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Tesla Motors' Strategy to Revolutionize the Global Automotive Industry



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Tesla Motors began shipping its much-awaited signature Model S sedan in June 2012 and delivered 2,650 vehicles to customers by year-end. The Model S was a fully electric, four-door, five-passenger luxury sedan with an all-glass panoramic roof, high-definition backup camera, a 17-inch touchscreen that controlled most of the car's functions, keyless entry, xenon headlights, dual USB ports, tire pressure monitoring, and numerous other features that were standard in most luxury vehicles. Fold-down second row seats were standard on the Model S; however, buyers had the option of ordering a third seating row with two rear-facing child seats, thus providing seating for five adults and two children. The Model S had a base price of \$76,000–\$106,000 (depending on which power train buyers selected) and, when equipped with options frequently selected by customers, carried a retail sticker price ranging from \$95,000 to as much as \$130,000. Tesla delivered 22,477 Model S vehicles to customers in 2013, 31,655 Model S vehicles in 2014, and reached its production target of 35,000 Model S vehicles in 2014.

The Model S was the most-awarded car of 2013, including *Motor Trend's* 2013 Car of the Year award and *Automobile* magazine's 2013 Car of the Year award. The National Highway Traffic Safety Administration (NHTSA) in 2013 and 2014 awarded the Tesla Model S a 5-star safety rating, both overall and in every subcategory (a score achieved by approximately 1 percent of all cars tested by the NHTSA) and an overall Vehicle Safety Score of 5.4 stars, the highest of any vehicle ever tested. Of all vehicles tested, including every major make and model approved for sale in the United States, the Model S

set a new record for the lowest likelihood of injury to occupants in front, side, rear, and rollover accidents.¹ *Consumer Reports* gave the Model S a score of 99 out of 100 points in 2013, 2014, and 2015, saying it was “better than anything we’ve ever tested.”

Shipments of Tesla's Model X, a seven-passenger crossover SUV with “falcon-wing” rear doors that provided easy access to third-row seats and was priced slightly above the Model S, began in the second half of 2015. In early 2016, Tesla was in the final stages of completing its design of an entry-level electric vehicle (referred to as the Model 3) that was expected to have a retail sticker price of \$35,000 to \$40,000. Production start-up and shipments of the Model 3 were scheduled to begin in the last half of 2016, with deliveries to customers beginning in late 2016 or early 2017.

Elon Musk, Tesla's current chairman and CEO, had a ground-breaking strategic vision for Tesla Motors: bring a full range of affordable electric-powered vehicles to market, become the world's foremost manufacturer of premium-quality, high-performance electric vehicles; convince motor vehicle owners worldwide that electric-powered motor vehicles were an appealing alternative to gasoline-powered vehicles; and thereby accelerate the world's transition from carbon-producing, gasoline-powered motor vehicles to zero emission electric vehicles. Musk's near-term strategic objective was for Tesla to achieve sales of about 500,000 electric vehicles annually by year-end 2020. Longer term, Musk's strategic intent was for Tesla to be the

world's biggest and most highly regarded producer of electric-powered motor vehicles, dramatically increasing the share of electric vehicles on roads across the world and causing global use of gasoline-powered motor vehicles to fall into permanent long-term decline. At its core, therefore, Tesla's strategy was aimed squarely at utilizing the company's battery and electric drivetrain technology to disrupt the world automotive industry in ways that were sweeping and transformative. If Tesla's strategy proved to be as successful as Elon Musk believed it would be, industry observers expected that the Tesla's competitive position and market standing vis-à-vis the world's best-known automotive manufacturers would be vastly stronger in 2025 than it was in 2016.

In his February 2015 Letter to the Shareholders, Elon Musk commented positively on the company's financial results and its success in selling more vehicles. Indeed, Tesla's achievements in 2013–2014 attracted much attention both in the media and in the headquarters of motor vehicle manufacturers across the world:

- After suffering five years of losses totaling \$943.5 million on combined revenues of just \$861 million during 2008–2012, Tesla reported global revenues of \$2.0 billion in 2013 and over \$100 million in net income on a non-GAAP basis; Tesla's 2013 revenues from electric car sales were greater than the combined electric car revenues of all other automotive manufacturers worldwide. In 2014, Tesla reported revenues of \$3.2 billion and just over \$20 million in net income on a non-GAAP basis.
- Model S deliveries to customers in Europe began in August 2013, and deliveries to China began in spring 2014; the company's sales showroom in Beijing generated the heaviest traffic in early 2014 of any of Tesla's showrooms worldwide. In early 2014, Musk expressed confidence that sales of Tesla vehicles in Europe and China would exceed sales in the United States in two, no more than three, years. Sales to customers in Australia began in Q4 2014.
- Production rates of the Model S had increased from 600 vehicles per week in late 2013 to 1,000 vehicles per week in the last two months of 2014. Tesla had record quarterly production

of 11,627 vehicles in the fourth quarter of 2014. Shipments of a new all-wheel drive, dual-motor version of the Model S began in the fourth quarter of 2014.

- Management expected to deliver 55,000 Model S and soon-to-be-introduced Model X vehicles in 2015; it entered 2015 with over 10,000 orders for the Model S and almost 20,000 reservations for the Model X, which was scheduled to begin shipping in the third quarter.
- The Tesla Model S had received widespread praise and acclaim not only as the world's best electric vehicle but also as a product far superior to any other brand or model of electric vehicle currently on the market. *Consumer Reports* described the Model S as “a technological tour de force” with “blistering acceleration, razor-sharp handling, compliant ride, and versatile cabin.”²
- In fall 2013, the Model S ranked as the best-selling car in 8 of the 25 wealthiest zip codes in the United States, as ranked by Forbes.³ But the popularity of the Model S relative to other premium-price luxury cars in the United States was widespread. In 2013 in the United States, unit sales of Tesla's Model S sedan (15,585 vehicles) were higher than Mercedes' top-of-the-line S-Class sedan (13,303 vehicles), BMW's 700 series luxury sedan (10,932 vehicles), the Lexus LS 460 luxury sedan (10,727 vehicles), BMW's 600 series (9,762 vehicles), Audi's premium-priced A7 series (8,483 vehicles), and the Porsche Panamera sedan (5,421 vehicles).⁴
- In 2014 in the United States, sales of Tesla's Model S (18,840 vehicles) trailed those of the Mercedes S-Class (25,276 vehicles) because Mercedes introduced a newly designed S-Class with a host of appealing new features; nonetheless, sales of the Model S were far above those of BMW's 700 series luxury sedan (9,744 vehicles), the Lexus LS 460 luxury sedan (8,559 vehicles), BMW's 600 series (8,647 vehicles), Audi's premium-priced A7 series (8,133 vehicles), and Porsche's Panamera sedan (5,740 vehicles).⁵

The sleek styling and politically correct power source of the Tesla Model S was thought to explain why thousands of wealthy individuals in North

America and Europe—eager to be a part of the migration from gasoline-powered vehicles to electric-powered vehicles and to publicly display support for a cleaner environment—had become early purchasers and advocates for the vehicle. Indeed, word-of-mouth praise for the Model S among current owners and glowing articles in the media were so pervasive that Tesla had not yet spent any money on advertising to boost customer traffic in its showrooms. In a presentation to investors, a Tesla officer said, “Tesla owners are our best salespeople.”⁶ All the available evidence in 2013–2015 pointed to Tesla’s Model S as being the best electric vehicle the world had ever seen.

According to Jessica Caldwell, senior analyst at Edmunds.com (a respected web site for automotive industry data):⁷

Influential people set trends while the mainstream aspires to follow. We’ve seen this countless times in many different retail sectors. Cars are no different, albeit more expensive than most other purchases. Additionally, with the proclivity of tech geek being chic, the Silicon Valley area will set trends faster than traditional high-income markets like New York that have roots in (highly vilified) banking.

So, as Tesla increases the number of models on offer and price points, it could find itself in demand by more than just those in these wealthy enclaves. After all, most luxury car companies find the most volume in their entry-level vehicles.

Exhibit 1 shows quarterly sales of the Model S for 2012 through mid-2015.

EXHIBIT 1

Quarterly Deliveries of Tesla’s Model S to Customers, Q3 2012 Through Q2 2015

Period	Model S Deliveries	Period	Model S Deliveries
Q3, 2012	253	Q1, 2014	6,457
Q4, 2012	2,400	Q2, 2014	7,579
Q1, 2013	4,900	Q3, 2014	7,785
Q2, 2013	5,150	Q4, 2014	9,834
Q3, 2013	5,500	Q1, 2015	10,030
Q4, 2013	6,892	Q2, 2015	11,507

Company Background

Tesla Motors was incorporated in July 2003 by Martin Eberhard and Marc Tarpenning, two Silicon Valley engineers who believed it was feasible to produce an “awesome” electric vehicle. The namesake of Tesla Motors was the genius Nikola Tesla (1856–1943), an electrical engineer and scientist who once worked with Thomas Edison and later became known for his impressive inventions (of which more than 700 were patented) and his contributions to the design of modern alternating-current (AC) power transmission systems and electric motors. Tesla Motors’ first vehicle, the Tesla Roadster (an all-electric sports car) introduced in early 2008, was powered by an AC motor that descended directly from Nikola Tesla’s original 1882 design.

Financing Early Operations

Eberhard and Tarpenning financed the company until Tesla Motors’ first round of investor funding in February 2004. Elon Musk contributed \$6.35 million of the \$6.5 million in initial funding and, as the company’s majority investor, assumed the position of Chairman of the company’s board of directors. Martin Eberhard put up \$75,000 of the initial \$6.5 million, with two private equity investment groups and a number of private investors contributing the remainder to Tesla’s initial funding as well.⁸ Shortly thereafter, the company had a second round of investor funding amounting to \$13 million, with Musk and a third private equity investment group being the principal capital contributors.

In May 2006, a third round of investor funding raised \$40 million in additional capital for the young company, the majority of which was contributed by Elon Musk and an investment group called Technology Partners. This third round included capital contributions from Google co-founders Sergey Brin and Larry Page, former eBay President Jeff Skoll, Hyatt heir Nick Pritzker, and three other venture capital firms. A fourth round of private financing in May 2007 brought in an additional \$45 million in new investment capital. But the company continued to burn through the investment capital that had been raised—largely because of heavy product R&D expenditures and several product design changes.

These costs forced a fifth financing round that raised \$40 million in investment capital in February 2008. Of the \$145 million in investment capital raised in these first five financing rounds, Elon Musk contributed about \$74 million, making him the company's largest shareholder.⁹

In May 2009, when the company was struggling to cope with still another cash crunch and overcome a series of glitches in getting the Model S into production, Germany's Daimler AG, the maker of Mercedes vehicles, announced it was acquiring an equity stake of almost 10 percent in Tesla for a reported \$50 million and that a Daimler executive would become a member of Tesla's board of directors.¹⁰ Daimler's investment signaled a strategic partnership with Tesla to accelerate the development of Tesla's lithium ion battery technology and electric drivetrain technology, and to collaborate on electric cars being developed at Mercedes. In July 2009, Daimler announced that Abu Dhabi's Aabar Investments had purchased 40 percent of Daimler's ownership interest in Tesla.¹¹

In June 2009, following two years of lobbying by Tesla on behalf of its loan applications, the company received approval for about \$465 million in low-interest loans from the U.S. Department of Energy to accelerate the production of affordable, fuel-efficient electric vehicles; the loans were part of DOE's \$25 billion Advanced Technology Vehicle Manufacturing Program created in 2007 during the George W. Bush administration and funded in September 2008, which provided incentives to new and established automakers to build more fuel-efficient vehicles and reduce the country's dependence on foreign oil. Tesla intended to use \$365 million for production engineering and assembly of its forthcoming Model S and \$100 million for a power train manufacturing plant employing about 650 people that would supply all-electric power train solutions to other automakers and help accelerate the availability of relatively low-cost, mass-market electric vehicles.

In September 2009, Tesla Motors raised \$82.5 million from Daimler, Fjord Capital Partners, Aabar Investments, and other undisclosed investors; Elon Musk did not contribute to this funding round. Tesla indicated the funds raised would be used primarily to open additional sales and service centers for its vehicles.

In June 2010, Tesla Motors became a public company, raising \$226 million with an initial public offering of 13,300,000 shares of common stock sold at a price of \$17.00 per share; of the shares sold to the public, 11,880,600 shares were offered by the company and 1,419,400 shares were offered by selling stockholders. In addition, the selling stockholders granted the underwriters a 30-day option to purchase up to an additional aggregate of 1,995,000 shares of common stock to cover over-allotments, if any. Tesla's shares began trading on Tuesday, June 29, 2010, on the NASDAQ under the ticker symbol TSLA. Tesla Motors was the first American car company to go public since Ford Motor Company's IPO in 1956. In October 2012, Tesla completed a follow-on offering of 7.97 million shares from which it received net proceeds of \$222.1 million.

Management Changes

In August 2007, with the company plagued by production delays, co-founder Martin Eberhard was ousted as Tesla's CEO and replaced with an interim CEO who headed the company until Ze'ev Drori, an Israeli-born American technology entrepreneur and avid car enthusiast, was named the company's president and CEO in November 2007. Drori was specifically tasked by the company's board of directors to get company's delayed Tesla Roadster into production and start deliveries to customers as fast as possible. To combat continuing production delays (the latest of which involved problems in designing and developing a reliable, tested transmission that would last many miles) and "out-of-control" costs that were burning through the company's investment capital at a rate that disturbed investors, Drori conducted a performance review of the company's 250+ employees and contractors and proceeded to fire or lay off roughly 10 percent of the company's workforce, including several executives, high-ranking members of the company's automotive engineering team, and other heretofore key employees.¹² Although Drori succeeded in getting the Tesla Roadster into production in March and initiating deliveries to customers, in October 2008, Musk decided it made more sense for him to take on the role as Tesla's chief executive—while continuing to serve as chairman of the board—because he was making all the major

decisions anyway. Drori was named Vice Chairman but then opted to leave the company in December 2008. By January 2009, Tesla had raised \$187 million and delivered 147 of its first-generation Roadster vehicle. Musk declared that the company would be cash-flow positive by mid-2009.

Elon Musk

Elon Musk was born in South Africa, taught himself computer programming, and, at age 12, made \$500 by selling the computer code for a video game he invented.¹³ In 1992, after spending two years at Queen's University in Ontario, Canada, Musk transferred to the University of Pennsylvania, where he earned an undergraduate degree in business and a second degree in physics. During his college days, Musk spent some time thinking about two important matters that he thought merited his time and attention later in his career: one was that the world needed an environmentally clean method of transportation; the other was that it would be good if humans could colonize another planet.¹⁴ After graduating from the University of Pennsylvania, he decided to move to California and pursue a Ph.D. in applied physics at Stanford but with the specific intent of working on energy storage capacitors that could be used in electric cars. However, he decided to leave the program after two days to pursue his entrepreneurial aspirations instead.

Musk's first entrepreneurial venture was to join up with his brother, Kimbal, and establish Zip2, an Internet software company that developed, hosted, and maintained some 200 websites involving "city guides" for media companies, including the *New York Times*, the *Chicago Tribune*, and other newspapers in the Hearst, Times Mirror, and Pulitzer Publishing chains. In 1999, Zip2 was sold to a wholly owned subsidiary of Compaq Computer for \$307 million in cash and \$34 million in stock options; Musk received a reported \$22 million from the sale.¹⁵

In March 1999, Musk co-founded X.com, a Silicon Valley online financial services and e-mail payment company. One year later, X.com acquired Confinity, which operated a subsidiary called PayPal. Musk was instrumental in the development of the person-to-person payment platform and, seeing big market opportunity for such an online payment platform, decided to rename X.com as PayPal. Musk

pocketed about \$150 million in eBay shares when PayPal was acquired by eBay for \$1.5 billion in eBay stock in October 2002.

In June 2002, Elon Musk with an investment of \$100 million of his own money founded his third company, Space Exploration Technologies (SpaceX), to develop and manufacture space launch vehicles, with a goal of revolutionizing the state of rocket technology and ultimately enabling people to live on other planets. He vowed to revolutionize the space industry with a low-cost, reliable satellite launcher that charged \$6 million a flight—less than half the going rate for small payloads. Upon hearing of Musk's new venture into the space flight business, David Sacks, one of Musk's former colleagues at PayPal said, "Elon thinks bigger than just about anyone else I've ever met. He sets lofty goals and sets out to achieve them with great speed."¹⁶ In 2011, Musk vowed to put a man on Mars in 10 years.¹⁷ In May 2012, a SpaceX Dragon cargo capsule powered by a SpaceX Falcon Rocket completed a near flawless test flight to and from the International Space Station; the successful test flight prompted Musk to say that the mission, in his view, marked a turning point toward rapid advancement in space transportation technology, one that would pave the way for routine cargo deliveries and commercial space flights.¹⁸ Since May 2012, under a \$1.6 billion contract with NASA, the SpaceX Dragon had delivered cargo to and from the Space Station in at least 12 resupply missions. SpaceX was both profitable and cash-flow positive in 2013 and 2014. As of 2015, it had completed 50 launches, representing some \$5 billion in contracts, and had over 3,000 employees. Headquartered in Hawthorne, California, SpaceX was owned by management, employees, and private equity firms; Elon Musk was the company's CEO and chief designer.

Elon Musk's other active business venture was SolarCity Inc., a full-service provider of solar system design, financing, solar panel installation, and ongoing system monitoring for homeowners, municipalities, businesses (including Toyota, Walmart, Walgreens, and eBay), over 100 schools (including Stanford University), nonprofit organizations, and military bases. Going into 2015, SolarCity managed more solar systems for homes than any other solar company in the United States. SolarCity had revenues of \$255 million in 2014, but the company's

operating losses had grown in size every year since 2009. Nonetheless, investors were bullish on SolarCity's future prospects; the company's stock price ranged from a low of \$46 to a high of \$85 from January 1, 2014, to March 31, 2015, and traded in the range \$48–\$58 range for the first three months of 2015. Elon Musk was the Chairman of SolarCity's board of directors and owned 22.9 percent of the outstanding shares of the company as of April 4, 2014.

On August 12, 2013, Musk published a blog post detailing his design for a solar-powered, city-to-city elevated transit system called the Hyperloop that could take passengers and cars from Los Angeles to San Francisco (a distance of 380 miles) in 30 minutes. He then held a press call to go over the details. In Musk's vision, the Hyperloop would transport people via aluminum pods enclosed inside of steel tubes. He described the design as looking like a shotgun with the tubes running side by side for most of the route and closing the loop at either end.¹⁹ The tubes would be mounted on columns 50 to 100 yards apart, and the pods inside would travel up to 800 miles per hour. The pods could be small to carry just people or enlarged to allow people to drive a car into a pod. Musk estimated that a Los Angeles-to-San Francisco Hyperloop could be built for \$6 billion with people-only pods or \$10 billion for the larger pods capable of holding cars with people inside. Musk claimed his Hyperloop alternative would be four times as fast as California's proposed \$70 billion high-speed train, with ticket costs being "much cheaper" than a plane ride. While pods would be equipped with an emergency brake for safety reasons, Musk said the safe distance between the pods would be about 5 miles, so you could have about 70 pods between Los Angeles and San Francisco that departed every 30 seconds. Musk stated that riding on the Hyperloop would be pleasant and super-smooth, with less lateral acceleration—which is what tends to make people feel motion sickness—than a subway ride and no sudden movements due to turbulence (as is the case with airplanes). Musk said travel via a Hyperloop system between cities fewer than 1,000 miles apart would be quicker than flying because of the time it took to board and deplane airline passengers and the time it took for planes to take off and land at busy airports. Musk announced that he would not form a company to build Hyperloop

systems; rather, he was releasing his design in hopes that others would take on such projects.

Since 2008, many business articles had been written about Musk's brilliant entrepreneurship in creating companies with revolutionary products that either spawned new industries or disruptively transformed existing industries. In a 2012 *Success* magazine article, Musk indicated that his commitments to his spacecraft, electric car, and solar panel businesses were long-term and deeply felt.²⁰ The author quoted Musk as saying, "I never expect to sort of sell them off and do something else. I expect to be with those companies as far into the future as I can imagine." Musk indicated he was involved in SolarCity and Tesla Motors "because I'm concerned about the environment," while "SpaceX is about trying to help us work toward extending life beyond Earth on a permanent basis and becoming a multiplanetary species." The same writer described Musk's approach to a business as one of rallying employees and investors without creating false hope.²¹ The article quoted Musk as saying:

You've got to communicate, particularly within the company, the true state of the company. When people really understand it's do or die but if we work hard and pull through, there's going to be a great outcome, people will give it everything they've got.

Asked if he relied more on information or instinct in making key decisions, Musk said he makes no bright-line distinction between the two.²²

Data informs the instinct. Generally, I wait until the data and my instincts are in alignment. And if either the data or my instincts are out of alignment, then I sort of keep working the issue until they are in alignment, either positive or negative.

Musk was widely regarded as being an inspiring and visionary entrepreneur with astronomical ambition and willingness to invest his own money in risky and highly problematic business ventures; on several occasions, Musk's ventures had approached the brink of failure in 2008–2009, and then unexpectedly emerged with seemingly bright prospects. He set stretch performance targets and high product quality standards, and he pushed hard for their achievement. He exhibited perseverance, dedication, and an exceptionally strong work ethic, typically working 85 to 90 hours a week. Most weeks, Musk split his time between SpaceX and Tesla. He

was at SpaceX's Los Angeles-based headquarters on Monday and Thursday, and at various Tesla facilities in the San Francisco Bay area on Tuesday and Wednesday.²³ On Friday, he split his time between both companies. Tesla Design had offices in the same office park in a southern Los Angeles suburb as SpaceX; Musk's personal residence was about 18 miles away in a northern Los Angeles suburb.

However, Musk got mixed marks on his management style. He was praised for his grand vision of what his companies could become and his ability to shape the culture of his start-up companies but criticized for being hard to work with, partly because of his impatience for action and results, his intensity and sometimes hands-on micro-management of certain operational and product design issues, and the frequency with which he overruled others and imposed his wishes when big decisions had to be made. In 2000, while on vacation, he was forced out as CEO at PayPal after seven months.²⁴ Several lawsuits had been filed against him by disgruntled former colleagues and employees. A number of articles had made mention of assorted minor annoyances and criticisms of the ways he did things and his frequent prickly manner when responding to probing or unpleasant questions from reporters. But virtually no one had disparaged his brilliant intellect, inventive aptitude, and exceptional entrepreneurial abilities. In 2015, it was hard to dispute that Musk—at the age of 44—had already made a name for himself in two ways.²⁵

- He had envisioned the transformative possibilities of the Internet, a migration from fossil

fuels to sustainable energy, and expanding life beyond Earth.

- His companies (Tesla, SpaceX, and SolarCity) had put him in position to personally affect the path the world would take in migrating from fossil fuels to sustainable energy and to expanding life beyond Earth. Musk won the 2010 Automotive Executive of the Year Innovator Award for expediting the development of electric vehicles throughout the global automotive industry. *Fortune* magazine named Elon Musk its 2013 Businessperson of the Year.

In 2015, Elon Musk's base salary as Tesla's CEO was \$33,280, an amount required by California's minimum wage law; however, he was accepting only \$1 in salary. Musk controlled over 33 million shares of common stock in Tesla Motors (worth some \$6.6 billion in March 2015) and had been granted options for an additional 89 million shares, 78 million shares of which were subject to Tesla Motors achieving specified increases in market capitalization and 10 designated performance milestones by 2023.²⁶

Recent Financial Performance and Financing Activities

Exhibits 2 and 3 present recent financial statement data for Tesla Motors.

In May 2013, Tesla raised over \$1 billion by issuing 4.5 million shares of common stock at a price of \$92.24 per share and \$660 million of 1.50% convertible senior notes. Elon Musk personally purchased 1.08 million

EXHIBIT 2

Consolidated Statement of Operations, Tesla Motors, 2010–2014 (in thousands, except share and per share data)

	Fiscal Year Ending December 31				
	2014	2013	2012	2011	2010
Income statement data:					
Revenues:					
Sales of vehicles, options and accessories, vehicle service, and regulatory credits	\$3,079,415	\$1,952,684	\$ 354,344	\$ 101,748	\$ 75,459
Sales of power train components, battery packs, and drive units to other vehicle manufacturers	113,308	45,102	31,355	46,860	21,619

Development of power train components and systems for other vehicle manufacturers	<u>5,633</u>	<u>15,710</u>	<u>27,557</u>	<u>55,674</u>	<u>19,666</u>
Total revenues	3,198,356	2,013,496	413,256	204,242	116,744
Cost of revenues:					
Vehicle sales and sales of , power train components, and related systems to other manufacturers	2,310,011	1,543,878	371,658	115,482	79,982
Development of power train systems and components for other vehicle manufacturers	<u>6,674</u>	<u>13,356</u>	<u>11,531</u>	<u>27,165</u>	<u>6,031</u>
Total cost of revenues	<u>2,316,615</u>	<u>1,557,234</u>	<u>383,189</u>	<u>142,647</u>	<u>86,013</u>
Gross profit (loss)	881,671	456,262	30,067	61,595	30,731
Operating expenses:					
Research and development	464,700	231,976	273,978	208,981	92,996
Selling, general, and administrative	<u>603,660</u>	<u>285,569</u>	<u>150,372</u>	<u>104,102</u>	<u>84,573</u>
Total operating expenses	1,068,360	517,545	424,350	313,083	177,569
Loss from operations	(186,689)	961,283)	(394,283)	(251,488)	(146,838)
Interest income	1,126	189	288	255	258
Interest expense	(100,886)	(32,934)	(254)	(43)	(992)
Other income (expense), net	1,813	22,602	(1,828)	(2,646)	(6,583)
Loss before income taxes	(284,636)	(71,426)	(396,077)	(253,922)	(154,155)
Provision for income taxes	<u>9,404</u>	<u>2,588</u>	<u>136</u>	<u>489</u>	<u>173</u>
Net loss	<u>\$(294,040)</u>	<u>\$ (74,014)</u>	<u>\$(396,213)</u>	<u>\$(254,411)</u>	<u>\$(154,328)</u>
Net loss per share of common stock, basic and diluted	<u>\$(2.36)</u>	<u>\$ (0.62)</u>	<u>\$(3.69)</u>	<u>\$(2.53)</u>	<u>\$(3.04)</u>
Weighted average shares used in computing net loss per share of common stock, basic and diluted	124,539,343	119,421,414	107,349,188	100,388,815	50,718,302
Balance Sheet Data:					
Cash and cash equivalents	\$1,905,713	\$845,889	\$ 201,890	\$ 255,266	\$ 99,558
Inventory	953,675	340,355	268,504	50,082	45,182
Total current assets	3,198,657	1,265,939	524,768	372,838	235,886
Property, plant, and equipment, net	1,829,267	738,494	552,229	298,414	114,636
Total assets	5,849,251	2,416,930	1,114,190	713,448	386,082
Total current liabilities	2,107,166	675,160	539,108	191,339	85,565
Long-term debt, less current portion	1,806,518	—	401,495	268,335	71,828
Total stockholders' equity	911,710	667,121	124,700	224,045	207,048
Cash Flow Data:					
Cash flows from operating activities	<u>\$(57,337)</u>	<u>\$257,994</u>	<u>\$(266,081)</u>	<u>\$(128,034)</u>	<u>\$(127,817)</u>
Proceeds from issuance of common stock in public offerings	—	(360,000)	221,496	172,410	188,842
Purchases of property and equipment excluding capital leases	(969,885)	(264,224)	(239,228)	(184,226)	(40,203)
Net cash used in investing activities	(990,444)	(249,417)	(206,930)	(162,258)	(180,297)
Net cash provided by financing activities	2,143,130	635,422	419,635	446,000	338,045

EXHIBIT 3

Tesla's Financial Performance by Quarter, GAAP Versus Non-GAAP, Quarter 4, 2013-Quarter 1, 2015

	Q4, 2013	Q1, 2014	Q2, 2014	Q3, 2014	Q4, 2014	Q1, 2015
Revenues (GAAP)	\$615,219	\$620,542	\$769,349	\$851,804	\$956,661	\$939,880
Model S revenues deferred due to lease accounting	<u>146,125</u>	<u>92,506</u>	<u>88,162</u>	<u>80,544</u>	<u>138,973</u>	<u>163,676</u>
Revenues (Non-GAAP)	761,344	\$713,048	857,511	932,348	1,095,634	\$1,103,556
Gross profit (loss) (GAAP)	156,590	155,128	212,995	251,851	261,697	260,073
Model S gross profit deferred due to lease accounting	<u>29,796</u>	<u>21,384</u>	<u>18,607</u>	<u>16,564</u>	<u>26,072</u>	<u>46,396</u>
Stock-based compensation expense	<u>3,455</u>	<u>3,106</u>	<u>3,912</u>	<u>5,383</u>	<u>5,053</u>	<u>4,601</u>
Gross profit (loss) (Non-GAAP)	189,641	179,618	235,514	273,798	292,822	311,070
Research and development expenses (GAAP)	68,454	81,544	107,717	135,873	139,565	167,154
Stock-based compensation expense	<u>(10,578)</u>	<u>(13,545)</u>	<u>(14,822)</u>	<u>(16,639)</u>	<u>(17,595)</u>	<u>(19,792)</u>
Research and development expenses (Non-GAAP)	57,876	67,999	92,895	119,234	121,970	147,362
Selling, general, and administrative expenses (GAAP)	101,489	117,551	134,031	155,107	196,970	195,365
Stock-based compensation expense	<u>(14,056)</u>	<u>(20,387)</u>	<u>(17,049)</u>	<u>(17,136)</u>	<u>(21,869)</u>	<u>(18,633)</u>
Selling, general and administrative expenses (Non-GAAP)	87,443	97,164	116,982	137,971	175,101	176,732
Net loss (GAAP)	<u>(16,264)</u>	<u>(49,800)</u>	<u>\$(61,902)</u>	<u>(74,708)</u>	<u>(107,629)</u>	<u>\$(154,181)</u>
Stock-based compensation expense	<u>(28,089)</u>	<u>(37,038)</u>	<u>(35,783)</u>	<u>(39,158)</u>	<u>(44,517)</u>	<u>(43,026)</u>
Change in fair value of warrant liability	-	-	-	-	-	-
Noncash interest expense related to convertible notes	4,299	8,393	23,639	22,160	20,826	19,510
Model S gross profit deferred due to lease accounting	<u>29,796</u>	<u>21,384</u>	<u>18,607</u>	<u>16,564</u>	<u>26,072</u>	<u>46,396</u>
Net income (loss) (Non-GAAP)	\$45,920	\$17,015	\$16,127	\$3,174	\$(16,214)	\$(45,249)
Net income (loss) per common share, basic (GAAP)	\$(0.32)	\$(0.40)	\$(0.50)	\$(0.60)	\$(0.86)	\$(1.22)
Net income (loss) per common share, basic (Non-GAAP)	0.37	0.14	0.13	0.02	(0.13)	(0.36)
Shares (in 000s) used in per share calculation, basic (GAAP and Non-GAAP)	122,802	123,473	124,520	124,911	125,497	125,947
Net loss per share, diluted (GAAP)	\$(0.12)	\$(0.36)	\$(0.44)	\$(0.52)	\$(0.86)	\$(1.22)
Net income (loss) per share, diluted (Non-GAAP)	0.33	0.12	0.11	0.02	(0.13)	(0.36)
Shares (in 000s) used in per share calculation, diluted (Non-GAAP)	137,784	140,221	140,948	142,747	125,497	125,947

Special note on GAAP versus non-GAAP treatments: Under generally accepted accounting principles (GAAP), revenues and costs of leased vehicles must be recorded and apportioned across the life of the lease; with non-GAAP lease accounting, all revenues and costs of a leased vehicle are recorded at the time the lease is finalized. Under GAAP, stock compensation must be expensed and allocated to the associated cost category; non-GAAP excludes stock compensation as a cost because it is a noncash item. Many companies, including Tesla Motors, believe non-GAAP treatments are useful in understanding company operations and actual cash flows. In Tesla's case, the non-GAAP treatments exclude such noncash items as stock-based compensation, the change in fair value related to Tesla's warrant liability, and noncash interest expense related to Tesla's 1.5 percent convertible senior notes.

Sources: Tesla Motors' Shareholder Letters, Q4 2013, Q1 2014, Q2, 2014, Q3 2014, Q4 2014, and Q1 2015.

of these shares at the public offering price, boosting his investment in Tesla by another \$100 million. Tesla used about \$450 million of the offering proceeds to fully pay off its 2009 loan from the U.S. Department of Energy, including an \$11 million fee for early payment.

Tesla ended 2013 with \$848.9 million in cash and cash equivalents, and current restricted cash, an increase of \$52.5 million from the end of the third quarter. Executive management expected that the current level of liquidity, coupled with projected future cash flows from operating activities, was likely to provide adequate liquidity based on current plans. However, if market conditions proved favorable, management said would evaluate the merits of opportunistically pursuing actions to further boost the company's cash balances and overall liquidity.

Tesla had capital expenditures of \$264 million in 2013, aimed chiefly at expanding its factory production capabilities and opening additional sales galleries, service centers, and Supercharger stations. Capital expenditures rose sharply to \$970 million in 2014 to further expand production capacity, continue development of the Model X and Model 3, and open more sales galleries, service centers, and Supercharger stations. Management expected 2015 capital expenditures would rise to about \$1.5 billion to further expand production capacity, get the Model X ready to go into production, continue work on the Model 3, fund construction work on a large-scale factory to build batteries and battery packs for its vehicles, and expand its geographic network of sales galleries, service centers, and Supercharger stations.

Tesla's Strategy to Become the World's Biggest and Most Highly Regarded Producer of Electric Vehicles

In 2015, Tesla's strategy was focused on broadening the company's model line-up, expanding the company's production capacity, stepping up the pace of constructing a new \$5 billion plant to produce batteries and battery packs for Tesla's vehicles, and adding sales galleries, service centers, and Supercharger stations in the United States, much of Europe, China, and Australia.

Product Line Strategy

So far, Tesla had introduced two models—the Tesla Roadster and the Model S—but the Model X and Model 3 were rapidly advancing through the pipeline. Management intended to broaden the company's customer base by offering not only a bigger model variety but also by introducing substantially cheaper models. Because the lithium-ion battery pack in the Model S reputedly cost upwards of \$25,000 and was far and away the biggest cost component, the speed with which Tesla could profitably introduce new vehicles with prices of \$35,000 to \$50,000 depended largely on how fast and how far it was able to drive down the costs of its battery pack via greater scale economies in battery production and cost-saving advances in battery technology.

Tesla's First Vehicle—The Tesla Roadster

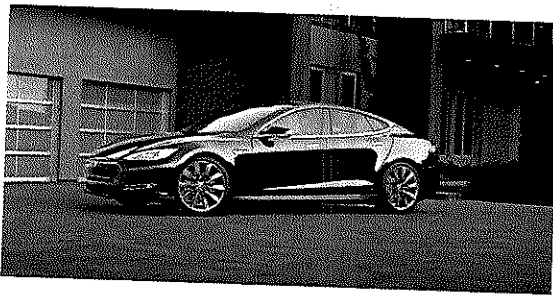
Following Tesla's initial funding in 2004, Musk took an active role within the company. Although he was not involved in day-to-day business operations, he nonetheless exerted strong influence in the design of the company's first model, the Tesla Roadster, a two-seat convertible that could accelerate from zero to 60 miles per hour in as little as 3.7 seconds, had a maximum speed of about 120 miles per hour, could travel about 245 miles on a single charge, and had a base price of \$109,000. Musk insisted from the beginning that the Roadster have a lightweight, high-strength carbon fiber body, and he influenced the design of components of the Roadster ranging from the power electronics module to the headlamps and other styling features.²⁷ Prototypes of the Roadster were introduced to the public in July 2006, and the first "Signature One Hundred" set of fully equipped Roadsters sold out in less than three weeks and the second hundred sold out by October 2007. General production began on March 17, 2008. New models of the Roadster were introduced in July 2009 (including the Roadster Sport with a base price of \$128,500) and in July 2010.²⁸ Sales of Roadster models to countries in Europe and Asia began in 2010. From 2008 through 2012, Tesla sold more than 2,450 Roadsters in 31 countries. Sales of Roadster models ended in December 2012 so that the company could concentrate exclusively on producing and marketing the Model S. However, Tesla announced that in early

2015, Roadster owners would be able to obtain a Roadster 3.0 package that enabled a 40–50 percent improvement in driving range to as much as 400 miles on a single charge; management expected to introduce additional Roadster updates in future years.

Tesla's Second Vehicle—The Model S Customer deliveries of Tesla's second vehicle, the Model S sedan (see Exhibit 4), began in July 2012. In Q2 of 2013, Tesla introduced several new options for the

EXHIBIT 4

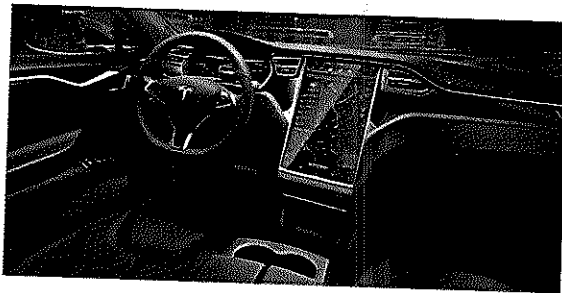
Tesla's Model S Sedan



Black Tesla Model S



Tesla interior seats



Tesla interior dashboard

Model S, including a subzero weather package, parking sensors, upgraded leather interior, several new wheel options, and a yacht-style floor center console. Xenon headlights and a high-definition backup camera were made standard equipment on all Model S cars. Originally, buyers had a choice of three power trains, but in 2014, an all-wheel drive power train was introduced, and then in April 2015, the power train lineup was again modified to that shown in Exhibit 5. The Tesla Model S provided best-in-class storage space of 63.4 cubic feet, including storage inside the cabin (58.1 cubic feet) and under the hood (5.3 cubic feet): this compared quite favorably with the 14.0 cubic-foot trunk capacity of BMW's large 7-series sedan, the 16.3 cubic-foot capacity of a Mercedes S-class sedan, and the 18.0 cubic-foot trunk capacity of the large Lexus 460 sedan.

In early 2015, Tesla announced that the availability of an autopilot feature on new orders of the Model S. The autopilot option included a forward-looking camera, radar, and 360-degree sonar sensors with real-time traffic updates. An autopilot-equipped Model S could be automatically driven on the open road and in dense stop-and-go traffic. Changing lanes was as simple as a tap of the turn signal. Upon arriving at the destination, the autopilot control could detect a parking spot and automatically park the vehicle. Standard equipment safety features constantly monitored stop signs, traffic signals, and pedestrians, as well as unintentional lane changes. The autopilot features of the Model S were progressively enabled over time with software updates. As of mid-2015, the current 6.2 autopilot software version enabled variable speed cruise control (to match the flow of traffic), automatic lane centering (including around curves), camera-enabled automatic high/low beam headlights, self-parking, automatic self-braking, and blind spot warning; future autopilot software updates were expected to enable forward collision warning and other capabilities (potentially including self-driving). The autopilot parking feature included locating a vacant parallel parking spot and smoothing backing into it, automatically parking in an open stall when pulling into a Tesla Supercharger station, automatically parking in an owner's garage at home, and—when calendar syncing was engaged—checking current traffic conditions to determine how

EXHIBIT 5

Features, Performance and Pricing of Tesla's Four Model S Versions, 2015

	70D All-Wheel Drive	85 Rear-Wheel Drive	85D All-Wheel Drive	P85D All-Wheel Drive
EPA certified range	240 miles	265 miles	270 miles	253 miles
0 to 60 mph	5.2 seconds	5.4 seconds	4.4 seconds	3.2 seconds
Top speed	140 mph	140 mph	155 mph	155 mph
Peak motor power	329 horsepower	380 horsepower	422 horsepower	691 horsepower (221 hp front, 470 hp rear)
Power train	Dual motors (front axle and rear axle)	Single motor (rear axle)	Dual motors (front axle and rear axle)	High-performance, dual motors (front axle and rear axle), smart-air suspension
Battery	70 kwh microprocessor controlled lithium-ion battery	85 kwh microprocessor controlled lithium-ion battery	85 kwh microprocessor controlled lithium-ion battery	85 kwh microprocessor controlled lithium-ion battery
Base price (including destination charge)	\$76,200	\$81,200	\$86,200	\$106,200
New vehicle limited warranty	4 years or 50,000 miles, whichever comes first	4 years or 50,000 miles, whichever comes first	4 years or 50,000 miles, whichever comes first	4 years or 50,000 miles, whichever comes first
Battery and drive unit warranty	8 years, unlimited miles	8 years, unlimited miles	8 years, unlimited miles	8 years, unlimited miles
Tesla Supercharger	Standard	Standard	Standard	Standard
Autopilot features	\$2,500 (optional)	\$2,500 (optional)	\$2,500 (optional)	\$2,500 (optional)
Supercharging capability				
Standard 110-volt wall outlets	Complete recharge overnight	Complete recharge overnight	Complete recharge overnight	Complete recharge overnight
240-volt outlet, with a single on-board charger	29 miles of range per hour	29 miles of range per hour	29 miles of range per hour	29 miles of range per hour
240-volt outlet, with twin on-board chargers	58 miles of range per hour	58 miles of range per hour	58 miles of range per hour	58 miles of range per hour
Tesla Supercharger enabled	50% in 20 minutes 80% in 40 minutes 100% in 75 minutes	50% in 20 minutes 80% in 40 minutes 100% in 75 minutes	50% in 20 minutes 80% in 40 minutes 100% in 75 minutes	50% in 20 minutes 80% in 40 minutes 100% in 75 minutes
Airbags	8	8	8	8
Overall length	196.0"	196.0"	196.0"	196.0"
Overall width (mirrors extended)	86.2"	86.2"	86.2"	86.2"
Height	56.5"	56.5"	56.5"	56.5"
Ground clearance	5.65"	5.65"	5.65"	5.65"
Total cargo volume	31.6 cubic feet	31.6 cubic feet	31.6 cubic feet	31.6 cubic feet

Sources: Information posted at www.teslamotors.com and www.edmunds.com, accessed April 9, 2015, and .

much time was needed to make the driver's first appointment, starting the motor and turning on the climate control, opening the garage door, pulling out of the garage, and meeting the driver at the curb.

Customers who purchased any of the four Model S versions were eligible for a federal tax credit of \$7,500; a number of states also offered rebates on electric vehicle purchases, with states such as California and

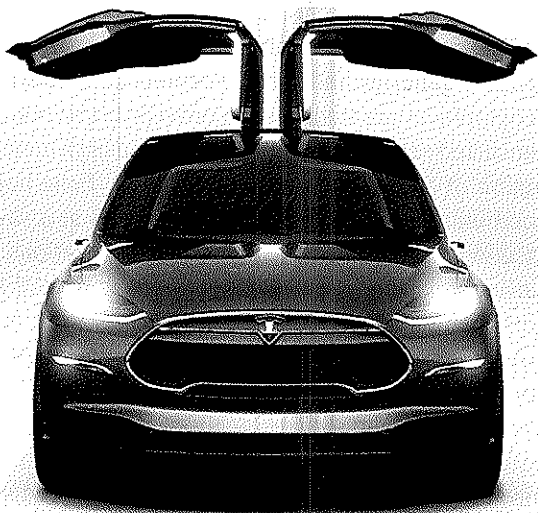
New York offering rebates as high as \$7,500. Customers who leased a Model S were not entitled to rebates.

Tesla's Third Vehicle—The Model X Crossover SUV

To reduce the development costs of the Model X, Tesla had designed the Model X so that it could share about 60 percent of the Model S platform. The Model X had seating for seven adults, dual electric motors that powered an all-wheel drive system, and an expected driving range of about 260 miles per charge. The Model X's distinctive "falcon-wing doors" provided easy access to the second and third seating rows, resulting in a profile that resembled a sedan more than an SUV (see Exhibit 6).

EXHIBIT 6

Model X Crossover



Tesla Model X-Silver with doors up



Tesla Model X-Silver

© Tesla Motors / www.teslamotors.com

Initial production of the Model X began in the third quarter of 2015. The base price of the Tesla Model X crossover was similar to a dual-motor, all-wheel drive Model S with autopilot (~\$106,000).

In April 2015, Tesla sent software updates to all Model S vehicles previously delivered to customers that included a new "Range Assurance" feature, an always-running application within the car's navigation system that kept tabs on the vehicle's battery charge-level and the locations of Tesla Supercharging stations and parking-spot chargers in the vicinity; when the vehicle's battery began running low, an alert appeared on the navigation screen, along with a list of nearby Tesla Supercharger stations and public charging facilities. A second warning appeared when the vehicle was about to go beyond the radius of nearby chargers without enough juice to get to the next facility, at which point drivers were directed to the nearest charge point.

A few weeks later, a second software update with a Trip Planner feature was sent out. Trip Planner consisted of a GPS navigation tweak that enabled drivers to plan long-distance trips based on the best charging options both en route and at the destination. The software displayed the fastest, most convenient route to the destination on the console screen, indicating where drivers needed to stop and how long they would need to plug in along the way to maintain sufficient battery power. The software was programmed to pull in new data about every 30 seconds, updating to show which charging facilities were vacant so the vehicle would not end up waiting in line for a plug.

Tesla's Fourth Vehicle—The Model 3 Tesla expected to introduce its fourth model, called the Model 3, in 2017. The Model 3 was intended to be a high-volume vehicle with much lower base price—perhaps as low as \$35,000, provided Tesla was able to achieve the targeted cost reductions. Headed into 2016, work on the design, styling, and specifications for the Model 3 was nearing the final stages.

Distribution Strategy: A Company-Owned and Operated Network of Retail Stores and Service Centers

Tesla sold its vehicles directly to buyers and provided them with after-sale service through a network of company-owned sales galleries and service

centers. This contrasted sharply with the strategy of rival motor vehicle manufacturers, all of whom sold vehicles and replacement parts at wholesale prices to their networks of franchised dealerships that in turn handled retail sales, maintenance and service, and warranty repairs. Management believed that integrating forward into the business of traditional automobile dealers and operating its own retail sales and service network had three important advantages:

1. *The ability to create and control its own version of a compelling buying customer experience*, one that was differentiated from the buying experience consumers had with sales and service locations of franchised automobile dealers. Having customers deal directly with Tesla-employed sales and service personnel enabled Tesla to (a) engage and inform potential customers about electric vehicles in general and the advantages of owning a Tesla in particular and (b) build a more personal relationship with customers and, hopefully, instill a lasting and favorable impression of Tesla Motors, its mission, and the caliber and performance of its vehicles.
2. *The ability to achieve greater operating economies in performing sales and service activities*. Management believed that a company-operated sales and service network offered substantial opportunities to better control inventory costs of both vehicles and replacement parts, manage warranty service and pricing, maintain and strengthen the Tesla brand, and obtain rapid customer feedback.
3. *The opportunity to capture the sales and service revenues of traditional automobile dealerships*. Rival motor vehicle manufacturers sold vehicles and replacement parts at wholesale prices to their networks of franchised dealerships that in turn handled retail sales, maintenance and service, and warranty repairs. But when Tesla buyers purchased a vehicle at a Tesla-owned sales gallery, Tesla captured the full retail sales price, roughly 10 percent greater than the wholesale price realized by vehicle manufacturers selling through franchised dealers. And by operating its own service centers, it captured service revenues not available to vehicle manufacturers that relied upon their franchised dealers to provide

need maintenance and repairs. Furthermore, Tesla management believed that company-owned service centers avoided the conflict of interest between vehicle manufacturers and their franchised dealers where the sale of warranty parts and repairs by a dealer were a key source of revenue and profit for the dealer but where warranty-related costs were typically a substantial expense for the vehicle manufacturer.

Tesla Sales Galleries and Showrooms Currently, all of Tesla's sales galleries and showrooms were in or near major metropolitan areas; some were in prominent regional shopping malls, and others were on highly visible sites along busy thoroughfares. Most sales locations had only several vehicles in stock. While some customers purchased their vehicles from the available inventory, most preferred to order a custom-equipped car in their preferred color.

Tesla was aggressively expanding its network of sales galleries and service centers to broaden its geographical presence and to provide better maintenance and repair service in areas with a high concentration of Model S customers. In 2013, Tesla began combining its sales and service activities at a single location (rather than having separate locations, as earlier had been the case); experience indicated that combination sales and service locations were more cost-efficient and facilitated faster expansion of the company's retail footprint. At the end of 2014, Tesla had 159 sales and service locations around the world and planned to open more stores, galleries, and service centers in all of the company's geographic markets in 2015. Tesla's strategy was to have sufficient service locations to ensure that after-sale services were available to owners when and where needed.

However, in the United States, there was a lurking problem with Tesla's strategy to bypass distributing through franchised Tesla dealers and sell directly to consumers. Going back many years, franchised automobile dealers in the United States had feared that automotive manufacturers might one day decide to integrate forward into selling and servicing the vehicles they produced. To foreclose any attempts by manufacturers to compete directly against their franchised dealers, automobile dealers in every state in the United States had formed statewide franchised dealer associations to lobby for legislation blocking motor

vehicle manufacturers from becoming retailers of new and used cars and providing maintenance and repair services to vehicle owners. Legislation either forbidding or severely restricting the ability of automakers to sell vehicles directly to the public had been passed in 48 states; these laws had been in effect for many years, and franchised dealer associations were diligent in pushing for strict enforcement of these laws.

As sales of the Model S rose briskly in 2013 and Tesla continued opening more sales galleries and service centers, both franchised dealers and statewide dealer associations became increasingly anxious about "the Tesla problem" and what actions might need to be taken. Dealers and dealer trade associations in a number of states were openly vocal about their concerns and actively began lobbying state legislatures to consider either enforcement actions against Tesla or amendments to existing legislation that would bring a halt to Tesla's efforts to sell vehicles at company-owned showrooms. A Tesla spokesperson told an *Automotive News* reporter in September 2013 that dealerships around the country "object to the fact that we're trying to educate our consumers directly, sell them cars directly, and service their vehicles directly because this runs entirely counter to the virtual monopoly they have in most states."²⁹ Tesla had also asserted it was not violating state franchising laws because it did not have any franchises. In the opinion of a senior editor at Edmunds.com, the real fear of automobile dealers was not Tesla but rather that other automakers would follow in Tesla's footsteps.³⁰

In mid-December 2013, a group of Ohio car dealers filed a lawsuit against Tesla, the Ohio Bureau of Motor Vehicles, and the Ohio Department of Public Safety in a Franklin County court, alleging violations of Ohio law in granting Tesla a license to sell new cars and asking for an injunction to immediately rescind Tesla's license and prevent the Bureau of Motor Vehicles from issuing additional licenses to Tesla for other new locations. However, a settlement was reached in March 2014 that allowed Tesla to own and operate a maximum of three sales galleries in Ohio as long as it produced only all-electric cars and was not acquired by another company.

In March 2014, the New Jersey Motor Vehicle Commission announced that it would enforce New Jersey's state law forbidding automotive manufacturers from selling cars directly to consumers; at

the time, Tesla had two showrooms in New Jersey. A controversy ensued, with some New Jersey lawmakers introducing legislation that would exempt Tesla and other electric car makers from the rule. In March 2015, legislation allowing Tesla to sell vehicles directly to consumers in New Jersey was signed into law. In June 2014, legislation was passed in New York state allowing Tesla to sell its vehicles at five already-established locations in New York; however, the legislation prevented Tesla from opening additional sales locations within New York. In Georgia, legislation passed in 2015 allowing Tesla to operate up to five sales outlets in the state. West Virginia passed a bill in 2015 that prevents any automaker from exhibiting cars to the public unless they do so through a franchised dealership. In Virginia, as of mid-2015, Tesla had been granted the right to open only a single sales location (near Washington, D.C.).

As of 2015, automobile dealers and statewide dealer associations in Texas, Arizona, and Michigan had succeeded in gaining enforcement of existing legislation banning direct sales to consumers and effectively blocking Tesla from taking orders for the Model S at Tesla showrooms in their states, but legislation to reverse the ban had been introduced in both the Texas and Arizona legislatures. Elon Musk had announced that Tesla would be willing to cap its sales locations in Texas at seven.

However, in most states where manufacturer direct sales to consumers were expressly prohibited, Tesla could still have sales galleries, service centers, and Supercharger locations; what it could not do at its sales galleries was sell cars, deliver cars, or discuss pricing with potential buyers. Buyers in these states could place an order for a Tesla online at www.teslamotors.com (usually in about 5 to 10 minutes), specify when they wanted the car to arrive, and then either have it delivered to a nearby Tesla service center for pickup or have it delivered directly to their home or business location.

Tesla Service Centers Tesla's strategy was to have sufficient service locations to ensure that after-sale services were available to owners when and where needed. The company had over 70 service locations as of February 2014 and was rapidly adding new locations to serve Tesla owners in a growing number of geographic locations.

Tesla Roadster owners could upload data from their vehicle and send it to a service center on a memory card; Model S owners had an on-board system that could communicate directly with a service center, allowing service technicians to diagnose and remedy many problems before ever looking at the vehicle. When maintenance or service was required, a customer could schedule service by contacting a Tesla service center. Some service locations offered valet service, in which the owner's car was picked up, replaced with a very well-equipped Model S loaner car, and then returned when the service was completed; there was no additional charge for valet service. In some locations, owners could opt to have service performed at their home, office, or other remote location by a Tesla Ranger mobile technician who had the capability to perform a variety of services that did not require a vehicle lift. Tesla Rangers could perform most warranty repairs, but the cost of their visit was not covered under the New Vehicle Limited Warranty. Ranger service pricing was based on a per visit, per vehicle basis; there was a \$100 minimum charge per Ranger visit.

Prepaid Maintenance Program Tesla offered a prepaid maintenance program to Model S buyers, which included plans covering maintenance for one year or 12,500 miles (\$600), four years or up to 50,000 miles (\$1,900), or eight years or up to 100,000 miles (\$3,800). Ranger service for all of the prepaid maintenance plans involved a \$100 minimum charge per Ranger visit. These plans covered annual inspections and the replacement of wear-and-tear parts, 24-hour roadside assistance, system monitoring, system upgrades, and service-related hardware upgrades.

Tesla's Supercharger Network: Providing Recharging Services to Owners on Long-Distance Trips A major component of Tesla's strategy to build rapidly growing long-term demand for its vehicles was to make battery-recharging while driving long distances convenient and worry-free for all Tesla vehicle owners. Tesla's solution to providing owners with ample and convenient recharging opportunities was to establish an extensive geographic network of recharging stations. Tesla's Supercharger stations were strategically placed along major

highways connecting city centers, usually at locations with such nearby amenities as roadside diners, cafes, and shopping centers that enabled owners to have a brief rest stop or get a quick meal during the recharging process—about 90 percent of Model S buyers opted to have their vehicle equipped with supercharging capability when they ordered their vehicle. All Model S owners were entitled to use the free supercharging service at any of Tesla's Supercharging stations to get a 50 percent recharge in 20 minutes, an 80 percent recent recharge in 40 minutes, or a 100 percent recharge in 75 minutes. As of April 2015, Tesla had 400 Supercharger stations open worldwide.

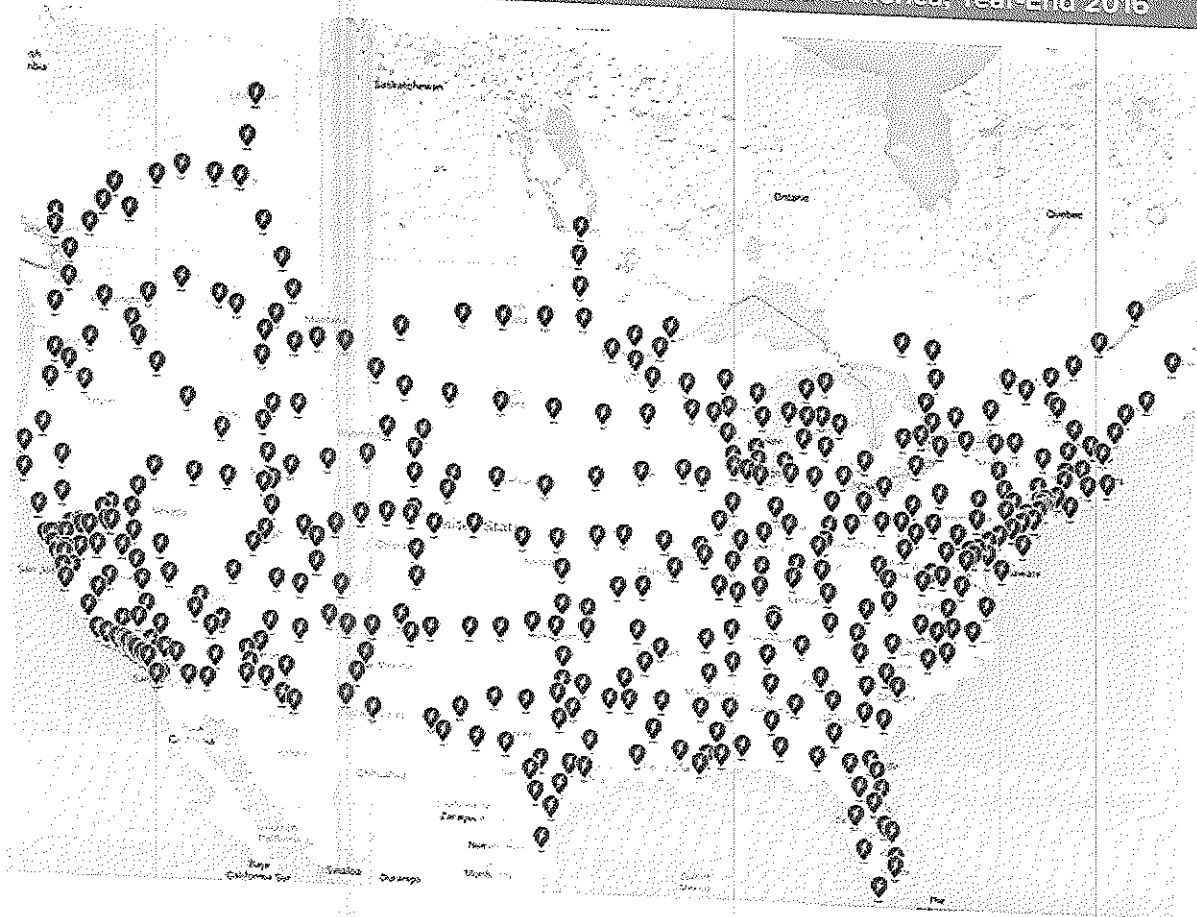
Exhibit 7 shows Tesla's planned network of Supercharger stations in the United States by year-end 2016. Exhibit 8 shows a Tesla Supercharger Station and selected Tesla Sales Galleries and Service Centers.

Tesla executives expected that the company's planned Supercharger network would relieve much of the "range anxiety" associated with driving on a long distance trip. However, even with many Supercharger locations strategically positioned along major travel routes, it was likely that Tesla owners in China, Canada, and parts of Europe would still be inconvenienced by having to deviate from the shortest direct route and detour to the closest Supercharger station for needed recharging. The degree to which range anxiety and "detour frustration" might prompt future vehicle shoppers to steer away from buying a Tesla was a risk that Tesla still had to prove it could hurdle.

Battery Swap Service—An Even Faster Battery Replenishment Option. The design of the Model S permitted the entire battery pack to be lowered from the bottom of the vehicle chassis and swapped out within a span of five minutes or less. In 2015, Tesla began testing a battery swap program at a custom-built California location whereby Model S owners could pay a fee of about \$80 to exchange their vehicle's partially discharged battery pack for a fully charged battery pack. The purpose of the pilot program was to test the technology, confirm how fast a battery pack could be swapped out, and assess the strength of market demand for battery swapping. Initially, the battery swap was by appointment and had a cost of about \$80.

EXHIBIT 7

Tesla's Planned Network of Supercharger Locations in North America, Year-End 2016



Source: www.teslamotors.com, accessed April 1, 2015.

Technology and Product Development Strategy

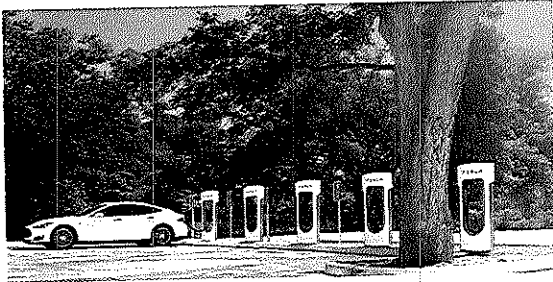
Headed into 2015, Tesla had spent almost \$1.4 billion on research and development (R&D) activities to design, develop, test, and refine the components and systems needed to produce top-quality electric vehicles and, further, to design and develop prototypes of the Tesla Roadster, Model S, Model X, and Model 3 vehicles (see Exhibit 1 for R&D spending during 2010–2014). In 2014, the company doubled its R&D spending to support engineering and product development efforts on dual-motor power train and right-hand drive features for the Model S, the

introduction of new software with autopilot capabilities for the Model S and forthcoming Model X, engineering and prototyping for the Model X, and design and engineering for the Model 3.

Tesla executives believed the company had developed core competencies in power train and vehicle engineering and innovative manufacturing techniques. The company's core intellectual property was contained in its electric power train technology—the battery pack, power electronics, induction motor, gearbox, and control software that enabled these key components to operate as a system. Tesla personnel had designed each of these major elements for the Tesla Roadster and Model S; much of this

EXHIBIT 8

A Tesla Supercharger Station and Selected Tesla Sales Galleries and Service Centers



Supercharger station, outdoor, Washington state



Supercharger station, indoor



Tesla Sales Gallery, Austin, TX



Tesla Sales Gallery, Newport Beach, CA



Tesla Service center, Denver, Colorado



Tesla Service center, interior, San Diego, California

technology was being used in the power train components that Tesla built for other manufacturers and was scheduled for use in the Model X, Model 3, and future Tesla vehicles.

Tesla's power train was a compact, modular system with far fewer moving parts than the power trains of traditional gasoline-powered vehicles, a feature that enabled Tesla to implement power train enhancements and improvements as fast as they could be identified, designed, and tested. Tesla had incorporated its latest power train technology into the Model S and into the power train components that it built and sold to other makers of electric vehicles; plus, it was planning to use much of this technology in its forthcoming electric vehicles.

As of year-end 2013, Tesla had been issued 203 patents and had more than 280 pending patent applications domestically and internationally in a broad range of areas. However, in 2014, Tesla announced a patent policy whereby it irrevocably pledged the company would not initiate a lawsuit against any party for infringing Tesla's patents through activity relating to electric vehicles or related equipment so long as the party was acting in good faith. Elon Musk said the company made this pledge in order to encourage the advancement of a common, rapidly evolving platform for electric vehicles, thereby benefiting itself, other companies making electric vehicles, and the world. Investor reaction to this announcement was largely negative on grounds that it would negate any technology-based competitive advantage over rival manufacturers of electric vehicles—which many investors viewed as being considerable.

Battery Pack Over the years, Tesla had tested hundreds of battery cells of different chemistries and performance features. It had an internal battery cell testing lab and had assembled an extensive performance database of the many available lithium-ion cell vendors and chemistry types. Based on this evaluation, it had elected to use "18650 form factor" lithium-ion battery cells, chiefly because a battery pack containing 18650 cells offered two to three times the driving range of the lithium-ion cells used by other makers of electric vehicles (see Exhibit 9). Moreover, Tesla had been able to obtain large quantities of the 18650 lithium-ion cells for its battery

EXHIBIT 9

Comparative Miles per Charge of Selected Electric Vehicles, 2014–2015

Vehicle	Miles per Charge (based on EPA 5-cycle test)
Tesla Model S (85 kWh battery pack)	265 miles
Tesla Model S (60 kWh battery pack)	208 miles
Toyota RAV4 EV	103 miles
Fiat 500e	87 miles
Mercedes B-Class Electric Drive	85 miles
Nissan Leaf	84 miles
Volkswagen e-Golf	83 miles
Honda Fit EV	82 miles
Chevrolet Spark	82 miles
BMW i3	81 miles
Ford Focus EV	76 miles
Mitsubishi i-MiEV	62 miles

Source: Tesla Motors Investor Presentation, September 14, 2013, posted at www.teslamotors.com (accessed December 1, 2013) and www.cheatsheet.com, posted January 16, 2015 (accessed March 30, 2015).

pack (each pack had about 7,000 of the 18650 cells) at attractive prices because global lithium-ion battery manufacturers were suffering from a huge capacity glut, having overbuilt production capacity in anticipation of a fast-growing buyer demand for electric vehicles that so far had failed to materialize.

Management believed that the company's accumulated experience and expertise had produced a core competence in battery pack design and safety, putting Tesla in position to capitalize on the substantial battery cell investments and advancements being made globally by battery cell manufacturers and to benefit from ongoing improvements in the energy storage capacity, longevity, power delivery, and costs per kilowatt-hour of the battery packs used in its current and forthcoming models. Tesla's battery pack design gave it the ability to change battery cell chemistries and vendors, while retaining the company's existing investments in software, electronics, testing, and other power train components. Going forward, Tesla intended to maintain the flexibility to quickly

incorporate the latest advancements in battery technology, change battery cell chemistries if needed, and thereby optimize battery pack system performance and cost for its current and future vehicles.

The driving range of Tesla's vehicles on a single charge declined over the life of the battery, based on a customer's use of their Tesla vehicle and the frequency with which they charged the battery. Tesla estimated that the Tesla Roadster battery pack would retain approximately 60–65 percent of its ability to hold its initial charge after approximately 100,000 miles or seven years, which will result in a decrease to the vehicle's initial range. In addition, based on internal testing, the company estimated that the Tesla Roadster would have a 5–10 percent reduction in range when operated in -20°C temperatures. The battery charge deterioration for Model S battery packs was expected to be less than for the Roadster.

Power Electronics The power electronics in Tesla's power train system had two primary functions, the control of torque generation in the motor while driving and the control of energy delivery back into the battery pack while charging. The first function was accomplished through the drive inverter, which was directly responsible for the performance, energy-use efficiency, and overall driving experience of the vehicle. The second function, charging the battery pack, was accomplished by the vehicle's charger, which converted alternating current (usually from a wall outlet or other electricity source) into direct current that could be accepted by the battery. Most Model S owners ordered vehicles equipped with twin chargers in order to cut the charging time in half. Owners could use any available source of power to charge their vehicle. A standard 12 amp/110 volt wall outlet could charge the battery pack to full capacity in about 42 hours for vehicles equipped with a single charger or 21 hours with a twin charger. Tesla recommended that owners install *at least* a 24 amp/240 volt outlet in their garage or carport (the same voltage used by many electric ovens and clothes dryers), which permitted charging at the rate of 34 miles of range per hour of charging time on vehicles equipped with a twin charger. But Tesla strongly recommended the installation of a more powerful 40-amp/240 volt outlet that charged at the rate of 58 miles of range per hour

of charge when a Model S was equipped with twin chargers. Model S vehicles came standard with three adapters: a 12 amp/110 volt adapter, a 40 amp/240 volt adapter, and a J1772 public charging station adapter; other adapters could be purchased online.

Control Software The battery pack and the performance and safety systems of Tesla vehicles required the use of numerous microprocessors and sophisticated software. For example, computer-driven software monitored the charge state of each of the cells of the battery pack and managed all of the safety systems. The flow of electricity between the battery pack and the motor had to be tightly controlled in order to deliver the performance and behavior expected in the vehicle. There were software algorithms that enabled the vehicle to mimic the "creep" feeling that drivers expected from an internal combustion engine vehicle without having to apply pressure on the accelerator. Other algorithms controlled traction, vehicle stability, and the sustained acceleration and regenerative braking of the vehicle. Drivers used the vehicle's information systems to optimize performance and charging modes and times. In addition to the vehicle control software, Tesla had developed software for the infotainment system of Model S. Almost all of the software programs had been developed and written by Tesla personnel. In 2014–2015, Tesla was developing its expertise in building software for vehicle autopilot systems, including road tracking, lane changing, automated parking, driver warning systems, and automated braking functions.

Tesla routinely enhanced the performance of its Model S vehicles by sending wireless software updates to the microprocessors on board each Model S it had sold.

Vehicle Design and Engineering

Tesla had devoted considerable effort to creating significant in-house capabilities related to designing and engineering portions of its vehicles, and it had become knowledgeable about the design and engineering of those parts, components, and systems that it purchased from suppliers. Tesla personnel had designed and engineered the body, chassis, and interior of the Model S and were working on the designs and engineering of these same components for the Model X and Gen III. As a matter of necessity, Tesla

was forced to redesign the heating, cooling, and ventilation system for its vehicles to operate without the energy generated from an internal combustion engine and to integrate with its own battery-powered thermal management system. In addition, the low-voltage electric system that powered such features the radio, power windows, and heated seats had to be designed specifically for use in an electric vehicle. Tesla had developed expertise in integrating these components with the high-voltage power source in the Model S and in designing components that significantly reduced their load on the vehicle's battery pack, so as to maximize the available driving range.

Tesla personnel had accumulated considerable expertise in lightweight materials, since an electric vehicle's driving range was heavily impacted by the vehicle's weight and mass. The Tesla Roadster had been built with an in-house designed carbon fiber body to provide a good balance of strength and mass. The Model S was being built with a lightweight aluminum body and a chassis that incorporated a variety of materials and production methods to help optimize vehicle weight, strength, safety, and performance. In addition, top management believed that the company's design and engineering team had core competencies in computer-aided design and crash test simulations; this expertise was expected to reduce the product development time of new models.

Manufacturing Strategy

Tesla contracted with Lotus Cars, Ltd., to produce Tesla Roadster "gliders" (a complete vehicle minus the electric power train) at a Lotus factory in Hethel, England. The Tesla gliders were then shipped to a Tesla facility in Menlo Park, California, where the battery pack, induction motors, and other power train components were installed as part of the final assembly process. The production of Roadster gliders ceased in January 2012.

In May 2010, Tesla purchased the major portion of a recently closed automobile plant in Fremont, California, for \$42 million; months later, Tesla purchased some of the plant's equipment for \$17 million. The facility—formerly a General Motors manufacturing plant (1960–1982), then operated as joint venture between General Motors and Toyota (1984–2010) to showcase Toyota's famed production system and

produce Toyota Corolla and Tacoma vehicles—was closed in 2010 when GM pulled out of the joint venture and Toyota elected to cease its production of several thousand vehicles per week and permanently layoff about 4,700 workers. Tesla executives viewed the facility as one of the largest, most advanced, and cleanest automotive production plants in the world, and the space inside the 5.5 million square-foot main building was deemed sufficient for Tesla to produce about 500,000 vehicles annually (approximately 1 percent of the total worldwide car production), thus giving Tesla plenty of room to grow its output of electric vehicles. Elon Musk felt the Fremont plant was superior to two other Southern California sites being considered because Fremont's location in the northern section of Silicon Valley facilitated hiring talented engineers already residing nearby and because the short distance between Fremont and Tesla's Palo Alto headquarters ensured "a tight feedback loop between vehicle engineering, manufacturing, and other divisions within the company."³¹ Tesla officially took possession of the 350-acre site in October 2010, renamed it the Tesla Factory, and immediately launched efforts to get a portion of the massive facility ready to begin manufacturing components and assembling the Model S in 2012.

In December 2012, Tesla opened a new 60,000 square-foot facility in Tilburg, Netherlands, about 50 miles from the port of Rotterdam, to serve as the final assembly and distribution point for all Model S vehicles sold in Europe and Scandinavia. The facility, called the Tilburg Assembly Plant, received nearly complete Model S units shipped from the Tesla Factory, performed certain final assembly activities, conducted final vehicle testing, and handled the delivery to customers throughout the European market. It also functioned as Tesla's European service and parts headquarters. Tilburg's central location and its excellent rail and highway network to all major markets on the European continent allowed Tesla to distribute to anywhere across the continent in about 12 hours. By fall 2013, the Tilburg operation had been expanded to over 200,000 square feet—including facilities for technical training, parts remanufacturing, and collision repair activities for Tesla's European operations—and was receiving about 200 Model S vehicles weekly for final assembly, testing, and customer delivery.

Tesla's manufacturing strategy was to source a number of parts and components from outside suppliers but to design, develop, and manufacture in-house those key components where it had considerable intellectual property and core competencies (namely lithium-ion battery packs, electric motors, gearboxes, and other power train components) and to perform all assembly-related activities itself. In 2015, the Tesla Factory contained several production-related activities, including stamping, machining, casting, plastics molding, robotics-assisted body assembly, paint operations, final vehicle assembly, and end-of-line quality testing (see Exhibit 10). In addition, the Tesla Factory manufactured lithium-ion battery packs, electric motors, gearboxes, and certain other components for its vehicles and for the power trains sold to various other manufacturers of electric vehicles. In 2014, Tesla began producing and machining various aluminum components at a facility in Lathrop, California. In 2015, Tesla expected to complete construction of a new high-volume paint shop and a new body shop line, both to be used for Model S, Model X, and Model 3 vehicles. During 2014 and 2015, installations of new equipment boosted the annual production capacity of the Tesla Factory from about 21,500 vehicles in 2013 to nearly 60,000 vehicles at year-end 2015.

Initially, production costs for the Model S were high due to an assortment of start-up costs at the Tesla Factory, manufacturing inefficiencies associated with inexperience and low-volume production, higher prices for component parts during the first several months of production runs, and higher logistics costs associated with the immaturity of Tesla's supply chain. However, as Tesla engineers redesigned various elements of the Model S for greater ease of manufacturing, supply chain improvements were instituted, and production volumes approached 1,000 vehicles per week in 2014, manufacturing efficiency rose, the costs of some parts decreased, and overall production costs per vehicle trended downward, enabling the company to achieve a gross margin of 27.6 percent in 2014, up from 22.7 percent in 2013. Management expected that further cost-saving initiatives being undertaken by both Tesla and its suppliers, together with further boosts in production volume, would result in still lower production costs per vehicle at least until mid-2014. Elon Musk

expected that Tesla to achieve could achieve a gross margin of 26 percent or better in 2015, despite the impact of a stronger U.S. dollar, manufacturing inefficiencies associated with production startup of the Model X, and expenditures for greater autopilot functionality.

Tesla's Decision to Build a "Gigafactory" to Produce Battery Packs

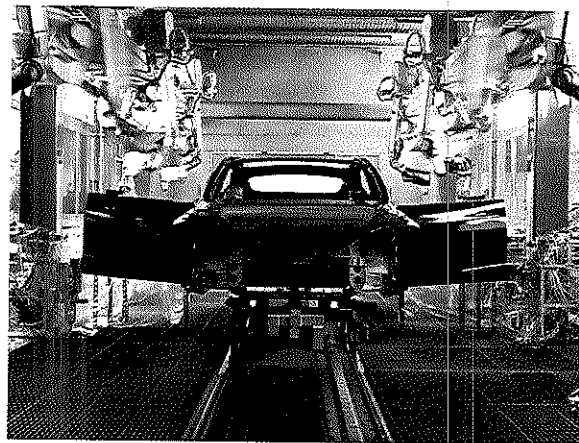
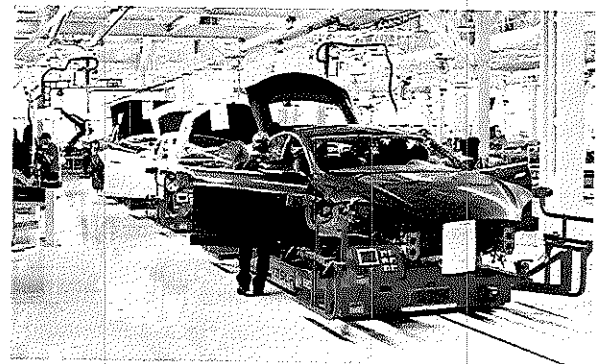
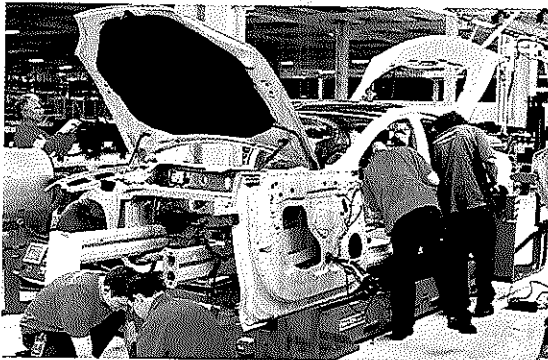
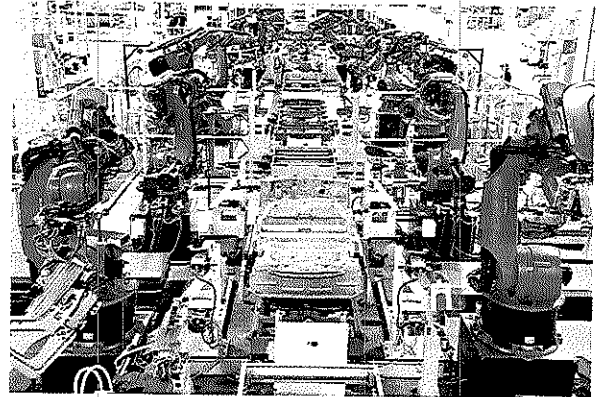
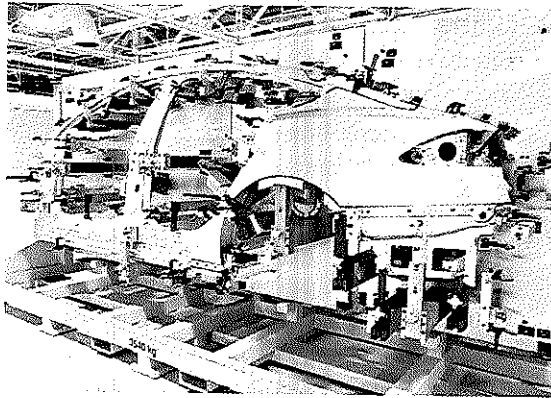
In February 2014, Tesla announced that it and unnamed partners would invest \$4–5 billion through 2020 in a "gigafactory" capable of producing enough lithium-ion batteries to make battery packs for 500,000 vehicles (plus stationary storage applications for solar-powered generating facilities): the planned output of the battery factory in 2020 exceeded the *total global production of lithium batteries in 2013*. Tesla said its direct investment in the project would be \$2 billion. Tesla indicated the new plant (named the Tesla Gigafactory) would reduce the company's battery pack cost by more than 30 percent—to around \$200 per kWh by some estimates (from the current estimated level of about \$300 per kWh). The schedule called for facility construction in 2014–2015, equipment installation in 2016, and initial production in 2017. Plans called for the plant to be built on a 500–1,000 acre site, employ about 6,500 workers, have about 10 million square feet of space on two levels, and be powered by wind and solar generating facilities located nearby.

Evaluation of finalist plant sites in five states (Nevada, Arizona, New Mexico, Texas, and California) began immediately; competition among the five states to win the plant was fierce, but in September 2014, Tesla announced that a site in an industrial park east of Reno, Nevada, would be the location of the Tesla Gigafactory. It was speculated that the Nevada site was chosen, partly because the state of Nevada offered Tesla a lucrative incentive package said to be worth \$1.25 billion over 20 years and partly because the only commercially active lithium mining operation in the United States was in a nearby Nevada county (this county was reputed to have the fifth-largest deposits of lithium in the world). In early 2015, construction of the Tesla Gigafactory was underway and proceeding at a rapid clip.

Less than a month after announcing its intent to build the Gigafactory, Tesla sold \$920 million of convertible senior notes due 2019 carrying an interest

EXHIBIT 10

Scenes of Assembly Operations at the Tesla Factory



Tesla factory

rate of 0.25 percent and \$1.38 billion in convertible senior notes due 2021 carrying an interest rate of 1.25 percent. The senior notes due 2019 were convertible into cash, shares of Tesla's common stock, or a combination thereof, at Tesla's election. The convertible senior notes due 2021 were convertible into cash and, if applicable, shares of Tesla's common stock (subject to Tesla's right to deliver cash in lieu of shares of common stock). Both bonds had an equity conversion premium of 42.5 percent above the last reported sale price of Tesla's common stock price (\$252.54) at the time of the debt issue (which equated to almost \$360 per share); in other words, Tesla's stock had to be trading above \$360 per share for the holders of the convertible bonds to be eligible to receive 2.8 shares of Tesla common stock for every \$1,000 of bonds they choose to convert (but again that was subject to Tesla's right to deliver cash in lieu of shares of common stock). Moreover, to further protect existing shareholders against ownership dilution that might result from the senior notes being converted into additional shares of Tesla stock, Tesla immediately entered into convertible note hedge transactions and warrant transactions at an approximate cost of \$186 million that management expected would reduce potential dilution of existing shareholder interests and/or offset cash payments that Tesla was required to make in excess of the principal amounts upon any conversion of the 2019 notes and 2021 notes.

Supply Chain Strategy The Model S contained over 2,000 parts and components that Tesla was sourcing globally from over 300 direct suppliers, the majority of whom were currently single-source suppliers. It was the company's practice to obtain the needed parts and components from multiple sources whenever feasible, and Tesla management expected able to secure alternate sources of supply for most single-sourced components within a year or two. However, qualifying alternate suppliers for certain highly customized components—or producing them internally—was thought to be both time-consuming and costly, perhaps even requiring modifications to a vehicle's design. Tesla had developed close relationships with the suppliers of lithium-ion battery cells and certain other key system parts, but it did not maintain long-term agreements with many of its suppliers.

Marketing Strategy

In 2014–2015, Tesla's principal marketing goals and functions were to:

- Generate demand for the company's vehicles and drive sales leads to personnel in the Tesla's showrooms and sales galleries.
- Build long-term brand awareness and manage the company's image and reputation.
- Manage the existing customer base to create brand loyalty and generate customer referrals.
- Obtain feedback from the owners of Tesla vehicles and make sure their experiences and suggestions for improvement were communicated to Tesla personnel engaged in designing, developing, and/or improving the company's current and future vehicles.

As the first company to commercially produce a federally compliant, fully electric vehicle that achieved market-leading range on a single charge, Tesla had been able to generate significant media coverage of the company and its vehicles. Management expected this would continue to be the case for some time to come. So far, the extensive media coverage, glowing praise from both new Model S owners and admiring car enthusiasts (which effectively enlarged Tesla's sales force at zero cost), and the decisions of many green-minded affluent individuals to help lead the movement away from gasoline-powered vehicles had combined to drive good traffic flows at Tesla's sales galleries and create a backlog of orders for the Model S. As a consequence, going into 2016, the company had achieved a growing volume of sales without traditional advertising and at relatively low marketing costs. Nonetheless, Tesla did make use of pay-per-click advertisements on websites and mobile applications relevant to its target clientele. It also displayed and demonstrated its vehicles at such widely attended public events as the Detroit, Los Angeles, and Frankfurt auto shows and at a few small private events attended by people who were likely to be intrigued by its vehicles.

Tesla's Innovative Resale Guarantee Program for New Vehicle Purchases

During the second quarter of 2013, Tesla instituted its first big internal marketing and sales promotion

campaign to spur demand for its Model S vehicles and give owners complete peace of mind about the long-term value of the product. In partnership with Wells Fargo Bank and US Bank, Model S customers in the United States were offered unique financing terms that included giving buyers the option of selling their vehicle back to Tesla within a window of 36 to 39 months after delivery for a guaranteed 50 percent of the base vehicle selling price and 43 percent of the price of any vehicle options. The buyback option enabled customers to enjoy the benefits of Model S ownership without concern for its resale value. During the fourth quarter of 2013, approximately 48 percent of Model S buyers in North America financed their purchase using the innovative buyback guarantee program, an increase from 44 percent in the third quarter and 31 percent in the second quarter.³² The buyback option was extended to include buyers in selected European countries in 2014. Tesla's liabilities for repurchasing vehicles carrying a resale value guarantee totaled \$236.3 million in 2013 and \$249.5 million in 2014.

In the event the guaranteed buyback value of 50 percent of the base vehicle selling price plus 43 percent of the price of any vehicle options turned out to be less than the top resale value of any of these vehicles, Elon Musk had personally guaranteed to pay the difference to owners choosing to sell their three-year-old vehicle back to Tesla. Tesla's analysis indicated that the benchmarked premium luxury sedans (Mercedes, BMW, Audi, Jaguar, and Lexus) tended to retain *on average* about 43 percent of their original value after three years. In October 2014, Tesla announced that customers who leased a Model S through would be able to return it in the first three months with no penalties and the remaining payments waived—a feature that Tesla called “the happiness guarantee.” Tesla delivered 5,179 vehicles in 2013 and another 5,224 vehicles in 2014 that carried resale value guarantees.

In 2015, Tesla was not only offering loans and leases in North America, Europe, and Asia through its various partner financial institutions, but it was also offering leases directly through its own captive finance company in 37 states, the District of Columbia, and four provinces in Canada. Typically, the amount due at signing of a lease included the first month's payment, a downpayment of \$5,000, a \$700

acquisition fee, and applicable taxes; a \$300 disposition fee was due at lease end. Tesla management intended to broaden its financial services offerings over the next several years.

Tesla's offer to buy back Model S cars from customers using its lease-buyback financing option had the potential to provide Tesla with another profitable revenue stream: selling used Tesla vehicles at prices above the buyback price. According to one analyst, “Buying back three-year-old cars at a set price means Tesla to a great extent can control the secondary market for Model S and other cars it brings out. The company's going to be the main buyer and get a chance to earn a second gross profit on the same car.”³³ The analyst estimated that sales of used Model S vehicles in 2016 could mean an added \$350–\$370 million in revenues for Tesla in 2016 and perhaps an added \$40 million in annual gross profit.

Even though Tesla received full upfront payment for the vehicles sold under the resale guarantee financing program, generally accepted accounting principles (GAAP) required Tesla to treat transactions under the resale guarantee program as leased vehicles and to spread the recognition of revenue and cost over the contractual term of the resale value guarantee (36 to 39 months). If a Model S owner decided not to sell their vehicle back to Tesla by the end of the resale value guarantee term, any deferred revenue and the vehicle's undepreciated book value were then recognized as revenues from automotive sales and as a cost of automotive sales, respectively.

The resale guarantee program exposed Tesla to the risk that the vehicles' resale value could be lower than its estimates and to the risk that the volume of vehicles sold back to Tesla at the guaranteed resale price might be higher than the company's estimates. GAAP required such risks to be accounted for on Tesla's financial statements by establishing a reserves account (a contingent liability in the current liabilities section of the balance sheet) deemed sufficient to cover these risks.

Sales of Regulatory Credits to Other Automotive Manufacturers

Because Tesla's electric vehicles had no tailpipe emissions of greenhouse gases or other pollutants,

Tesla earned zero emission vehicle (ZEV) and greenhouse gas (GHG) credits on each vehicle sold in the United States. Moreover, it also earned corporate average fuel economy (CAFE) credits on its sales of vehicles because of their high equivalent miles per gallon ratings. All three of these types of regulatory credits had significant market value because the manufacturers of traditional gasoline-powered vehicles were subject to assorted emission and mileage requirements set by the U.S. Environmental Protection Agency (EPA) and by certain state agencies charged with protecting the environment within their borders; automotive manufacturers whose vehicle sales did not meet prevailing emission and mileage requirements were allowed to achieve compliance by purchasing credits earned by other automotive manufacturers. Tesla had entered into contracts for the sale of ZEV and GHG credits with several automotive manufacturers, and it routinely sold its CAFE credits. Tesla's sales of ZEV, GHG, and CAFE credits produced revenues of \$2.8 million in 2010, \$2.7 million in 2011, \$40.5 million in 2012, \$194.4 million in 2013—the proceeds were included on Tesla's income statement as part of item labeled "Sales of vehicles, options and accessories, vehicle service, and regulatory credits" (see Exhibit 1).

Wall Street analysts attributed a large portion of the company's improving financial performance to the revenues earned from the sales of regulatory credits. Without these revenues, their argument went, Tesla's bottom line would look significantly worse in 2013 and 2014. While Tesla planned to pursue opportunities to sell regulatory credits earned from future sales of its vehicles, the company repeatedly asserted in its 10-K and 10-Q reports to the Securities and Exchange Commission that it was not relying on these sales to be a significant contributor to the company's gross margin and that the long-term viability and profitability of Tesla's business model was not predicated on revenues from the sale of regulatory credits.

Strategic Partnerships

In 2015, Tesla had entered into long-term strategic partnerships with Panasonic Corp., Daimler AG (the parent of Mercedes-Benz), and Toyota Motor Corp.

The Panasonic Partnership In 2010, Tesla began collaborating with Panasonic on the development of next-generation battery cells for electric vehicles that were based on the 18650 form factor and nickel-based lithium ion chemistry. In November 2010, Tesla sold 1,418,573 shares of its common stock to an entity affiliated with Panasonic at a price of \$21.15, producing \$30 million in new investor capital. In October 2011, Tesla and Panasonic finalized an agreement whereby Panasonic would supply Tesla with sufficient battery cells to build more than 80,000 vehicles over the next four years. In October 2013, Tesla and Panasonic agreed to extend the supply agreement through the end of 2017, with Tesla agreeing to purchase a minimum of 1.8 billion lithium-ion battery cells and Panasonic agreeing to provide Tesla with preferential prices.

In July 2014, Panasonic agreed to partner with Tesla in building and operating the Tesla Gigafactory. According to the agreement, Tesla had responsibility for preparing, providing, and managing the land, buildings, and utilities, with Panasonic having responsibility for investing in the equipment and manufacturing the batteries. A network of supplier partners was being created to make sure all the needed materials were available. Plans called for half of the floor space to be devoted to Panasonic's battery-making activities, with the activities of suppliers and Tesla's battery pack operations taking up the other half. To meet its projected demand for battery cells, Tesla agreed to continue to purchase battery cells produced in Panasonic's factories in Japan.

The Daimler Partnership Shortly after Daimler purchased an ownership stake in Tesla for \$50 million in 2009, the two companies began working out an arrangement in which Tesla would provide certain research and development services for a battery pack and charger to Daimler for its Smart fortwo electric vehicle. When this development work was completed at the end of 2009, Tesla began supplying battery packs and chargers for the Smart fortwo vehicle—some 2,100 battery packs and chargers were sold to Daimler through December 2011. In early 2010, Daimler engaged Tesla to assist with the development and production of a battery pack and charger for a pilot fleet of A-Class Mercedes electric vehicles to be introduced in Europe during

2011. When the development work was completed in October 2010, Tesla began shipping production parts in February 2010; through December 2011, Tesla sold Daimler over 500 battery packs and chargers for Mercedes A-Class electric vehicles. In early 2010, Tesla also completed the development and sale of modular battery packs for electric delivery vans for Freightliner, an affiliate of Daimler; Freightliner tested use of these electric vans with a limited number of customers.

During the fourth quarter of 2011, Daimler engaged Tesla to assist with the development of a full electric power train for a Daimler Mercedes B-Class electric vehicle; in 2012, formal arrangements were established for Daimler to pay Tesla for the successful completion of certain at-risk development milestones and the delivery of prototype samples. During 2013, Tesla completed various milestones, delivered prototype samples, and recognized \$15.7 million in development services revenues for its work on Daimler's A-Class and B-Class electric vehicle programs. Tesla began supplying production parts for Daimler's B-Class electric vehicle program in 2014 and expected to continue to supply parts under this program for the next few years (Mercedes began selling its B-Class electric vehicle models in 2014).

The Toyota Partnership In May 2010, Tesla and Toyota announced their intention to cooperate on the development of electric vehicles and for Tesla to receive Toyota's support with sourcing parts and production and engineering expertise for the Model S. In July 2010, Tesla and Toyota entered into an early phase agreement to develop an electric power train system for Toyota's popular compact RAV4 sports utility vehicle and to provide prototype samples. Also in July 2010, Tesla sold 2,941,176 shares of Tesla's common stock to Toyota at its IPO price of \$17.00 per share, which provided Tesla with new investor capital of \$50 million.

Tesla began developing and delivering electric power trains for the RAV4 for Toyota's evaluation in September 2010 and the following month entered into a \$60.1 million contract services agreement with Toyota for the development of a validated RAV4 power train system (including a battery pack, charging system, inverter, motor, gearbox, and associated software). In July 2011, Tesla contracted with

Toyota to supply an electric power train system for the RAV4 model. All of the development services for the RAV4 electric vehicle were completed in the first quarter of 2012, and Tesla began producing and delivering RAV4 power train systems to Toyota in the first half of 2012, along with providing Toyota with certain services related to the supply of the RAV4 electric power train system. In 2013, Tesla recorded revenues of \$45.1 million from power train system sales to Toyota. During 2014, Tesla's work on the RAV4 electric vehicle program ceased when Toyota elected to halt production of the electric version of RAV4 due to disappointing sales.

Tesla performed its electric power train component and systems activities principally out of a company facility in Palo Alto. This facility, which also served as Tesla's corporate headquarters, housed the company's research and development services, including battery cell and component testing and power train components manufacturing.

Problems for Tesla Emerge in the China Market

Despite enthusiasm and interest in the Model S in Tesla's sales galleries in China in early 2014, sales of the Model S in China for full-year 2014 turned out to be disappointingly small. Tesla opened its first showroom in China in Beijing in November 2013; deliveries to customers in China began in mid-April 2014. Elon Musk expected that Model S deliveries to Chinese customers in 2014 would total about 5,000 vehicles and that Tesla might even begin building vehicles in China in three to four years. Indeed, Tesla Model S reservations reported reached about 4,000 in China by mid-2014, despite the fact that Model S buyers in China were asked to make an initial payment of about \$2,450 to make a reservation, followed by a \$40,700 deposit to begin the building process and ship the vehicle. The Model S cost quite a bit more in China due to customs duties and taxes (\$19,000), a value-added tax of (\$17,700), and shipping and handling (\$3,600), pushing the base price of a Model S with an 85kWh battery pack to about \$121,000 before adding optional equipment.³⁴ In September 2014, the *Los Angeles Times* reported that Tesla had shipped perhaps as many as 2,800 vehicles to China but that so far only 432

Model S vehicles had been registered to receive license plates, thus raising questions about the big discrepancy between shipments and registrations by buyers. Tesla acknowledged the discrepancy to the reporter; the article went on to speculate that the problem could be due to many vehicles still being in transit, a lag in reported registrations, and possibly to the “scalpers” buying up new Model S sedans and stockpiling them to resell. However, one media outlet in China reported that Tesla China personnel had created a new sales team to make bulk or fleet sales of Model S vehicles to corporate customers (which accounted for the large run-up of orders) and that these bulk/fleet sales had been agreed to without requiring any deposit payments, all of which was done without the knowledge of Tesla headquarters.³⁵

Tesla didn't report how many deliveries it made to customers in China, but reports in the Chinese media claimed that Tesla China delivered 2,499 vehicles to Chinese buyers in 2014 and ended 2014 with an inventory of 2,301 vehicles.³⁶ An anonymous source, quoted by Chinese media, said the huge inventory was partly caused by many cancellations of orders by Chinese buyers.³⁷ The cancellations went up in October 2014 shortly after Tesla announced the new P85D of the Model S, because many customers decided they preferred to own the P85D version rather than the Model S version they had ordered. But in many cases, according to the source, their originally ordered cars were already shipped and underway. While Tesla's official policy was to collect the second \$40,700 deposit before shipment (to preclude last-minute cancellations), in reality Tesla China only collected the first deposit because, according to another anonymous “Tesla insider,” collecting the second deposit was “too difficult,” thereby enabling customers who had ordered the 60kWh or 85kWh versions to refuse delivery when their previously ordered vehicle arrived and in effect cancel their order.³⁸ In late 2014, Tesla's U.S. headquarters learned about Tesla China's failure to collect payment of the second deposit and immediately upped the size of the first deposit to \$8,000 without consulting Tesla China, although Tesla China later warned against such an increase because it would hurt sales.³⁹ The higher deposit was indeed viewed as too high by many prospective Chinese buyers, resulting in China sales of about

150 vehicles in December 2014 and about 120 vehicles in January 2015.

Tesla China suggested two ways to deal with the unsold cars: 1) sell the inventory cars with a 20% discount, or 2) use third-party sellers, such as large dealer groups, to get rid of the inventory, as Tesla still has very few stores in China. Both suggestions were rejected by Tesla's headquarters in the United States.⁴⁰ In December 2014, Tesla China's president resigned, just nine months after replacing the former president who left in March 2014. In February 2015, the chief marketing officer for Tesla China left the company; the general manager left the organization on April 1. In March 2015, Elon Musk announced that about 30 percent of the Tesla China workforce would be laid off; Musk visited the Tesla China operations in April 2015 and met with Chinese officials to reiterate Tesla's long-term commitment to selling its vehicles in China.

To help stimulate sales in China and get Tesla China back on track, Musk indicated that because many Chinese customers perceived that home charging was difficult and had extreme “range anxiety” (due to heavy traffic and the lack of an extensive public charging network), Tesla would immediately begin installing chargers at the homes of Chinese buyers before their Model S vehicle was delivered. To further improve the appeal of the Model S to wealthy Chinese buyers who were often driven by chauffeurs, Tesla announced that it would begin adding comfortable executive seating and a second-row center console on vehicles shipped to China. Wealthy Chinese vehicle owners considered the big discrepancy in the rear seat comfort of the Model S compared to most other luxury sedans (such as the Mercedes S-Class and the BMW 7 series) to be a major negative. But these changes still left Tesla at a competitive disadvantage in selling luxury sedans in China because of its tiny, albeit growing, network of Supercharger stations. To eliminate this disadvantage, Tesla announced in May 2015 that it was modifying the battery charging technology on its models shipped to China to fit China's national charging standards and thereby enable Tesla owners in China to charge their vehicles at facilities built by China's State Grid—a move that not only relieved much of the range anxiety of electric car owners in China but

also eliminated much of Tesla's need to build out its own network of Tesla charging stations.

Why China Was an Important Market for Tesla. China's automobile market was the world's largest. Annual vehicle sales in China had risen from 6 million units in 2005 to nearly 20 million units in 2014, and China was expected to remain the largest market for motor vehicles worldwide for the coming decades. Moreover, the market for luxury vehicles in China was exceptionally strong because of rapid growth in the number of wealthy people in China: the number of multimillionaires in China was expected to hit 1.09 million in 2015. Registrations of luxury vehicles grew more than four-fold between 2009 and 2013, and the growth rate of luxury vehicle sales was projected to be between 10 and 15 percent for many years to come. Furthermore, China's national and city governments had recently launched a barrage of incentives aimed at getting people to purchase cleaner plug-in cars to help combat China's massive air pollution problems, especially in large metropolitan cities. The incentives included offering free license plates (valued at over \$15,000 in many places), no taxes, and no wait to register. The government was also investing \$16 billion in a new electric vehicle charging infrastructure to further increase to appeal of plug-in vehicles.⁴¹ For its part, Tesla was committed to rapidly expanding the number of Supercharger stations in all metropolitan areas where it had sales galleries; moreover, these stations would use solar power. As of 2015, there were Tesla sales galleries in just two locations, Beijing and Shanghai, although orders for the Model S had been placed by people residing in other locations in China.

The Launch of Tesla Energy, May 2015

In spring 2015, Tesla announced the formation and launch of Tesla Energy, a new subsidiary that would begin producing and selling two energy storage products in the second half of 2015: Powerwall for homeowners and Powerpack for industrial/commercial customers. Powerwall was a lithium-ion battery charged either by electricity generated from a home's solar panels or from power company sources when electric rates were low; Powerwall

came in two models, a 10 kWh model for \$3,500 and a 7 kWh model for \$3,000. Tesla saw Powerwall as principally a product that energy-conscious homeowners with a rooftop solar system could use to lower their monthly electric bills by programming Powerwall to power their homes during certain hours when the rates of some power companies were high and then recharging the battery during the late-night hours when rates were low. However, Powerwall home batteries could also be used as a backup power source in case of unexpected power company outages. Homeowners with energy needs greater than 7 kWh or 10 kWh or for periods longer than the life of a single battery charge (about two hours) could install multiple models. Both Powerwall models were guaranteed for 10 years.

Powerpack models were 100kW lithium-ion batteries that industrial and commercial enterprises could use for a variety of purposes, with most installations using a minimum of 10 Powerpack batteries and perhaps as many as 20 to 30 batteries. Elon Musk saw Powerpack also being used by utilities for energy storage.

In the first week after the announcement introducing Powerwall and Powerpack, Tesla received 38,000 reservations for Powerwall (although residential buyers could place a reservation with no money down) and requests from 2,500 companies indicating interest in installing or distributing Powerpack batteries. In May 2015, Musk said that Tesla was preparing its supply chain and production teams to begin volume builds on both new products in the July–September 2015 time frame, with production to begin at the Tesla Factory in Fremont and then shift to the Gigafactory in Q1 2016, where it would accelerate significantly. Musk said that the total addressable market size for Tesla Energy products was enormous and much easier to scale globally than vehicle sales. Tesla personnel were pursuing product certification in multiple markets simultaneously; plans called for deliveries to customers in the United States, the European Union, and Australia to begin in Q4 2015. Musk commented that if buyer demand proved to be as strong as the first week of orders signaled, the company would need to begin efforts in early 2016 to expand the battery-making capacity of the Gigafactory well beyond the amount currently planned.

The Electric Vehicle Segment of the Global Automotive Industry

Global sales of passenger cars totaled 65.0 million in 2014, accounting for 73.7 percent of the world's total annual sales of 88.2 million motor vehicles. The remaining 26.3 percent, 23.2 million vehicles, consisted of light trucks (commonly termed pickup trucks), heavy or cargo-carrying trucks, recreational vehicles, buses, and minibuses. In 2014, global sales of plug-in electric vehicles totaled 320,700 units, just under 0.4 percent of global vehicle sales; plug-in vehicles included both battery-only vehicles and so-called plug-in hybrid electric vehicles equipped with a gasoline or diesel engine for use when the vehicle's battery pack (rechargeable only from an external plug-in source) was depleted, usually after a distance of 10 to 40 miles for current models. In 2014, global sales of hybrid electric vehicles were roughly 1.6 million units (equal to 1.8 percent of

global vehicle sales). Hybrid vehicles were jointly powered by an internal combustion engine and an electric motor that ran on batteries charged by "regenerative braking"⁴² and the internal combustion engine; the batteries in a hybrid vehicle could not be restored to a full charge by connecting a plug to an external power source.

Total motor vehicle sales in the United States in 2014 were 16.8 million units, of which 7.7 million were passenger cars (46 percent); the forecast for 2015 was for sales of 17.0 million vehicles. Sales of plug-in electric vehicles in the United States in 2014 totaled over 123,000 units; the three best-selling electric vehicles in the United States in both 2013 and 2014 were the Chevrolet Volt, Nissan LEAF, and Tesla Model S (Exhibit 11). Sales of hybrid vehicles in the United States totaled 434,500 units in 2012 (a 3.0 share of total vehicle sales), 495,800 units in 2013 (a 3.2 percent market share), and 452,200 units in 2014 (a market share of 2.75 percent).

Worldwide production of battery-powered electric vehicles in 2015 was projected to be about

EXHIBIT 11

Sales of Plug-in Electric Vehicles in the United States, 2013–2014

Best-Selling Models	2013					2014					2015	
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2
Tesla Model S	4,900	5,150	4,100	3,500	17,650	3,500	3,900	3,900	6,000	17,300	4,700	6,900
Leaf	3,359	6,300	6,237	6,534	22,610	5,184	7,552	9,086	8,378	30,200	4,085	5,731
Chevrolet Volt	4,244	5,611	6,905	6,334	23,094	3,606	5,009	5,925	4,265	18,805	1,874	3,748
Toyota Prius	2,353	1,861	3,760	4,114	12,088	3,296	6,004	2,542	1,422	13,264	1,271	1,169
Plug-in Hybrid												
Ford Fusion Energi	306	1,170	1,757	2,748	6,089	2,211	4,024	3,088	2,227	11,550	1,866	2,428
Ford C-Max Energi	1,166	1,316	1,812	2,860	7,154	1,633	2,295	2,558	1,947	8,433	1,608	1,935
BMW i3	0	0	0	0	0	0	694	2,410	2,988	6,092	2,681	1,775
Fiat 500e	0	0	1,010	1,300	2,310	1,290	1,554	1,581	707	5,132	1,884	1,500
All others	<u>375</u>	<u>599</u>	<u>1,361</u>	<u>1,925</u>	<u>4,260</u>	<u>1,951</u>	<u>2,558</u>	<u>3,245</u>	<u>4,489</u>	<u>12,243</u>	<u>3,370</u>	<u>5,322</u>
U.S. total	17,963	22,884	26,942	29,315	95,642	22,671	33,620	34,335	32,423	123,049	23,339	30,958
Worldwide	n.a.	n.a.	n.a.	n.a.	n.a.	57,307	79,331	90,719	93,356	320,713	90,060	115,362

Note: The falloff in quarterly Tesla sales in the United States beginning in Q3 2013 and continuing into 2014 was the result of Tesla shipping a big fraction of the Model S units assembled at the Tesla Factory in Fremont, California, to fill customer orders throughout Europe and in China.

n.a.: Not available.

Source: Inside EVs, "Monthly Plug-in Sales Scorecard," posted at www.insideevs.com (accessed May 19, 2015 and October 9, 2015).

830,000 vehicles (just under 1 percent of expected total motor vehicle production): some 236,000 of these vehicles were expected to be manufactured in the United States. But with gasoline prices drifting around \$2.00–\$2.30 per gallon in late 2014 and early 2015 in the United States, the vehicle models posting the biggest sales gains in the United States were pricey pickup trucks, SUVs, and luxury passenger cars rather than smaller, more fuel-efficient, and plug-in vehicles. Nonetheless, over 10 new electric vehicle models had been introduced in 2014–2015 with many more expected in 2016–2017; virtually all of the world's motor vehicle manufacturers were expected to have multiple battery-powered and hybrid vehicles on the market no later than 2017. In mid-2013, Volkswagen announced its intentions to become the world's largest seller of electric vehicles by 2018. Volkswagen introduced a fully electric e-Golf in 2014; combined sales in the United States in the e-Golf's first five months on the market were 863 units.

Headed into 2016, developmental efforts on next-generation battery-powered electric vehicles were aimed chiefly at extending the distance electric car battery packs would go on a single charge and keeping production costs low enough to make a profit selling large quantities of compact electric vehicles for prices of about \$30,000.

Toyota Motor Corp. was the global leader in sales of hybrids and plug-ins, with cumulative sales exceeding 7 million units at the end of 2014 and expected sales in excess of 1.3 million units annually in 2015 and 2016 (the big majority of which were hybrid vehicles).⁴³ In 2014, Toyota sold 27 hybrid models and 1 plug-in model in approximately 90 countries around the world and planned to introduce 15 new hybrid models in 2015.

But despite the comparatively low sales volumes and market shares for plug-in electric vehicles and hybrids in the United States and other countries, executives at automotive companies across the world were closely watching the strategic moves that Elon Musk was making and the waves that Tesla's Model S was making in the marketplace. The publicity that Tesla's Model S received and the rapid climb of the company stock price in 2013 prompted the CEO of General Motors not only to closely monitor what

Tesla was doing but also to set up a special team to study how Tesla products might disrupt the automotive industry in upcoming years. Executives at GM were acutely aware that cures were needed for the disappointingly small sales volume of the much ballyhooed Chevrolet Volt and that the Volt had failed to spark consumer interest in electric vehicles: sales totaled only 23,100 units in 2013 (Exhibit 10). To boost sales of the Volt, GM reduced the Volt's 2013 base price of \$39,995 to a base price of \$34,995 for the 2014 Volt, but 2014 sales of the Volt were a disappointing 18,805 units. GM was rumored to be working on a next-generation compact electric car that could go 200 miles on a charge and that would be equipped with a generator for battery charging; supposedly, the car would be introduced in 2016 and have a base price close to \$30,000.

In late 2013, BMW began selling its all-new i3 series electric car models that had a lightweight, carbon fiber–reinforced plastic body, lithium-ion batteries with a driving range of 80–100 miles on a single charge, a 170 horsepower electric motor, and a base price of \$41,350; customers could also get the BMW i3 with a range extender package (base price of \$45,200) that included a 34 horsepower motor used only to maintain the charge of the lithium-ion battery at an approximate 5 percent charge and extend the driving range to 160–180 miles per charge. BMW sold more than 16,000 i3s in 2014 and expected global sales of the i3 to be approximately 22,500 units in 2015. In mid-2014, BMW began selling a super-premium sporty, high-tech electric vehicle called the i8 that had a three-cylinder electric motor, a supplemental gasoline engine for higher speeds, scissor doors, flamboyant aerodynamic flourishes, and an electric-only driving range of about 22 miles. Global sales of the i8 were 1,741 units in 2014, with forecasted sales of 5,100 units in 2015; the 2015 base price of BMW's i8 was \$137,450.

Mercedes-Benz launched sales of its premium compact B-Class electric vehicle in the United States in mid-2014; the four-door, five-passenger vehicle (base price of \$41,450) was built on an entirely new platform compared to other B-Class models with traditional gasoline engines, had an estimated driving range of 115 miles on a single charge, accelerated

from zero to 60 miles per hour in less than 10 seconds, delivered 174 horsepower, had a top speed of 100 miles per hour, utilized an electric power train system custom-designed and produced by Tesla, and was loaded with safety features. Mercedes B-Class electric vehicles with a range extender package were also available. The new electric B-Class models competed directly with BMW's i3 series electric car. While Mercedes and BMW had a near-term focus on hybrids with a very short battery-only range, media reports indicated that they, along with Porsche and Audi, were working on producing fully electric vehicles with a 300+ mile driving range on a single charge by 2018.

In late 2015, both Cadillac and Audi introduced new plug-in hybrid luxury sedans (the Cadillac CT6 and the Audi A6L eTron) that were being produced in China; initially, both models were only being sold in China. Both models had an electric-only range of just over 60 miles on a single charge. However, Cadillac began marketing three gasoline-only versions of the CT6 luxury sedan in North America and selected other countries in 2016; there were expectations that Cadillac would begin selling the hybrid plug-in version of the CT6 in North America and elsewhere in late 2016 or early 2017. The Cadillac CT6 sedan—the highest-end Cadillac model introduced in several decades—was designed and equipped to compete head-to-head against the BMW 7-series, Mercedes S-Class, Audi A8, Jaguar XJ, Lexus LS, and others. In 2016–2017, the plug-in hybrid market was expected to include luxury models produced and marketed by Cadillac, Audi, BMW, Mercedes, and Jaguar Land Rover—each offering an “electric experience” without the range anxiety and hassle of recharging.

Exhibit 12 shows how the expected price of Tesla's forthcoming Model 3 mid-priced sedan (2016–2017) compared against the price and electric-only driving range of other similarly priced electric vehicles on the market in 2015.

Hydrogen Fuel Cells: An Alternative to Electric Batteries

Many of the world's major automotive manufacturers, while actively working on next-generation

EXHIBIT 12

Comparative Prices and Driving Ranges of Tesla's Forthcoming Model 3 Sedan and Other 2014 Model Electric Vehicles

Low- and Mid-Priced Electric Vehicles	Manufacturer's Suggested Retail Price (base model, no options, including destination fee)
2015 Nissan Leaf Hatchback	\$29,860
2015 Chevrolet Spark EV	\$27,495
2015 Chevrolet Volt	\$34,995
2015 Ford Focus-electric	\$31,125
2015 Ford C-Max Energi	\$34,270
2015 Fiat 500e	\$35,490
2015 Volkswagen e-Golf	\$35,090
2015 Honda Fit EV	\$37,415
2015 BMW i3 Hatchback	\$48,150
2015 Mercedes B-Class	\$41,450
2016–2017 Tesla Model 3s	~\$35,000–\$40,000

Sources: www.edmunds.com, www.kbb.com, and company websites (accessed April 10, 2015).

battery-powered electric vehicles, were nonetheless hedging their bets by also pursuing the development of hydrogen fuel cells as an alternative means of powering future vehicles. Toyota was considered the leader in developing hydrogen fuel cells and, in 2015, was sharing some of its fuel cell technology patents for free with other automotive companies in an effort to spur determining whether there was merit in installing fuel cells and building out a hydrogen charging network. Mazda, Nissan, Honda, and Hyundai were also actively exploring hydrogen fuel technology. German automakers had formed a group to support efforts to build out a hydrogen charging network in Germany and sell both electric and fuel cell models at the same time. General Motors, Ford, Fiat-Chrysler, and Tesla were viewed as betting most heavily on battery-powered vehicles being the wave of the future.

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Deere & Company in 2015: Striving for Growth in a Weakening Global Agricultural Sector

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Deere & Company recorded its best-ever year in fiscal 2013, with sales and earnings of \$37.8 billion and \$3.5 billion, respectively. The company's revenues and earnings declined to \$36.1 billion and \$3.2 billion in fiscal 2014, but the company's global strategy keyed to product innovation and quality, operating excellence, and best-in-industry customer service protected the company from slowing demand for agricultural equipment. Deere & Company achieved its record-setting year in 2013 and an impressive year in 2014, despite a slowdown in the construction industry, where it also competed with a line of tractors, articulating dump trucks, backhoe loaders, motor graders, excavators, and bulldozers. The company also manufactured and marketed forestry equipment, turf equipment, and diesel engines for marine and construction equipment uses. Deere had introduced dozens of technologically advanced agricultural and construction products that helped boost productivity and lower the costs of its customers in farming and construction.

An increasing world population and the consequential global increase in the demand for grain and grain-dependent foods, as well as the increasing need for construction, turf, and forestry equipment, were all factors that would benefit the company in the long-term. International markets such as China, Brazil, and Russia already accounted for more than 35 percent of the company's revenues in 2013, and they would likely make up a much larger percentage of sales in the long-term as living standards in emerging markets improved. Deere & Company had recognized the importance of international expansion as early as 1956, when it first established operations

outside the United States, but it was accelerating its efforts to prepare for rapid increases in the demand for food in international markets. The company built or acquired new plant capacity in Brazil, Germany, and China in 2013. In 2014, new construction equipment factories were opened in Brazil.

The company's prospects for stronger performance in 2015 were challenged, however, by a sudden and significant overall weakness in the global agricultural sector. In 2014 and 2015, the weakening farm economy resulted in lower agriculture sales, which more than offset the increase in construction and forestry sales, resulting in a 5 percent drop in new sales. Reuter's reported that Deere's sales had suffered in 2014 and 2015, as bumper corn harvests drove down prices, leaving farmers with less cash to spend on equipment. Corn prices fell about 15 percent in 2014, on top of a decline of nearly 40 percent in 2013. The company's primary challenge in 2015 was the continuing declining demand for agricultural equipment, which was resulting in significant reductions in sales and earnings. Deere's CFO commented in 2015 that the company was facing the deepest downturn in the North American agricultural sector in 25 years. Nonetheless, John Deere's management expected to have a profitable year despite the prospect of lower sales.

Company History

Deere & Company began manufacturing and marketing farming equipment in 1837, when John Deere, a blacksmith and inventor, began forging

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