	11.2	857	830	61%	-53%	-29%	239	363	2.3 x	(23)	36	23.0 x	5.84	1.9 x
83	SNT Motiv	064960-KR	33.3	486	143	29%	-12%	11%	878	888	0.2 x	111	109	1.3 x	54.08	0.6 x
84	W-SCOPE Corporation.	6929-JP	18.4	500	247	15%	-9%	7%	164	175	1.4 x	40	42	5.9 x	14.29	1.3 x
85	Luxfer Holdings	LXFR	8.2	221	337	108%	-8%	-8%	405	369	0.9 x	39	42	8.1 x	7.35	1.1 x
86	Westport Fuel Systems	WPRT	6.3	108	129	112%	-22%	-5%	306	330	0.4 x	(27)	(17)	-	9.97	0.6 x
87	REE Automotive	REE	5.8	49	(37)	145%	-60%	12%	0	2	-16.5 x	(96)	(84)	-	15.71	0.4 x

			Price Performance					Sales			EBITDA			Book Value		
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Passenger OEMs	Ticker		1,530,102	2,423,483												
88	Tesla Inc	TSLA	187.3	596,479	579,205	60%	-19%	-25%	96,773	111,036	5.2 x	15,124	16,740	34.6 x	19.67	9.5 x
89	Toyota Motor	7203-JP	20.5	334,838	451,311	18%	-35%	35%	276,394	296,303	1.5 x	32,122	44,011	10.3 x	16.13	1.3 x
90	Mercedes-Benz Group	MBG-DE	68.3	73,039	165,741	22%	-15%	0%	165,636	164,376	1.0 x	29,544	24,994	6.6 x	93.48	0.7 x
91	Honda Motor	BMW-DE	105.1	60,952	150,289	17%	-13%	-5%	150,233	165,326	0.9 x	23,726	28,719	5.2 x	150.50	0.7 x
92	Bayerische Motoren Werke	7267-JP	11.5	62,289	87,837	8%	-28%	28%	124,960	136,058	0.6 x	10,150	12,752	6.9 x	16.61	0.7 x
93	Ford Motor	GM	38.8	44,792	131,531	7%	-32%	8%	171,842	172,122	0.8 x	16,575	17,093	7.7 x	53.57	0.7 x
94	General Motors	F	11.7	46,084	150,011	32%	-18%	-3%	176,191	179,005	0.8 x	13,967	15,876	9.4 x	10.76	1.1 x
95	Volkswagen AG	VOW-DE	143.0	42,183	269,198	38%	-22%	9%	299,434	340,222	0.8 x	49,017	50,193	5.4 x	345.01	0.4 x
96	Kia Corp.	LI	27.7	24,444	13,995	71%	-25%	-21%	17,206	29,358	0.5 x	1,236	2,363	5.9 x	6.93	4.0 x
97	Hyundai Motor	005380-KR	145.8	30,843	113,877	35%	-14%	-4%	121,732	125,097	0.9 x	15,055	14,674	7.8 x	263.49	0.6 x
98	LI AUTO	000270-KR	77.1	30,997	17,429	24%	-27%	1%	74,848	76,715	0.2 x	10,520	10,311	1.7 x	86.18	0.9 x
99	Suzuki Motor	RIVN	15.3	14,543	8,726	83%	-34%	-35%	4,434	4,982	1.8 x	(3,981)	(2,903)	-	9.44	1.6 x
100	SAIC Motor	601633-CN	2.8	17,553	28,042	82%	-7%	-20%	24,185	29,259	1.0 x	1,840	2,227	12.6 x	1.08	2.6 x
101	Great Wall Motor	600104-CN	1.9	22,040	42,630	17%	-6%	1%	107,174	102,818	0.4 x	4,342	4,356	9.8 x	3.46	0.6 x
102	Nissan Motor	NIO	5.6	8,827	7,883	188%	-6%	-38%	7,155	7,877	1.0 x	(1,886)	(2,133)	-	1.25	4.5 x

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103	Subaru Corp.	7269-JP	45.8	22,472	23,885	9%	-30%	9%	34,003	35,219	0.7 x	3,894	4,361	5.5 x	31.52	1.5 x
104	Rivian Automotive	7201-JP	4.0	16,140	55,950	20%	-16%	10%	78,317	86,439	0.6 x	6,112	7,422	7.5 x	10.06	0.4 x
105	Renault SA	GELYF	1.0	9,560	6,910	57%	-4%	-15%	21,524	24,814	0.3 x	1,626	1,506	4.6 x	1.00	0.9 x
106	Isuzu Motors	7270-JP	20.5	15,426	11,550	13%	-27%	12%	28,079	31,191	0.4 x	3,254	3,995	2.9 x	21.08	1.0 x
107	Geely Automobile	XPEV	8.3	6,406	3,407	184%	-10%	-43%	3,906	4,384	0.8 x	(1,143)	(1,434)	-	4.57	1.8 x
108	Nio Inc	LCID	3.4	7,738	5,753	174%	-25%	-20%	595	850	6.8 x	(2,583)	(2,110)	-	2.11	1.6 x
109	Mazda Motor	RNO-FR	38.1	11,265	59,528	21%	-13%	-5%	56,367	58,941	1.0 x	6,781	7,510	7.9 x	110.87	0.3 x
110	Lucid Group	7202-JP	13.9	10,810	12,692	5%	-22%	11%	23,472	22,845	0.6 x	2,482	2,539	5.0 x	12.56	1.1 x
111	XPENG Inc	PII	90.0	5,080	7,132	54%	-9%	-5%	8,934	8,413	0.8 x	1,001	977	7.3 x	25.10	3.6 x
112	Polaris Inc.	7261-JP	12.5	7,873	6,540	5%	-33%	16%	28,108	32,402	0.2 x	1,821	2,521	2.6 x	17.21	0.7 x
113	Zhejiang Leapmotor	9863-HK	2.7	3,021	2,355	130%	-7%	-28%	1,797	2,755	0.9 x	(697)	(520)	-	0.76	3.5 x
114	Guangzhou Automobile	PSNY	2.2	1,015	2,464	159%	-40%	-4%	2,462	2,554	1.0 x	(753)	(814)	-	(0.22)	-9.8 x
115	Polestar Automotive	2238-HK	0.4	1,225	1,282	77%	-3%	-15%	15,994	18,846	0.1 x	176	263	4.9 x	1.51	0.3 x
116	Dongfeng Motor	FSR	0.8	309	826	879%	-35%	-56%	273	1,786	0.5 x	(318)	(150)	-	0.99	0.8 x
117	BAIC Motor	489-HK	0.4	973	2,325	47%	-6%	-22%	13,472	13,161	0.2 x	(226)	244	9.5 x	2.53	0.2 x
118	Fisker Inc	1958-HK	0.3	671	2,775	25%	-12%	-9%	27,672	27,591	0.1 x	5,265	4,807	0.6 x	0.97	0.3 x
119	Canoo Inc	FFIE	0.4	17	139	36495%	-56%	-80%	0	-	-	(532)	-	-	8.04	0.1 x
120	Faraday Future	GOEV	0.2	196	264	315%	-51%	-32%	0	1	212.2 x	(433)	(243)	-	0.25	0.8 x

			Price Performance						Sales			EBITDA			Book Value	
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Battery		Ticker		439,052	638,478			-12%	559,844	564,546	1.1 x	67,512	69,276	9.2 x		1.4 x
121	CATL	300750-CN	21.1	92,882	91,267	67%	-7%	-8%	47,108	57,396	1.6 x	6,642	9,395	9.7 x	5.71	3.7 x
122	LG Energy	373220-KR	285.5	66,800	74,119	70%	-5%	-14%	25,254	26,079	2.8 x	3,295	4,417	16.8 x	65.84	4.3 x
123	BYD Company	002594-CN	23.8	27,698	66,005	63%	-5%	-14%	61,591	86,390	0.8 x	5,968	9,080	7.3 x	6.21	3.8 x
124	Panasonic Holdings	051910-KR	325.6	22,982	41,603	99%	-12%	-16%	41,469	43,363	1.0 x	4,714	6,151	6.8 x	312.95	1.0 x
125	LG Chem	006400-KR	279.1	19,192	21,590	121%	-8%	-20%	17,092	17,787	1.2 x	2,504	2,897	7.5 x	205.18	1.4 x
126	Samsung SDI	247540-KR	160.0	15,645	16,962	186%	-25%	-28%	5,197	4,555	3.7 x	184	327	51.9 x	11.48	13.9 x
127	Ecopro BM	6752-JP	9.6	23,649	27,120	30%	-11%	2%	62,332	56,076	0.5 x	4,997	5,447	5.0 x	11.96	0.8 x
128	Albemarle Corporation	ALB	114.7	13,465	15,936	129%	-6%	-21%	9,617	5,971	2.7 x	3,370	1,286	12.4 x	80.20	1.4 x
129	AES Corporation	096770-KR	87.7	8,831	25,737	102%	-8%	-15%	58,260	55,892	0.5 x	2,993	4,037	6.4 x	180.13	0.5 x
130	Asahi Kasei	300014-CN	4.8	8,955	12,640	119%	-12%	-18%	5,280	7,050	1.8 x	553	834	15.1 x	2.29	2.1 x
131	JFE Holdings	AESC	16.7	11,169	40,631	54%	-31%	-18%	12,668	12,820	3.2 x	1,975	3,602	11.3 x	2.46	6.8 x
132	Mitsubishi Chemical	002460-CN	4.7	7,648	12,753	122%	-10%	-21%	6,015	4,669	2.7 x	2,961	848	15.0 x	3.35	1.4 x
133	EVE Energy	603659-CN	2.3	4,902	5,307	149%	-11%	-22%	2,246	2,347	2.3 x	624	550	9.6 x	1.01	2.3 x
134	SK Innovation	SQM	42.1	6,008	6,968	116%	-8%	-30%	7,468	5,736	1.2 x	3,194	2,451	2.8 x	18.38	2.3 x
135	AGC Inc	5713-JP	28.1	8,159	11,105	44%	-8%	-1%	10,586	9,373	1.2 x	1,781	904	12.3 x	43.67	0.6 x

136	Sumitomo Metal Mining	5411-JP	16.0	10,252	21,426	6%	-28%	4%	39,012	35,611	0.6 x	3,687	3,638	5.9 x	25.55	0.6 x
137	Ganfeng Lithium	PLS-AU	2.3	7,062	5,247	55%	-13%	-13%	2,616	814	6.4 x	2,124	393	13.3 x	0.69	3.4 x
138	Pilbara Minerals	3407-JP	7.7	10,704	15,445	0%	-22%	5%	20,283	18,626	0.8 x	2,019	1,988	7.8 x	8.42	0.9 x
139	Lundin Mining	4188-JP	6.1	9,222	24,896	10%	-10%	6%	34,041	29,385	0.8 x	3,345	3,656	6.8 x	7.99	0.8 x
140	Quimica Y-SP	5201-JP	38.1	8,279	13,230	1%	-15%	5%	13,514	14,074	0.9 x	2,035	2,351	5.6 x	45.57	0.8 x
141	Shanghai Putailai New Energy	PLUG	4.5	2,694	3,100	239%	-49%	-1%	891	1,252	2.5 x	(687)	(325)	-	5.80	0.8 x
142	Allkem Limited	IGO-AU	5.0	3,784	3,521	121%	-12%	-19%	663	535	6.6 x	1,298	466	7.6 x	3.10	1.6 x
143	Sumitomo Chemical	LUN-CA	8.2	6,356	8,923	10%	-35%	0%	3,392	4,101	2.2 x	1,265	1,606	5.6 x	6.23	1.3 x
144	IGO Limited	4005-JP	2.4	3,959	15,051	49%	-18%	-1%	21,210	16,785	0.9 x	1,185	(286)	-	4.75	0.5 x
145	Exide Industries	QS	6.8	2,926	2,334	104%	-27%	-2%	0	1	1,667.4 x	(249)	(343)	-	2.71	2.5 x
146	Cadiz Inc	002074-CN	2.6	3,371	8,020	69%	-14%	-14%	3,326	4,176	1.9 x	190	344	23.3 x	1.90	1.4 x
147	Livent Corporation	ENS	95.6	3,861	4,517	19%	-18%	-5%	3,709	3,600	1.3 x	389	521	8.7 x	42.79	2.2 x
148	Plug Power	002850-CN	9.4	2,540	2,745	127%	-17%	-21%	1,263	1,515	1.8 x	237	274	10.0 x	5.19	1.8 x
149	Shenzhen Kedali	ENVX	9.3	1,562	1,362	157%	-10%	-26%	8	22	60.8 x	(102)	(109)	-	1.54	6.0 x
150	Beijing Easpring Material	300073-CN	4.4	2,153	1,630	101%	-16%	-18%	3,093	2,556	0.6 x	365	361	4.5 x	3.47	1.3 x
151	Amara Raja Batteries	LAC-CA	4.4	704	553	182%	-13%	-32%	0	0	-	(20)	(24)	-	1.83	2.4 x
152	Mitsui Mining and Smelting	300438-CN	2.8	1,411	1,637	249%	-17%	-29%	1,310	1,019	1.6 x	173	111	14.7 x	1.56	1.8 x
153	UBE Corporation	1772-HK	2.7	1,079	7,901	182%	-11%	-29%	6,015	4,650	1.7 x	2,923	833	9.5 x	3.31	0.8 x
154	Enovix Corporation	500086-IN	4.0	3,427	3,346	6%	-49%	6%	1,771	1,944	1.7 x	191	224	14.9 x	1.78	2.3 x

155	GS Yuasa	4208-JP	16.9	1,790	2,964	9%	-14%	14%	3,634	3,155	0.9 x	306	292	10.2 x	26.50	0.6 x
156	Guangzhou Great Power	6674-JP	14.7	1,473	2,274	41%	-9%	4%	3,826	3,803	0.6 x	384	417	5.5 x	19.38	0.8 x
157	UACJ Corp.	BLDP-CA	3.3	984	239	84%	-13%	-12%	84	90	2.7 x	(144)	(150)	-	3.47	1.0 x
158	Furukawa Electric	5801-JP	18.5	1,305	3,380	8%	-22%	18%	7,881	6,998	0.5 x	401	300	11.3 x	28.63	0.6 x
159	Ganfeng Lithiu-H	5706-JP	31.4	1,800	3,010	5%	-31%	2%	4,850	4,256	0.7 x	335	394	7.6 x	30.72	1.0 x
160	Ballard Power	500008-IN	10.7	1,826	1,770	4%	-38%	9%	1,256	1,362	1.3 x	165	185	9.6 x	4.00	2.7 x
161	Varta AG	FREY	1.4	189	(116)	648%	-10%	-28%	0	4	-25.9 x	(28)	(102)	-	4.53	0.3 x
162	Lithium Americas	LICY	0.4	77	295	1331%	-19%	-26%	13	10	29.5 x	(101)	(140)	-	1.70	0.3 x
163	FuelCell Energy	PLL	15.3	294	209	334%	-26%	-46%	40	114	1.8 x	(32)	14	15.5 x	17.24	0.9 x
164	SES AI	VAR1-DE	19.1	816	1,409	68%	-22%	-17%	891	883	1.6 x	77	44	32.2 x	4.45	4.3 x
165	The Metals Company	5741-JP	28.1	1,359	3,745	7%	-35%	3%	7,116	5,854	0.6 x	405	462	8.1 x	36.09	0.8 x
166	ADS-Tec Energy	SES	1.3	403	133	153%	-11%	-28%	-	0	-	(59)	(92)	-	1.01	1.3 x
167	Amprius Technologies	FCEL	1.2	542	388	235%	-18%	-25%	123	131	3.0 x	(103)	(80)	-	1.52	0.8 x
168	Kanto Denka Kogyo	MVST	0.9	297	341	210%	-23%	-33%	204	297	1.1 x	(57)	(25)	-	1.80	0.5 x
169	Microvast Holdings	AMPX	4.1	362	313	160%	-36%	-22%	4	8	40.4 x	(13)	(32)	-	0.75	5.5 x
170	Piedmont Lithium	SLDP	1.6	289	106	115%	-32%	12%	17	22	4.9 x	(76)	(77)	-	2.81	0.6 x
171	Stella Chemifa	TMC	1.3	401	377	144%	-50%	19%	0	0	-	(50)	(20)	-	0.18	7.2 x
172	Solid Power	4047-JP	6.1	350	441	30%	-19%	0%	576	427	1.0 x	-	-	-	7.87	0.8 x
173	Freyr Battery	4080-JP	5.8	188	241	97%	-3%	-11%	426	314	0.8 x	-	-	-	3.37	1.7 x

174	Tanaka Chemical	ADSE	7.5	367	367	53%	-75%	5%	29	109	3.4 x	(32)	(23)	-	1.17	6.4 x
175	OPAL Fuels	4109-JP	22.1	292	193	20%	-16%	6%	263	208	0.9 x	-	-	-	24.76	0.9 x
176	CBAK Energy	OPAL	4.8	135	1,578	78%	-6%	-12%	236	260	6.1 x	61	55	28.5 x	(30.80)	-0.2 x
177	Li-Cycle Holdings	CBAT	1.1	94	87	38%	-30%	0%	-	207	0.4 x	-	-	-	1.29	0.8 x
178	Flux Power	FLUX	4.6	76	89	62%	-35%	11%	66	67	1.3 x	(4)	(0)	-	0.45	10.3 x
179	Advent Technologies	ADN	0.2	12	16	1037%	-5%	-28%	8	4	3.9 x	(47)	(55)	-	0.52	0.3 x

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			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Charging	Ticker		404,938	509,539				-3%	192,917	200,487	2.5 x	33,850	37,865	13.5 x		2.4 x
180	Siemens Aktiengesellschaft	SIE-DE	181.1	144,845	186,077	9%	-30%	-2%	84,593	87,809	2.1 x	14,919	16,133	11.5 x	65.47	2.8 x
181	Schneider Electric	SU-FR	198.7	113,808	125,028	15%	-29%	2%	38,638	40,978	3.1 x	7,819	8,465	14.8 x	51.29	3.9 x
182	ABB Ltd.	ABBN-CH	42.8	80,493	83,191	8%	-27%	-1%	32,235	33,518	2.5 x	5,863	6,163	13.5 x	6.96	6.1 x
183	Legrand SA	LR-FR	98.0	25,881	28,206	8%	-16%	-6%	9,058	9,233	3.1 x	2,153	2,175	13.0 x	27.83	3.5 x
184	Eversource Energy	ES	54.2	18,940	45,128	50%	-4%	-12%	11,911	12,852	3.5 x	3,681	4,308	10.5 x	40.55	1.3 x
185	SolarEdge Technologies	SEDG	66.5	3,778	3,504	411%	-5%	-29%	2,977	1,646	2.1 x	346	(100)	-	42.22	1.6 x
186	Sunrun Inc	SHLS	13.2	2,238	2,422	115%	-8%	-15%	489	508	4.8 x	173	158	15.3 x	3.09	4.3 x
187	Bloom Energy	RUN	14.5	3,155	14,330	78%	-42%	-27%	2,260	2,298	6.2 x	(1,259)	(46)	-	23.84	0.6 x
188	Shoals Technologies	BE	11.3	2,536	3,406	107%	-26%	-24%	1,333	1,492	2.3 x	72	140	24.4 x	2.23	5.1 x
189	Shenzhen Kstar	CHPT	1.9	794	698	512%	-18%	-19%	468	511	1.4 x	(226)	(278)	-	0.94	2.0 x
190	Alfen NV	002518-CN	2.8	1,572	1,511	163%	-14%	-28%	639	777	1.9 x	129	159	9.5 x	0.97	2.9 x
191	Daihen Corporation	NOVA	10.5	1,288	8,635	133%	-38%	-31%	721	989	8.7 x	275	376	22.9 x	12.47	0.8 x
192	Sunnova Energy	SPWR	3.0	531	789	437%	-10%	-37%	1,749	1,488	0.5 x	(84)	(9)	-	2.41	1.3 x
193	ChargePoint Holdings	ALFEN-NL	61.4	1,334	1,416	44%	-53%	-8%	541	686	2.1 x	61	87	16.3 x	8.95	6.9 x
194	Nichicon Corporation	MAXN	4.5	239	403	759%	-14%	-37%	1,060	1,130	0.4 x	(109)	10	39.2 x	3.22	1.4 x

195	SunPower Corporation	STEM	3.0	461	943	222%	-21%	-24%	462	702	1.3 x	(20)	11	84.6 x	2.91	1.0 x
196	Stem Inc	6622-JP	48.2	1,305	1,439	10%	-37%	24%	1,378	1,247	1.2 x	161	142	10.2 x	33.56	1.4 x
197	Wallbox N.V.	6996-JP	8.9	693	656	22%	-12%	10%	1,374	1,231	0.5 x	138	115	5.7 x	10.40	0.9 x
198	Maxeon Solar	WBX	1.5	274	334	312%	-15%	-17%	156	308	1.1 x	(79)	(1)	-	1.05	1.4 x
199	EVgo Inc	EVGO	2.3	237	724	256%	-18%	-36%	55	154	4.7 x	(80)	(61)	-	(0.91)	-2.5 x
200	Blink Charging	BLNK	2.4	162	110	340%	-9%	-29%	61	131	0.8 x	(61)	(73)	-	3.27	0.7 x
201	NaaS Technology	NAAS	1.6	128	205	714%	-32%	45%	13	79	2.6 x	-	-	-	0.10	15.5 x
202	Beam Global	DCFC	0.1	24	205	1451%	-25%	-45%	185	-	-	(74)	-	-	(1.01)	-0.1 x
203	Pioneer Power	CRGE	0.1	30	22	859%	-91%	21%	698	607	0.0 x	(18)	-	-	0.11	1.2 x
204	Ideal Power	BEEM	6.8	97	82	152%	-27%	-4%	22	66	1.2 x	(16)	(12)	-	3.60	1.9 x
205	Charge Enterprises	PPSI	5.0	50	44	97%	-50%	-26%	27	44	1.0 x	(4)	2	20.0 x	1.86	2.7 x
206	Tritium DCFC	IPWR	7.3	43	33	84%	-9%	-7%	0	1	29.6 x	-	-	-	2.06	3.5 x

			Price Performance					Sales			EBITDA			Book Value		
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITDA	Book/ Share	P/ Book
Peer Set																
Commercial OEMs		Ticker		116,957	181,993			0%	173,635	174,881	1.0 x	23,129	23,854	7.6 x		1.8 x
207	Paccar Inc	PCAR	100.4	52,512	57,810	12%	-33%	3%	33,316	31,869	1.8 x	6,068	5,127	11.3 x	30.34	3.3 x
208	Volvo AB	VOLV.B-SE	24.2	38,419	64,988	14%	-25%	-7%	53,006	48,366	1.3 x	8,789	7,642	8.5 x	8.45	2.9 x
209	Traton SE	8TRA-DE	24.7	12,340	33,288	8%	-34%	5%	42,698	49,955	0.7 x	4,108	6,557	5.1 x	34.82	0.7 x
210	Ryder System	R	113.6	5,034	12,446	5%	-33%	0%	11,783	13,118	0.9 x	2,804	2,876	4.3 x	69.91	1.6 x
211	Iveco Group	IVG-IT	10.8	2,920	6,379	19%	-32%	20%	17,488	16,921	0.4 x	1,468	1,637	3.9 x	10.09	1.1 x
212	Hino Motors Ltd.	7205-JP	3.5	1,991	3,912	34%	-19%	6%	11,238	10,182	0.4 x	557	391	10.0 x	4.29	0.8 x
213	REV Group	NKLA	0.7	865	656	396%	-30%	-15%	36	168	3.9 x	(545)	(379)	-	0.61	1.2 x
214	Blue Bird	REVG	19.5	1,166	1,328	6%	-50%	7%	2,638	2,606	0.5 x	157	173	7.7 x	8.37	2.3 x
215	Nikola Corporation	BLBD	29.1	938	996	17%	-40%	8%	1,133	1,252	0.8 x	88	135	7.4 x	2.35	12.4 x
216	Lion Electric	LEV	1.8	396	627	53%	-19%	-1%	253	390	1.6 x	(35)	(13)	-	1.81	1.0 x
217	Hyzon Motors	HYZN	0.8	189	58	182%	-42%	-14%	4	0	-	(124)	(140)	-	0.73	1.1 x
218	Workhorse Group	TSP	0.2	47	(676)	1063%	-99%	-74%	9	-	-	(380)	-	-	3.36	0.1 x
219	Xos Inc	PTRA	0.0	6	30	16960%	-70%	34%	309	-	-	(173)	-	-	1.21	0.0 x
220	TuSimple Holdings	WKHS	0.3	69	38	681%	-14%	-26%	5	12	3.2 x	(112)	(84)	-	0.44	0.6 x
221	Ideanomics Inc	XOS	8.2	49	65	212%	-33%	2%	36	43	1.5 x	(93)	(68)	-	9.72	0.8 x

222	Proterra Inc	IDEX	1.0	12	49	1655%	-9%	-50%	101	-	-	-	-	-	1.38	0.7 x
223	Arrival SA	ARVL	0.3	6		4572%	100%	-68%	0	-	-	(376)	-	-		-

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Peer Set																
EV Components	Ticker			329,820	371,010			-2%	437,867	427,536	0.9 x	43,806	47,071	7.9 x		1.4 x
224	Hitachi Ltd.	6501-JP	79.9	74,053	86,424	8%	-39%	11%	79,912	63,140	1.4 x	8,797	8,078	10.7 x	38.06	2.1 x
225	Denso Corp	6902-JP	16.0	50,476	48,948	16%	-20%	12%	47,727	47,669	1.0 x	5,835	6,002	8.2 x	11.04	1.5 x
226	Delta Electronics	6594-JP	37.9	22,607	25,008	63%	-6%	-3%	16,683	15,522	1.6 x	1,648	2,058	12.2 x	18.06	2.1 x
227	Nidec Corporation	2308-TW	8.9	23,237	24,253	40%	-2%	-12%	12,813	14,043	1.7 x	1,979	2,267	10.7 x	2.41	3.7 x
228	Shenzhen Inovance	300124-CN	7.8	18,164	20,943	44%	-7%	-12%	3,326	4,044	5.2 x	620	706	29.7 x	1.17	6.6 x
229	Magna International	MG-CA	57.2	16,377	22,775	14%	-18%	-4%	42,797	44,460	0.5 x	3,710	4,097	5.6 x	40.32	1.4 x
230	Jabil Inc.	012330-KR	157.3	14,736	9,359	25%	-6%	-12%	44,350	45,733	0.2 x	2,446	2,818	3.3 x	336.56	0.5 x
231	Hyundai Mobis	JBL	125.3	15,980	17,612	15%	-41%	-2%	34,702	31,045	0.6 x	2,580	2,492	7.1 x	19.71	6.4 x
232	Aisin Corporation	002050-CN	2.9	10,918	11,083	57%	-6%	-29%	3,081	3,690	3.0 x	497	592	18.7 x	0.64	4.6 x
233	Zhejiang Sanhua Intelligent	601689-CN	6.8	7,894	8,381	74%	-11%	-34%	2,326	2,827	3.0 x	421	504	16.6 x	1.67	4.1 x
234	Hella GmbH	BWA	33.9	7,968	10,940	51%	-13%	-3%	14,198	14,782	0.7 x	1,901	1,962	5.6 x	25.36	1.3 x
235	LG Corp	003550-KR	61.4	9,664	8,769	26%	-13%	-5%	5,605	6,211	1.4 x	1,367	1,633	5.4 x	127.17	0.5 x
236	Bosch Limited	7259-JP	38.0	11,198	14,771	7%	-32%	19%	32,826	32,906	0.4 x	2,422	2,995	4.9 x	47.46	0.8 x
237	BorgWarner Inc	LEA	132.9	7,743	10,253	19%	-11%	-4%	23,467	24,449	0.4 x	1,723	1,899	5.4 x	86.33	1.5 x
238	Ningbo Tuopu	HLE-DE	89.2	9,909	10,335	4%	-23%	-2%	8,725	9,114	1.1 x	1,079	1,211	8.5 x	28.42	3.1 x

239	Lear Corporation	500530-IN	283.8	8,371	8,012	25%	-24%	6%	1,821	2,042	3.9 x	209	263	30.5 x	47.36	6.0 x
240	Vitesco Technologies	FR-FR	13.2	3,233	8,671	84%	-15%	-14%	23,859	24,695	0.4 x	2,840	3,072	2.8 x	15.92	0.8 x
241	LG Innotek	688187-CN	4.6	1,212	5,827	72%	-9%	-2%	2,622	3,049	1.9 x	467	515	11.3 x	3.52	1.3 x
242	Valeo SE	011070-KR	143.1	3,387	4,911	76%	-1%	-23%	15,413	15,671	0.3 x	1,376	1,573	3.1 x	149.61	1.0 x
243	Visteon Corporation	VC	115.3	3,206	3,244	49%	-6%	-7%	3,954	4,117	0.8 x	434	486	6.7 x	37.47	3.1 x
244	Zhejiang Shuanghuan Driveline	VTSC-DE	88.0	3,523	3,239	18%	-31%	2%	9,877	10,132	0.3 x	777	888	3.6 x	82.40	1.1 x
245	Mitsui High-Tec	002472-CN	2.8	2,141	2,640	83%	-11%	-22%	994	1,161	2.3 x	190	215	12.3 x	1.26	2.2 x
246	Zhuzhou CRRC Times	6966-JP	47.1	1,859	1,795	52%	-13%	-3%	1,315	1,316	1.4 x	245	197	9.1 x	17.14	2.7 x
247	TI Fluid Systems	TIFS-GB	1.8	941	1,777	13%	-40%	-5%	3,471	3,790	0.5 x	227	438	4.1 x	1.37	1.3 x
248	Meidensha Corporation	6508-JP	18.2	830	1,023	7%	-28%	6%	2,002	1,926	0.5 x	144	152	6.7 x	16.54	1.1 x
249	Hyllion Holdings	HYLN	1.1	192	18	191%	-51%	29%	1	1	14.0 x	(128)	(42)	-	1.67	0.6 x

			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value	
						% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITDA	Book/ Share	P/ Book
Peer Set																
Air Mobility	Ticker			280,245	353,771			-12%	170,145	186,579	1.9 x	13,113	18,764	18.9 x		7.0 x
250	Boeing Company	BA	211.0	127,674	167,544	27%	-16%	-20%	77,794	89,741	1.9 x	1,085	6,625	25.3 x	(28.27)	-7.5 x
251	Lockheed Martin	LMT	429.4	103,764	116,896	18%	-8%	-5%	67,571	69,363	1.7 x	10,017	9,764	12.0 x	28.48	15.1 x
252	Textron Inc.	AWIN	0.1	6	125	1728%	-18%	-38%	-	-	-	-	-	-	(0.09)	-1.0 x
253	Heico Corp	TXT	84.7	16,604	18,527	5%	-28%	7%	13,683	14,671	1.3 x	1,552	1,714	10.8 x	36.22	2.3 x
254	Elbit Systems	HEI	179.6	9,827	27,688	12%	-14%	0%	2,968	3,843	7.2 x	757	981	28.2 x	21.27	8.4 x
255	Joby Aviation	ESLT	206.8	9,193	10,673	9%	-20%	-3%	5,512	5,944	1.8 x	529	578	18.5 x	63.97	3.2 x
256	AeroVironment Inc	JOBY	5.5	3,802	2,730	119%	-33%	-19%	1	3	992.7 x	(348)	(401)	-	1.48	3.7 x
257	Kratos Defense	AVAV	120.6	3,394	3,405	19%	-30%	-4%	541	701	4.9 x	90	129	26.4 x	28.21	4.3 x
258	Kaman Corp	KTOS	16.9	2,183	2,506	28%	-28%	-17%	1,037	1,135	2.2 x	95	105	23.9 x	7.55	2.2 x
259	Archer Aviation	ACHR	4.8	1,228	929	55%	-63%	-21%	0	4	226.5 x	(305)	(356)	-	1.28	3.8 x
260	EHang Holdings	EH	10.2	415	399	154%	-15%	-40%	6	16	24.5 x	(44)	(36)	-	0.22	46.1 x
261	Lilium N.V.	KAMN	45.1	1,275	1,832	2%	-60%	88%	776	791	2.3 x	107	122	15.1 x	24.45	1.8 x
262	Blade Air Mobility	LILM	0.8	415	123	130%	-55%	-30%	0	0	-	(258)	(322)	-	0.55	1.5 x
263	Vertical Aerospace	EVTL	0.7	154	175	226%	-29%	5%	0	0	-	(87)	(82)	-	(0.02)	-34.6 x
264	Surf Air Mobility	BLDE	3.0	222	71	58%	-31%	-16%	146	226	0.3 x	(28)	(18)	-	3.54	0.8 x

265	Aerwins Technologies	SRFM	1.2	88	147	320%	-45%	-23%	111	141	1.0 x	(50)	(39)	-	0.39	3.1 x
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			Price Performance					Sales			EBITDA			Book Value		
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Shared Mobility		Ticker		2,335,688	2,577,966			2%	1,420,548	1,524,202	1.7 x	167,975	193,087	13.4 x		5.5 x
266	Amazon Inc	AMZN	155.2	1,612,122	1,700,258	14%	-43%	2%	574,785	642,168	2.6 x	109,651	129,511	13.1 x	19.44	8.0 x
267	Walmart Inc	WMT	55.1	444,892	508,958	10%	-18%	5%	648,125	672,897	0.8 x	38,931	41,414	12.3 x	9.83	5.6 x
268	Uber Technologies	UBER	65.3	134,316	141,483	25%	-55%	5%	37,281	43,300	3.3 x	4,052	6,165	22.9 x	5.43	12.0 x
269	FedEx Corporation	FDX	241.3	60,297	107,891	18%	-21%	-5%	90,200	88,206	1.2 x	9,534	10,382	10.4 x	84.17	2.9 x
270	DoorDash Inc	DASH	104.2	38,631	38,697	22%	-51%	4%	8,635	10,182	3.8 x	1,190	1,718	22.5 x	16.88	6.2 x
271	DiDi Global	DIDIY	3.5	15,366	12,972	29%	-29%	-12%	27,753	31,601	0.4 x	165	848	15.3 x	2.79	1.3 x
272	Grab Holdings	GRAB	3.1	11,504	7,874	28%	-14%	-9%	2,359	2,791	2.8 x	771	192	41.0 x	1.63	1.9 x
273	Avis Budget	CAR	163.7	5,930	31,278	50%	-39%	-6%	12,008	12,089	2.6 x	2,490	1,367	22.9 x	(9.97)	-16.4 x
274	Lyft Inc	HTZ	8.4	2,570	19,599	145%	-15%	74%	9,371	9,651	2.0 x	551	587	33.4 x	10.13	0.8 x
275	Yadea Group	LYFT	12.5	4,801	4,446	56%	-37%	-18%	4,404	5,130	0.9 x	222	342	13.0 x	1.35	9.2 x
276	Hertz Global	GGR	2.1	518	759	103%	-33%	-18%	350	401	1.9 x	29	45	17.0 x	1.07	2.0 x
277	Gogoro Inc	403550-KR	12.3	404	597	40%	-32%	3%	298	389	1.5 x	64	82	7.2 x	5.17	2.4 x
278	Socar Inc	1585-HK	1.4	4,186	3,198	93%	-2%	-20%	4,513	5,027	0.6 x	408	468	6.8 x	0.32	4.2 x
279	Niu Technologies	NIU	1.8	121	(20)	174%	-11%	-20%	460	370	-0.1 x	22	(1)	-	2.43	0.7 x

280	ElectraMeccanica Vehicles	SOLO	0.3	32	(25)	289%	-21%	-20%	7	0	-54.9 x	(104)	(33)	-	0.72	0.4 x
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			Price Performance						Sales			EBITDA			Book Value	
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITDA	Book/ Share	P/ Book
Peer Set																
Other Electronics		Ticker		519,030	558,552			-2%	216,485	244,139	2.3 x	33,221	54,334	10.3 x		3.0 x
281	Applied Materials	AMAT	164.3	136,708	135,646	26%	-34%	2%	26,517	26,756	5.1 x	8,206	8,034	16.9 x	20.98	7.8 x
282	Micron Technology	MU	85.8	94,660	99,073	8%	-38%	0%	15,540	22,730	4.4 x	2,663	7,243	13.7 x	38.85	2.2 x
283	SK hynix	000660-KR	100.9	73,474	88,759	24%	-42%	-3%	24,529	42,824	2.1 x	4,595	19,032	4.7 x	60.25	1.7 x
284	Amphenol Corporation	APH	101.1	60,489	63,188	9%	-29%	2%	12,555	13,477	4.7 x	2,993	3,268	19.3 x	13.94	7.3 x
285	Mitsubishi Electric	ROK	253.3	29,021	31,462	38%	0%	-18%	9,058	9,225	3.4 x	1,978	2,006	15.7 x	31.48	8.0 x
286	Rockwell Automation	6503-JP	15.1	32,360	30,709	8%	-28%	9%	36,442	34,583	0.9 x	3,564	3,637	8.4 x	10.87	1.4 x
287	Teradyne Inc	ENPH	104.1	14,219	13,666	122%	-29%	-21%	2,291	1,634	8.4 x	751	564	24.2 x	7.25	14.4 x
288	Enphase Energy	TER	96.6	14,767	14,143	23%	-16%	-11%	2,676	2,714	5.2 x	660	636	22.2 x	16.54	5.8 x
289	Samvardhana Motherson	002179-CN	4.3	8,780	8,907	54%	-4%	-22%	2,295	2,805	3.2 x	477	546	16.3 x	1.30	3.3 x
290	AVIC Jonhon Optronic	517334-IN	1.4	9,237	11,378	9%	-45%	11%	9,531	11,887	1.0 x	752	1,055	10.8 x	0.40	3.4 x
291	Yageo Corporation	LFUS	241.9	6,024	6,511	28%	-12%	-10%	2,363	2,226	2.9 x	529	433	15.0 x	99.55	2.4 x
292	Littelfuse Inc	2327-TW	17.6	7,463	8,535	15%	-22%	-8%	3,404	3,879	2.2 x	903	1,087	7.9 x	10.32	1.7 x
293	Innolux Corp.	3481-TW	0.5	4,742	4,106	11%	-33%	13%	6,714	7,198	0.6 x	384	831	4.9 x	0.82	0.6 x
294	Synaptics Incorporated	AVT	45.3	4,099	7,198	14%	-12%	-10%	26,537	24,058	0.3 x	1,315	1,027	7.0 x	55.82	0.8 x
295	LG Display	034220-KR	8.7	4,116	14,484	45%	-10%	-6%	15,954	18,151	0.8 x	1,253	2,828	5.1 x	14.35	0.6 x

296	Avnet Inc	SYNA	106.8	4,187	4,397	14%	-37%	-7%	1,355	958	4.6 x	403	156	28.3 x	31.06	3.4 x
297	Sitime Corp	300001-CN	2.3	2,414	3,362	51%	-11%	-16%	1,698	2,059	1.6 x	177	167	20.2 x	0.87	2.7 x
298	Qingdao TGOOD Electric	SITM	106.6	2,418	1,859	34%	-24%	-13%	144	177	10.5 x	(13)	5	392.7 x	31.20	3.4 x
299	ams-OSRAM AG	AMS-CH	2.4	2,386	3,576	109%	-43%	-4%	3,872	3,786	0.9 x	537	741	4.8 x	2.85	0.8 x
300	Alps Alpine	6770-JP	7.5	1,652	1,792	31%	-12%	-8%	6,796	6,360	0.3 x	586	411	4.4 x	12.41	0.6 x
301	CTS Corporation	300457-CN	2.1	1,078	1,328	120%	-19%	-20%	1,310	1,430	0.9 x	103	180	7.4 x	1.33	1.5 x
302	Shenzhen Yinghe	CTS	41.1	1,279	1,213	21%	-14%	-5%	550	549	2.2 x	118	121	10.0 x	17.09	2.4 x
303	Solum Co.	MEI	20.8	739	978	144%	-4%	-9%	1,180	1,151	0.8 x	147	97	10.1 x	23.68	0.9 x
304	Methode Electronics	710-HK	0.6	510	318	266%	-4%	-29%	1,367	1,438	0.2 x	101	99	3.2 x	0.65	1.0 x
305	BOE Varitronix	248070-KR	20.7	1,034	1,155	19%	-24%	0%	1,294	1,507	0.8 x	86	147	7.8 x	6.23	3.3 x
306	MicroVision Inc	MVIS	2.4	452	386	245%	-24%	-11%	7	10	38.6 x	-	-	-	0.52	4.6 x
307	Gilat Satellite	MX	6.5	253	92	79%	-17%	-13%	230	236	0.4 x	(23)	(35)	-	8.92	0.7 x
308	Magnachip Semiconductor	GILT	6.3	358	262	13%	-29%	3%	266	315	0.8 x	3	43	6.1 x	4.69	1.3 x
309	Vuzix Corporation	VUZI	1.7	108	68	263%	-10%	-20%	12	13	5.2 x	(25)	(24)	-	1.51	1.1 x

			Price Performance						Sales			EBITDA			Book Value	
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Semiconductors	Ticker		3,400,814	3,363,818			11%	301,474	374,571	9.0 x	152,366	199,392	16.9 x		6.8 x	
310	NVIDIA Corporation	NVDA	615.3	1,519,717	1,508,771	34%	-64%	23%	60,922	108,432	13.9 x	36,480	70,565	21.4 x	17.44	35.3 x
311	Taiwan Semiconductor-SP	TSM	113.0	585,857	568,824	20%	-28%	9%	68,430	84,484	6.7 x	46,118	56,950	10.0 x	20.00	5.6 x
312	Broadcom	AVGO	1,180.0	552,406	513,979	12%	-51%	6%	35,819	49,802	10.3 x	23,213	29,574	17.4 x	57.94	20.4 x
313	Advanced Micro Devices	AMD	167.7	270,903	268,064	15%	-54%	14%	22,680	25,968	10.3 x	5,574	8,082	33.2 x	34.59	4.8 x
314	Texas Instruments	TXN	160.1	145,549	147,823	17%	-13%	-6%	17,519	15,620	9.5 x	8,562	7,038	21.0 x	18.59	8.6 x
315	Analog Devices	ADI	192.4	95,380	101,809	5%	-19%	-3%	12,306	9,196	11.1 x	6,257	4,020	25.3 x	71.68	2.7 x
316	NXP Semiconductors	NXPI	210.6	54,277	61,597	20%	-26%	-8%	13,276	13,109	4.7 x	5,244	5,109	12.1 x	33.61	6.3 x
317	STMicroelectronics NV	STMMI-IT	44.4	40,459	37,935	25%	-17%	-9%	17,286	16,413	2.3 x	6,151	5,098	7.4 x	18.15	2.4 x
318	Renesas Electronics	ON	71.1	30,636	31,399	57%	-14%	-14%	8,253	7,521	4.2 x	3,253	2,818	11.1 x	18.25	3.9 x
319	ON Semiconductor	6723-JP	16.9	33,120	32,063	20%	-26%	8%	9,834	10,242	3.1 x	3,896	3,998	8.0 x	7.53	2.2 x
320	Skyworks Solutions	SWKS	104.5	16,737	17,509	13%	-19%	-7%	4,772	4,456	3.9 x	1,960	1,581	11.1 x	38.87	2.7 x
321	Sanan Optoelectronics	6502-JP	31.4	0	14,515	9%	-5%	100%	24,692	-	-	1,451	-	-	19.06	1.6 x
322	Fuji Electric	600703-CN	1.5	7,651	8,006	124%	-5%	-21%	1,908	1,962	4.1 x	607	581	13.8 x	1.07	1.4 x
323	Rohm Co.	6963-JP	17.6	7,270	7,095	43%	-12%	-2%	3,778	3,225	2.2 x	1,104	807	8.8 x	16.26	1.1 x
324	Wingtech Technology	WOLF	32.6	4,079	6,036	139%	-28%	-25%	922	836	7.2 x	(11)	(84)	-	9.14	3.6 x

325	Shinko Electric	600745-CN	4.7	5,790	7,603	114%	-13%	-22%	8,383	8,819	0.9 x	919	964	7.9 x	4.24	1.1 x
326	Hangzhou Silan Microelectronics	6504-JP	51.0	7,618	7,877	21%	-28%	24%	7,413	7,198	1.1 x	972	1,022	7.7 x	25.66	2.0 x
327	Wolfspeed Inc	600460-CN	2.5	4,211	4,411	140%	-14%	-21%	1,205	1,309	3.4 x	288	185	23.8 x	0.70	3.6 x
328	SG Micro	6967-JP	37.8	5,114	4,654	16%	-30%	-3%	2,103	1,537	3.0 x	821	435	10.7 x	12.78	3.0 x
329	StarPower Semiconductor	300661-CN	8.7	3,876	3,784	130%	-6%	-31%	463	367	10.3 x	146	49	77.4 x	1.09	7.9 x
330	SICC Co.	603290-CN	17.7	3,034	2,816	149%	-9%	-30%	393	519	5.4 x	124	149	18.9 x	5.02	3.5 x
331	Vishay Intertechnology	688234-CN	6.8	2,929	2,775	92%	-17%	-27%	60	180	15.4 x	(20)	11	260.2 x	1.68	4.1 x
332	Sino Wealth Electronic	VSH	21.7	2,730	2,934	39%	-5%	-9%	3,402	3,089	0.9 x	664	420	7.0 x	15.12	1.4 x
333	Bomin Electronics	300327-CN	2.3	792	749	182%	-18%	-27%	233	181	4.1 x	51	23	32.0 x	0.64	3.6 x
334	Amtech Systems	603936-CN	1.0	620	722	140%	-24%	-33%	423	-	-	54	-	-	1.15	0.8 x
335	Toshiba Corporation	ASYS	4.1	58	67	194%	-17%	-3%	113	104	0.6 x	(8)	(4)	-	5.61	0.7 x

Peer Set	Ticker	Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Performance			Sales			EBITDA			Book Value		
					% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book	
Software			4,324,043	5,210,129			4%	685,249	762,074	6.8 x	260,245	305,433	17.1 x		5.4 x	
336	Microsoft Corporation	MSFT	397.6	2,954,193	2,916,545	6%	-38%	6%	211,915	244,354	11.9 x	103,406	127,864	22.8 x	32.06	12.4 x
337	Alphabet Inc	GOOGL	140.1	825,609	1,655,157	10%	-36%	0%	307,394	342,765	4.8 x	122,164	140,415	11.8 x	22.74	6.2 x
338	IBM Corporation	IBM	183.7	167,703	215,654	7%	-34%	12%	61,860	63,696	3.4 x	14,551	15,520	13.9 x	24.63	7.5 x
339	Synopsys Inc	SNPS	533.4	81,347	80,488	18%	-34%	4%	5,843	6,621	12.2 x	2,208	2,623	30.7 x	43.73	12.2 x
340	Marvell	MRVL	67.7	58,527	62,502	9%	-46%	12%	5,920	5,502	11.4 x	2,099	1,692	36.9 x	17.63	3.8 x
341	Roper Technologies	ROP	537.0	57,363	63,984	5%	-22%	-2%	6,178	6,886	9.3 x	2,521	2,796	22.9 x	163.19	3.3 x
342	Ansys Inc	ANSS	327.8	28,480	28,727	11%	-21%	-10%	2,270	2,485	11.6 x	928	1,131	25.4 x	62.03	5.3 x
343	Keysight Technologies	KEYS	153.3	26,770	26,359	13%	-23%	-4%	5,464	4,996	5.3 x	1,780	1,441	18.3 x	27.54	5.6 x
344	Splunk Inc.	SPLK	153.4	25,843	27,421	2%	-46%	1%	4,216	4,666	5.9 x	1,280	1,546	17.7 x	1.18	130.0 x
345	Jacobs Solutions	CTTAY	8.3	16,554	23,168	3%	-25%	-3%	41,435	45,210	0.5 x	4,147	4,954	4.7 x	7.48	1.1 x
346	Continental AG	J	134.8	17,024	20,255	11%	-19%	4%	16,352	17,470	1.2 x	1,436	1,563	13.0 x	53.17	2.5 x
347	Gen Digital	SYMC	23.5	15,044	23,886	4%	-34%	4%	3,338	3,810	6.3 x	1,842	2,035	11.7 x	3.80	6.2 x
348	UiPath Inc	PATH	23.0	11,114	11,282	21%	-46%	-7%	1,059	1,287	8.8 x	72	223	50.6 x	3.46	6.6 x
349	Rambus Inc	YMM	6.3	5,995	3,311	36%	-14%	-10%	966	1,156	2.9 x	-	194	17.1 x	4.56	1.4 x
350	Full Truck Alliance	RMBS	68.5	7,368	7,046	11%	-41%	0%	559	601	11.7 x	282	313	22.5 x	9.63	7.1 x

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351	KPIT Tech	300012-CN	1.6	2,497	2,675	102%	-10%	-18%	742	789	3.4 x	204	200	13.4 x	0.50	3.3 x
352	Verra Mobility	2360-TW	6.4	2,725	2,713	50%	-17%	-7%	597	683	4.0 x	173	206	13.2 x	1.60	4.0 x
353	Aurora Innovation	542651-IN	18.7	5,120	5,039	14%	-52%	3%	407	585	8.6 x	77	119	42.4 x	0.91	20.5 x
354	Chroma Ate	AUR	3.0	3,421	3,226	61%	-62%	-33%	0	1	2,839.0 x	(670)	(693)	-	1.30	2.3 x
355	Centre Testing International	VRRM	23.9	3,977	4,935	2%	-32%	4%	817	868	5.7 x	372	399	12.4 x	2.43	9.8 x
356	Mobileye Global	MBLY	25.9	2,448	19,654	83%	-9%	-40%	2,079	1,933	10.2 x	732	416	47.2 x	18.51	1.4 x
357	Secunet Security Networks	300887-CN	1.2	651	546	194%	-22%	-28%	547	364	1.5 x	73	64	8.5 x	0.88	1.3 x
358	Cerence Inc	YSN-DE	180.1	1,171	1,190	55%	-26%	12%	374	421	2.8 x	69	66	18.0 x	18.65	9.7 x
359	Conduent Inc	CRNC	20.0	834	1,005	84%	-30%	2%	295	362	2.8 x	42	104	9.7 x	17.73	1.1 x
360	Karooooo Ltd.	KARO	24.6	760	739	13%	-24%	1%	192	217	3.4 x	78	88	8.4 x	4.65	5.3 x
361	Pony Testing	CNDT	3.6	761	1,980	14%	-33%	-1%	3,722	3,610	0.5 x	378	304	6.5 x	2.97	1.2 x
362	Xperi Inc	XPER	10.7	464	415	28%	-26%	-3%	521	515	0.8 x	35	65	6.4 x	9.29	1.1 x
363	Iteris Inc	ITI	4.8	206	195	14%	-23%	-7%	156	172	1.1 x	(7)	13	15.1 x	1.60	3.0 x
364	Red Cat	RCAT	0.7	50	35	119%	-22%	-24%	10	18	1.9 x	-	-	-	0.82	0.8 x
365	WiSeKey International	CYN	0.2	12	1	493%	-49%	121%	0	1	0.9 x	(19)	(21)	-	0.26	0.9 x
366	Cyngn Inc	WKEY	2.2	13	(4)	377%	-38%	365%	24	31	-0.1 x	(7)	(11)	-	10.43	0.2 x

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			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Telematics	Ticker		308,512	473,715			4%	189,532	193,851	2.4 x	60,450	62,098	7.6 x		2.4 x	
367	Verizon Communications	VZ	42.4	178,044	345,959	2%	-29%	12%	134,000	135,933	2.5 x	47,789	48,663	7.1 x	21.98 1.9 x	
368	TE Connectivity	TEL	142.2	43,908	47,048	3%	-19%	1%	16,034	16,118	2.9 x	3,438	3,778	12.5 x	42.45 3.3 x	
369	Baidu Inc	BIDU	105.3	29,868	16,604	52%	-7%	-9%	18,697	20,209	0.8 x	4,708	5,079	3.3 x	94.46 1.1 x	
370	Garmin Ltd.	GRMN	119.5	22,862	21,331	17%	-22%	-7%	5,228	5,721	3.7 x	1,271	1,344	15.9 x	36.56 3.3 x	
371	Trimble Inc	TRMB	50.9	12,652	15,478	23%	-22%	-3%	3,799	3,639	4.3 x	1,004	968	16.0 x	18.26 2.8 x	
372	Sensata Technologies	IRDM	36.3	4,491	5,866	88%	-23%	-11%	791	801	7.3 x	463	468	12.5 x	7.23 5.0 x	
373	Vontier Corp	ST	36.2	5,475	8,389	44%	-16%	-4%	4,054	4,128	2.0 x	907	928	9.0 x	21.28 1.7 x	
374	Iridium Communications	VNT	34.6	5,338	7,474	25%	-29%	0%	3,095	3,108	2.4 x	721	750	10.0 x	5.77 6.0 x	
375	Rogers Corporation	002405-CN	0.9	2,079	1,650	148%	-15%	-25%	486	489	3.4 x	(51)	(79)	-	0.69 1.3 x	
376	Navinfo	ROG	115.3	2,146	2,112	50%	-7%	-13%	908	885	2.4 x	148	133	15.9 x	67.69 1.7 x	
377	Stoneridge, Inc.	CEVA	19.2	452	328	69%	-15%	-15%	97	103	3.2 x	-	-	-	10.90 1.8 x	
378	CEVA Inc	SRI	17.8	490	647	38%	-20%	-9%	961	1,000	0.6 x	48	65	10.0 x	9.92 1.8 x	
379	Zenrin Co.	9474-JP	6.1	349	270	15%	-9%	5%	433	413	0.7 x	52	58	4.6 x	5.87 1.0 x	
380	Voxx International	VOXX	8.4	170	192	77%	-13%	-22%	534	-	-	9	-	-	14.00 0.6 x	

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381	Ondas Holdings	ROOT	8.1	78	(116)	325%	-59%	-23%	455	873	-0.1 x	(43)	(56)	-	11.43	0.7 x
382	Root Inc	INSG	2.2	26	174	462%	-26%	-2%	196	181	1.0 x	17	15	11.6 x	(8.60)	-0.3 x
383	Inseego Corp.	ONDS	1.4	80	99	56%	-77%	-20%	2	15	6.6 x	(40)	(29)	-	0.82	1.7 x
384	CalAmp Corp.	CAMP	3.2	5	210	3116%	-29%	-44%	295	237	0.9 x	18	13	16.0 x	(45.01)	-0.1 x

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