

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number: 001-34756

Tesla, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

3500 Deer Creek Road
Palo Alto, California
(Address of principal executive offices)

91-2197729
(I.R.S. Employer
Identification No.)

94304
(Zip Code)

(650) 681-5000

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock	TSLA	The Nasdaq Global Select Market

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark whether the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 ("Exchange Act") during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of voting stock held by non-affiliates of the registrant, as of June 30, 2019, the last day of the registrant's most recently completed second fiscal quarter, was \$31.54 billion (based on the closing price for shares of the registrant's Common Stock as reported by the NASDAQ Global Select Market on June 30, 2019). Shares of Common Stock held by each executive officer, director, and holder of 5% or more of the outstanding Common Stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of February 7, 2020, there were 181,341,586 shares of the registrant's Common Stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for the 2020 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of the registrant's fiscal year ended December 31, 2019.

TESLA, INC.

ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2019

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Forward-Looking Statements

The discussions in this Annual Report on Form 10-K contain forward-looking statements reflecting our current expectations that involve risks and uncertainties. These forward-looking statements include, but are not limited to, statements concerning our strategy, future operations, future financial position, future revenues, projected costs, profitability, expected cost reductions, capital adequacy, expectations regarding demand and acceptance for our technologies, growth opportunities and trends in the market in which we operate, prospects and plans and objectives of management. The words “anticipates,” “believes,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “projects,” “will,” “would” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements that we make. These forward-looking statements involve risks and uncertainties that could cause our actual results to differ materially from those in the forward-looking statements, including, without limitation, the risks set forth in Part I, Item 1A, “Risk Factors” in this Annual Report on Form 10-K and in our other filings with the Securities and Exchange Commission. We do not assume any obligation to update any forward-looking statements.

PART I

ITEM 1. BUSINESS

Overview

We design, develop, manufacture, sell and lease high-performance fully electric vehicles and energy generation and storage systems, and offer services related to our products. We are the world's first vertically integrated sustainable energy company, offering end-to-end clean energy products, including generation, storage and consumption. We generally sell our products directly to customers, including through our website and retail locations. We also continue to grow our customer-facing infrastructure through a global network of vehicle service centers, Mobile Service technicians, body shops, Supercharger stations and Destination Chargers to accelerate the widespread adoption of our products. We emphasize performance, attractive styling and the safety of our users and workforce in the design and manufacture of our products, and are continuing to develop full self-driving technology for improved safety. We also strive to lower the cost of ownership for our customers through continuous efforts to reduce manufacturing costs and by offering financial services tailored to our vehicles. Our sustainable energy products, engineering expertise, intense focus to accelerate the world's transition to sustainable energy and achieve the benefits of autonomous driving, and business model differentiate us from other companies.

We currently offer or are planning to introduce electric vehicles to address a wide range of consumer and commercial vehicle markets, including Model 3, Model Y, Model S, Model X, Cybertruck, Tesla Semi and a new Tesla Roadster. In order to meet customers' range, functionality and performance expectations, we have employed our considerable design and vehicle engineering capabilities to overcome the design, styling and performance issues that have historically limited broad adoption of electric vehicles. Combined with technical advancements in our powertrain system, Autopilot and Full Self-Driving ("FSD") hardware, and neural net, our electric vehicles boast advantages such as leading range and recharging flexibility; superior acceleration, handling and safety characteristics; a unique suite of user convenience and infotainment features; the ability to have additional features enabled through over-the-air updates; and savings in charging, maintenance and other costs of ownership.

In furtherance of our mission to accelerate the world's transition to sustainable energy, we have also developed an expertise in solar energy systems. We sell and lease retrofit solar energy systems for residential and commercial customers, and alternatively provide certain customers with access to our solar energy systems through power purchase or subscription-based arrangements. We also offer the Solar Roof, which features attractive and durable glass roof tiles integrated with solar energy generation. Our approach to the solar business emphasizes simplicity, standardization and accessibility to make it easy and cost-effective for customers to adopt clean energy, while reducing our customer acquisition costs.

Finally, we have leveraged our technological expertise in batteries, energy management, power electronics, and integrated systems from our vehicle powertrain systems to develop and manufacture energy storage products, including Powerwall, Powerpack and Megapack. These scalable systems may be used in homes, commercial facilities and on the utility grid, and are capable of numerous applications including backup or off-grid power, peak demand reduction, demand response, reducing intermittency of renewable energy generation, facilitation of the use of renewable energy generation over fossil fuel generation, and other grid services and wholesale electric market services. Drawing on our solar business expertise, we can also offer integrated systems combining energy generation and storage. Like our vehicles, our energy storage products can be remotely updated over-the-air with software or firmware improvements.

Segment Information

We operate as two reportable segments: (i) automotive and (ii) energy generation and storage.

The automotive segment includes the design, development, manufacturing, sales, and leasing of electric vehicles as well as sales of automotive regulatory credits. Additionally, the automotive segment is also comprised of services and other, which includes non-warranty after-sales vehicle services, sales of used vehicles, retail merchandise, sales by our acquired subsidiaries to third party customers, and vehicle insurance revenue. The energy generation and storage segment includes the design, manufacture, installation, sales, and leasing of solar energy generation and energy storage products, services related to such products, and sales of solar energy system incentives.

Our Products and Services

Automotive

Model 3

Model 3 is a four-door mid-size sedan that we designed for manufacturability with a base price for mass-market appeal, which we began delivering in July 2017. We currently manufacture Model 3 at the Fremont Factory as well as at Gigafactory Shanghai, where we are ramping production with an installed annual production capacity for 150,000 Model 3 vehicles. We currently offer Model 3 in rear-wheel drive and dual motor all-wheel drive variants, including a Performance version of the latter.

Model Y

Model Y is a compact sport utility vehicle (“SUV”) built on the Model 3 platform with the capability for seating for up to seven adults, which we began producing in January 2020 and expect to commence delivering in the first quarter of 2020. We currently manufacture Model Y at the Fremont Factory, and are further ramping production there and making preparations for production next at Gigafactory Shanghai. We currently offer Model Y in dual motor all-wheel drive Long Range and Performance versions.

Model S and Model X

Model S is a four-door full-size sedan that we began delivering in June 2012. Model S introduced Tesla vehicle mainstays such as a large touchscreen driver interface, Autopilot hardware, over-the-air software updates, and fast charging through our Supercharger network.

Model X is a mid-size SUV with seating for up to seven adults, which we began delivering in September 2015. Model X introduced features including unique falcon wing doors for easy access to passenger seating and an all-glass panoramic windshield.

Model S and Model X feature the highest performance characteristics and longest ranges that we offer in a sedan and SUV, respectively. These vehicles are equipped with a standard dual motor all-wheel drive powertrain, and are also available in Performance versions with enhanced acceleration and/or top speed and styling. We manufacture Model S and Model X at the Fremont Factory.

Future Consumer and Commercial Electric Vehicles

In addition, we have unveiled a number of planned electric vehicles to address a broader cross-section of the vehicle market, including specialized consumer electric vehicles in Cybertruck and the new Tesla Roadster and a commercial electric vehicle in Tesla Semi.

Energy Generation and Storage

Energy Storage Products

We began deliveries of the current generations of our Powerwall and Powerpack products in late 2016 and 2017, respectively, and of our Megapack product in late 2019. Powerwall is a 13.5 kilowatt hour (“kWh”) rechargeable lithium-ion battery with integrated inverter, designed to store energy at a home or small commercial facility. Powerpack and Megapack are fully integrated energy storage solutions for commercial, industrial, utility and energy generation customers, comprised of up to 232kWh (AC) battery packs and up to 700 kilovolt-ampere (at 480V) inverters for Powerpack and up to 3 megawatt hour (“MWh”) (AC) battery packs and up to 1.54 megavolt-ampere inverters for Megapack, multiple units of which may be grouped together to form larger installations, capable of reaching gigawatt hours (“GWh”) or greater. Powerpack and Megapack can also be combined with renewable energy generation sources to create microgrids that provide communities with clean, resilient and affordable power.

We also develop and advance our software capabilities for the control and optimal dispatch of energy storage systems across a wide range of markets and applications, which can be sent to our systems through over-the-air updates.

Solar Energy Offerings

The major components of our retrofit solar energy systems include solar panels that convert sunlight into electrical current, inverters that convert the electrical output from the panels to a usable current compatible with the electric grid, racking that attaches the solar panels to the roof or ground, electrical hardware that connects the solar energy system to the electric grid, and our monitoring device. We purchase the majority of these components, and we do so from multiple sources to ensure competitive pricing and adequate supply. We also design and manufacture certain components for our solar energy products. In addition to selling retrofit solar energy systems to customers and certain channel partners, we also make them available through lease and power purchase agreement ("PPA") arrangements, currently with 20-year terms and typically with renewal options, and a subscription-based sale of solar power, which is currently available in California.

In 2019, we commenced direct customer and channel partner sales of the third generation of our Solar Roof, which features aesthetically pleasing and durable glass roofing tiles designed to complement the architecture of homes and commercial buildings while turning sunlight into electricity. We are ramping the volume production of this version of the Solar Roof at Gigafactory New York, and are increasing our installation capabilities by training our personnel and third party partners.

Technology

Automotive

Our core vehicle technology competencies include battery and powertrain engineering and manufacturing, as well as our ability to design vehicles that utilize the unique advantages of an electric powertrain. Our core intellectual property includes our electric powertrain and our work on developing self-driving technologies. Our powertrain consists of our battery pack, power electronics, motor, gearbox, and control software. We offer several powertrain variants for our vehicles that incorporate years of research and development. In addition, we have designed our vehicles to incorporate the latest advances in consumer technologies, such as mobile computing, sensing, displays, and connectivity.

Battery and Powertrain

We optimize the design of the lithium-ion cells we use and of our battery packs to achieve high energy density at decreasing costs while also maintaining safety, reliability and long life in the rigors of an automotive environment. Our proprietary technology includes systems for high density energy storage, cooling, safety, charge balancing, structural durability, and electronics management. We have also pioneered advanced manufacturing techniques to manufacture large volumes of battery packs with high quality at low cost. Moreover, we maintain extensive testing and R&D capabilities for battery cells, packs and systems, and have built an expansive body of knowledge on lithium-ion cell vendors, chemistry types and performance characteristics. We believe that the flexibility that we have built into our designs, combined with our research and real-world performance data, will enable us to continue to evaluate new battery cells and optimize battery pack system performance and cost for our current and future vehicles.

The power electronics in our electric powertrain govern the flow of electrical current throughout our vehicles as needed, convert direct current from the battery pack into alternating current to drive our vehicles' motors (and vice versa from an external electricity source to charge the battery pack), and provide regenerative braking functionality. The primary technological advantages to our proprietary power electronics designs include the ability to drive large amounts of electrical current in a small physical package with high efficiency and low cost, and to recharge on a wide variety of electricity sources at home, at the office or on the road, including at our Superchargers.

We offer dual motor powertrain vehicles, which use two electric motors to maximize traction and performance in an all-wheel drive configuration. Tesla's dual motor powertrain digitally and independently controls torque to the front and rear wheels. The near-instantaneous response of the motors, combined with low centers of gravity, provides drivers with controlled performance and increased traction control. We are also developing vehicle powertrain technology featuring three electric motors for further increased performance.

Vehicle Control and Infotainment Software

The performance and safety systems of our vehicles and their battery packs require sophisticated control software. There are numerous processors in our vehicles to control these functions, and we write custom firmware for many of these processors. Software algorithms control traction, vehicle stability, the acceleration and regenerative braking of the vehicle, climate control and thermal management, and are also used extensively to monitor the charge state of the battery pack and to manage all of its safety systems. Drivers use the information and control systems in our vehicles to optimize performance, customize vehicle behavior, manage charging modes and times and control all infotainment functions. We develop almost all of this software, including most of the user interfaces, internally.

Self-Driving Development

We have expertise in developing technologies, systems and software to achieve self-driving vehicles. We are equipping all new Tesla vehicles with hardware needed for full self-driving in the future, including a new powerful and proprietary on-board computer that we introduced in 2019. This hardware suite enables field data from the on-board camera, radar, ultrasonics, and GPS to continually train and improve our neural network for real-world performance.

Currently, we offer in our vehicles certain advanced driver assist systems under our Autopilot and FSD options, including auto-steering, traffic aware cruise control, automated lane changing, automated parking, driver warning systems, and a Smart Summon feature that enables vehicles to be remotely summoned over short distances in parking lots and driveways. These systems relieve our drivers of the most tedious and potentially dangerous aspects of road travel, and the field data feedback loops from the on-board hardware, as well as over-the-air firmware updates, allow us to improve them over time. Although at present the driver is ultimately responsible for controlling the vehicle, our systems provide safety and convenience functionality that allows our customers to rely on them much like the system that airplane pilots use when conditions permit.

Energy Generation and Storage

Energy Storage Products

We are leveraging many of the component-level technologies from our vehicles to advance our energy storage products, including high density energy storage, cooling, safety, charge balancing, structural durability, and electronics management. By taking a modular approach to the design of battery systems, we are able to maximize manufacturing capacity to produce our Powerwall, Powerpack and Megapack products. Additionally, we are making significant strides in the area of bi-directional, grid-tied power electronics that enable us to interconnect our battery systems seamlessly with global electricity grids while providing fast-acting systems for power injection and absorption.

Solar Energy Systems

We are continually innovating and developing new technologies to facilitate the growth of our solar energy business. For example, we have developed proprietary software to reduce solar energy system design and installation timelines and costs, and the Solar Roof is designed to work seamlessly with Powerwall.

Design and Engineering

Automotive

We have created significant in-house capabilities in the design and test engineering of electric vehicles and their components and systems. We design, engineer and test bodies, chassis, exteriors, interiors, heating and cooling and low voltage electrical systems in-house, and to a lesser extent, in conjunction with our suppliers. Our team has core competencies in computer aided design and crash test simulations, which reduces the product development time of new models. We continue to grow our capabilities, including for on-site crash testing, durability testing and component validation.

Additionally, our team has expertise in selecting and working with various materials. For example, given the impact of mass on range, which is very important for passenger vehicles, Model S and Model X are built with lightweight aluminum bodies and chassis which incorporate a variety of materials and production methods that help optimize vehicle weight, and Model 3 and Model Y are built with a mix of materials to be lightweight and safe while also increasing cost-effectiveness for these mass-market vehicles. On the other hand, to accommodate the durability required of work vehicles, we plan to use a thick cold-rolled stainless steel alloy and ultra-strong glass for Cybertruck while employing our expertise in battery engineering to maintain excellent range.

Energy Generation and Storage

Energy Storage Products

We have an in-house engineering team that both designs our energy storage products themselves, and works with our residential, commercial and utility customers to design bespoke systems incorporating our products. Our team's expertise in electrical, mechanical, civil and software engineering enables us to create integrated energy storage solutions that meet the various and particular needs of our customers.

Solar Energy Systems

We also have an in-house team that designs a customized solar energy system or Solar Roof for each of our customers, including an integrated energy storage system when requested by the customer. We have developed software that simplifies and expedites the design process and optimizes the design to maximize the energy production of each system. This team completes a structural analysis of each building and produces a full set of structural design and electrical blueprints that contain the specifications for all system components. Additionally, this team specifies complementary mounting and grounding hardware where required.

Sales and Marketing

Historically, we have been able to generate significant media coverage of our company and our products, and we believe we will continue to do so. Such media coverage and word of mouth are the current primary drivers of our sales leads and have helped us achieve sales without traditional advertising and at relatively low marketing costs.

Automotive

Direct Sales

We market and sell our vehicles directly to customers using means that we believe will maximize our reach, improve the overall customer experience and maximize capital efficiency. Currently, our sales channels include our website and an international network of company-owned stores. In some states, we have also opened galleries to educate and inform customers about our products, but such locations do not actually transact in the sale of vehicles. We believe this infrastructure enables us to better control costs of inventory, manage warranty service and pricing, educate consumers about electric vehicles and charging, maintain and strengthen the Tesla brand, and obtain rapid customer feedback.

We reevaluate our sales strategy both globally and at a location-by-location level from time to time to optimize our current sales channels. Sales of vehicles in the automobile industry also tend to be cyclical in many markets, which may expose us to volatility from time to time.

Used Vehicle Sales

Our used vehicle business supports new vehicle sales by integrating the sale of a new Tesla vehicle with a customer's trade-in needs for their existing Tesla and non-Tesla vehicles. The Tesla and non-Tesla vehicles we acquire through trade-ins are subsequently remarketed, either directly by us or through third-parties. We also receive used Tesla vehicles to resell through lease returns and other sources.

Public Charging

We continue to build out our global Supercharger network for our customers' convenience, including to enable long-distance travel and urban ownership, which is a part of our strategy to remove a barrier to the broader adoption of electric vehicles caused by the perception of limited range. Each Tesla Supercharger is an industrial grade, high-speed charger designed to recharge a Tesla vehicle significantly more quickly than other charging options, and we continue to evolve our technology to allow for even faster charging times at lower cost to us. Where possible, we are co-locating Superchargers with our solar and energy storage systems to further reduce costs and promote renewable power. Supercharger stations typically are strategically placed along well-traveled routes and in dense city centers to allow Tesla vehicle owners the ability to enjoy quick, reliable and ubiquitous charging with convenient, minimal stops. Use of the Supercharger network is either free under certain sales programs or requires a competitive fee.

We also work with a wide variety of hospitality, retail, and public destinations, as well as businesses with commuting employees, to offer additional charging options for our customers. These Destination Charging and workplace locations deploy Tesla Wall Connectors to provide charging to Tesla vehicle owners who patronize or are employed at their businesses. We also work with single-family homeowners and multi-family residential entities to deploy home charging solutions in our communities.

Energy Generation and Storage

We market and sell our solar and energy storage products to individuals, commercial and industrial customers and utilities through a variety of channels.

In the U.S., we offer residential solar and energy storage products directly through our website, stores and galleries, as well as through our network of channel partners. Outside of the U.S., we use our international sales organization and a network of channel partners to market and sell these products for the residential market. We also sell Powerwall directly to utilities. In the case of products sold to such utilities or channel partners, such partners typically sell and install the product in customer homes.

We sell Powerpack and Megapack systems to commercial and utility customers through our international sales organization, which consists of experienced energy industry professionals in all of our target markets, as well as through our channel partner network. In certain jurisdictions, we also sell installed solar energy systems (with or without energy storage) to commercial customers through cash, lease and PPA transactions.

Service and Warranty

Automotive

Service

We provide service for our electric vehicles at our company-owned service locations and through an expanding fleet of Tesla Mobile Service technicians who provide services that do not require a vehicle lift remotely at customers' homes or other locations. Performing vehicle service ourselves provides us with the capability to identify problems, find solutions, and incorporate improvements faster, and optimize logistics and inventory for service parts better, than traditional automobile manufacturers. Our vehicles are also designed with the capability to wirelessly upload data to us via an on-board system with cellular connectivity, allowing us to diagnose and remedy many problems before ever looking at the vehicle.

Vehicle Limited Warranty and Extended Service Plans

We provide a manufacturer's warranty on all new and used Tesla vehicles. Each new vehicle has a four year or 50,000 mile New Vehicle Limited Warranty, subject to separate limited warranties for the supplemental restraint system, battery and drive unit, and body rust perforation. For the battery and drive unit on our current new Model S and Model X vehicles, we offer an eight year, 150,000 mile limited warranty, with minimum 70% retention of battery capacity over the warranty period. For the battery and drive unit on our current new Model 3 and Model Y vehicles, we offer an eight year or 100,000 mile limited warranty for our Standard or Standard Range Plus battery and an eight year or 120,000 mile limited warranty for our Long Range or Performance battery, with minimum 70% retention of battery capacity over the warranty period.

In addition to the New Vehicle Limited Warranty, we currently offer for Model S and Model X Extended Service plans for new vehicles in specified regions. The Extended Service plans cover the repair or replacement of vehicle parts for up to an additional four years or up to an additional 50,000 miles after the expiration of the New Vehicle Limited Warranty.

Energy Generation and Storage

Energy Storage Systems

We generally provide a 10-year “no defect” and “energy retention” warranty with every current Powerwall and a 15-year “no defect” and “energy retention” warranty with every current Powerpack or Megapack system. Pursuant to these energy retention warranties, we guarantee that the energy capacity of the applicable product will be at least a specified percentage (within a range up to 80%) of its nameplate capacity during specified time periods, depending on the product, battery pack size and/or region of installation, and subject to specified use restrictions or kWh throughputs caps. In addition, we offer certain extended warranties, which customers are able to purchase from us at the time they purchase an energy storage system, including a 20 year extended protection plan for Powerwall and a selection of 10 or 20 year performance guarantees for Powerpack and Megapack. In circumstances where we install a Powerwall or Powerpack system, we also provide certain warranties on our installation workmanship. All of the warranties for our energy storage systems are subject to customary limitations and exclusions.

Solar Energy Systems

For retrofit solar energy systems, we provide a workmanship warranty for up to 20 years from installation and a separate warranty against roof leaks. We also pass-through the inverter and module manufacturer warranties (typically 10 years and 25 years respectively). When we lease a retrofit solar energy system, we compensate the customer if their system produces less energy than guaranteed over a specified period. For the Solar Roof, we provide a warranty against defects for 25 years, a 25 year weatherization warranty and a power output warranty. For all systems (retrofit and Solar Roof) we also provide service and repair (either under warranty or for a fee) during the entire term of the customer relationship.

Financial Services

Automotive

Purchase Financing and Leases

We offer leasing and/or loan financing arrangements for our vehicles in certain jurisdictions in North America, Europe and Asia through various financial institutions. In certain international markets, we offer resale value guarantees to customers who purchase and finance their vehicles through one of our specified commercial banking partners, under which those customers have the option of selling their vehicles back to us at preset future dates, generally at the end of the terms of the applicable loans or financing programs, for pre-determined resale values. In certain markets, we also offer vehicle buyback guarantees to financial institutions, which may obligate us to repurchase the vehicles for pre-determined prices.

We also currently offer leasing directly through our local subsidiaries for Model S, Model X and Model 3 in the U.S. and for Model S and Model X in Canada.

Insurance

In August 2019, we launched an insurance product designed for our customers, which offers rates that are often better than other alternatives. This product is currently available in California, and we plan to expand both the markets in which we offer insurance products and our ability to offer such products, as part of our ongoing effort to decrease the total cost of ownership for our customers.

Energy Generation and Storage

Energy Storage Systems

We currently offer a loan product to residential customers who purchase Powerwall together with a new solar energy system, and lease and PPA options to commercial customers who purchase a Powerpack system together with a new solar energy system. We intend to introduce financial services offerings for customers who purchase standalone energy storage products in the future.

Solar Energy Systems

We are an industry leader in offering innovative financing alternatives that allow our customers to take direct advantage of available tax credits and incentives to reduce the cost of owning a solar energy system through a solar loan, or to make the switch to solar energy with little to no upfront costs under a lease or PPA. Our solar loan offers third-party financing directly to a qualified customer to enable the customer to purchase and own a solar energy system. We are not a party to the loan agreement between the customer and the third-party lender, and the third-party lender has no recourse against us with respect to the loan. Our solar lease offers customers a fixed monthly fee, at rates that typically translate into lower monthly utility bills, and an electricity production guarantee. Our solar PPA charges customers a fee per kWh based on the amount of electricity produced by our solar energy systems. We monetize the customer payments we receive from our leases and PPAs through funds we have formed with investors. We also intend to introduce financial services offerings for our Solar Roof customers in the future.

Manufacturing

We manufacture our products and related components primarily at the Fremont Factory and at nearby facilities in the Bay Area, California; Gigafactory Nevada near Reno, Nevada; Gigafactory New York in Buffalo, New York; and Gigafactory Shanghai in China. We have also selected a site near Berlin, Germany to build a factory for the European market, which we refer to as Gigafactory Berlin.

Manufacturing Facilities in the Bay Area, California

We manufacture our vehicles, and certain parts and components that are critical to our intellectual property and quality standards, at our manufacturing facilities in the Bay Area in California, including the Fremont Factory, and other local manufacturing facilities. Our Bay Area facilities contain several manufacturing operations, including stamping, machining, casting, plastics, body assembly, paint operations, seat assembly, final vehicle assembly and end-of-line testing for our vehicles, as well as production of battery packs and drive units for Model S and Model X. Some major vehicle component systems are purchased from suppliers; however, we have a high level of vertical integration in our manufacturing processes at our Bay Area facilities.

Gigafactory Nevada

Gigafactory Nevada is a facility where we work together with our suppliers to integrate battery material, cell, module and battery pack production in one location. We use the battery packs manufactured at Gigafactory Nevada for Model 3, Model Y and our energy storage products. We also manufacture Model 3 and Model Y drive units at Gigafactory Nevada. Finally, the assembly of Megapack systems takes place at Gigafactory Nevada, allowing us to ship deployment-ready systems directly to customers.

We have designed Gigafactory Nevada to allow us access to high volumes of lithium-ion battery cells while achieving a significant reduction in the cost of our battery packs, and we have an agreement with Panasonic to partner with us on Gigafactory Nevada with investments in production equipment that it is using to manufacture and supply us with battery cells. Given its importance to the production of our vehicle and energy storage products, in particular Model 3, Model Y and Megapack, we continue to invest in Gigafactory Nevada to achieve additional production output there.

Gigafactory New York

We have primarily used our manufacturing facility in Buffalo, New York, which we refer to as Gigafactory New York, for the development and production of our Solar Roof and other solar products and components, energy storage components, and Supercharger components, and for other lessor-approved functions. In particular, our manufacturing operations at Gigafactory New York are increasing significantly as we ramp the production of the third generation of our Solar Roof there.

Gigafactory Shanghai

In December 2019, we commenced production of Model 3 vehicles at Gigafactory Shanghai, which we have established in order to increase the affordability of our vehicles for customers in local markets by reducing transportation and manufacturing costs and eliminating certain tariffs on vehicles imported into China from the U.S. At Gigafactory Shanghai, we have installed annual production capacity for 150,000 Model 3 vehicles that we believe we will eventually be able to push to actual rates of production in excess of such number, subject to local production of battery packs, which we began ramping there later than other processes. We have also commenced construction of the next phase of Gigafactory Shanghai to add Model Y manufacturing capacity at least equivalent to that for Model 3. Much of the investment in Gigafactory Shanghai has been and is expected to continue to be provided through local debt financing, including a RMB 9.0 billion (or the equivalent amount in U.S. dollars) fixed asset term facility and a RMB 2.25 billion (or the equivalent amount in U.S. dollars) working capital revolving facility that our subsidiary entered into in December 2019. We are supplementing such financing with limited direct capital expenditures by us, at a lower cost per unit of production capacity than that of Model 3 production at the Fremont Factory.

Other Manufacturing

Generally, we continue to expand production capacity at our existing facilities. We also intend to further increase cost-competitiveness in our significant markets by strategically adding local manufacturing, including at our planned Gigafactory Berlin.

Supply Chain

Our products use thousands of purchased parts that are sourced from hundreds of suppliers across the world. We have developed close relationships with vendors of key parts such as battery cells, electronics and complex vehicle assemblies. Certain components purchased from these suppliers are shared or are similar across many product lines, allowing us to take advantage of pricing efficiencies from economies of scale.

As is the case for most automotive companies, most of our procured components and systems are sourced from single suppliers. Certain key components we use have multiple available sources, and we work to qualify multiple suppliers for each such component where it is sensible to do so, in order to minimize production risks owing to disruptions in their supply. We also mitigate risk by maintaining safety stock for key parts and assemblies and die banks for components with lengthy procurement lead times.

Our products use various raw materials including aluminum, steel, cobalt, lithium, nickel and copper. Pricing for these materials is governed by market conditions and may fluctuate due to various factors outside of our control, such as supply and demand and market speculation. We currently believe that we have adequate access to raw materials supplies in order to meet the needs of our operations.

Governmental Programs, Incentives and Regulations

Globally, both the operation of our business by us and the ownership of our products by our customers are impacted by a number of government programs, incentives and other arrangements. Our business and products are also subject to a number of governmental regulations that vary among jurisdictions.

Programs and Incentives

California Alternative Energy and Advanced Transportation Financing Authority Tax Incentives

We have entered into multiple agreements over the past few years with the California Alternative Energy and Advanced Transportation Financing Authority (“CAEATFA”) that provide multi-year sales tax exclusions on purchases of manufacturing equipment that will be used for specific purposes, including the expansion and ongoing development of Model S, Model X, Model 3, Model Y and future electric vehicles and the expansion of electric vehicle powertrain production in California.

Gigafactory Nevada—Nevada Tax Incentives

In connection with the construction of Gigafactory Nevada, we have entered into agreements with the State of Nevada and Storey County in Nevada that provide abatements for sales, use, real property, personal property and employer excise taxes, discounts to the base tariff energy rates and transferable tax credits. These incentives are available for the applicable periods beginning on October 17, 2014 and ending on either June 30, 2024 or June 30, 2034 (depending on the incentive). Under these agreements, we were eligible for a maximum of \$195.0 million of transferable tax credits, subject to capital investments by us and our partners for Gigafactory Nevada of at least \$3.50 billion, which we exceeded during 2017, and specified hiring targets for Gigafactory Nevada, which we exceeded during 2018. As a result, as of December 31, 2018, we had earned the maximum amount of credits.

Gigafactory New York—New York State Investment and Lease

We have a lease through the Research Foundation for the State University of New York (the “SUNY Foundation”) for Gigafactory New York, which was constructed on behalf of the SUNY Foundation. Under the lease and a related research and development agreement, there continues to be, on behalf of the SUNY Foundation, installation of certain utilities and other improvements and acquisition of certain manufacturing equipment designated by us to be used at Gigafactory New York. The terms of such agreement require us to comply with a number of covenants, including required hiring and cumulative investment targets, which we have met to date as of the applicable measurement dates.

Gigafactory Shanghai—Lease and Land Use Rights

We have a lease arrangement with the local government of Shanghai for land use rights at Gigafactory Shanghai. Under the terms of the arrangement, we are required to meet a cumulative capital expenditure target and an annual tax revenue target starting at the end of 2023, which we believe will be attainable even if our actual vehicle production at Gigafactory Shanghai were far lower than the volumes we are forecasting.

Tesla Regulatory Credits

In connection with the production, delivery, placement into service and ongoing operation of our zero emission vehicles, charging infrastructure and solar systems in global markets, we have earned and will continue to earn various tradable regulatory credits. We have sold these credits, and will continue to sell future credits, to automotive companies and other regulated entities who can use the credits to comply with emission standards and other regulatory requirements. For example, under California’s Zero Emission Vehicle Regulation and those of states that have adopted California’s standard, vehicle manufacturers are required to earn or purchase credits, referred to as ZEV credits, for compliance with their annual regulatory requirements. These laws provide that automakers may bank or sell to other regulated parties their excess credits if they earn more credits than the minimum quantity required by those laws. Tesla also earns other types of saleable regulatory credits in the United States and abroad, including greenhouse gas, fuel economy, renewable energy, and clean fuels credits. Likewise, several U.S. states have adopted procurement requirements for renewable energy production. These requirements enable companies deploying solar energy to earn tradable credits known as Solar Renewable Energy Certificates (“SRECs”).

Energy Storage Systems—Incentives

The regulatory regime for energy storage projects is still under development. Nevertheless, there are various policies, incentives and financial mechanisms at the federal, state and local levels that support the adoption of energy storage. For example, energy storage systems that are charged using solar energy are eligible for the 26% tax credit in 2020 with a ramp down in 2021 and beyond under Section 48(a)(3) of the Internal Revenue Code, or the IRC, as described below. In addition, California and a number of other states have adopted procurement targets for energy storage, and behind the meter energy storage systems qualify for funding under the California Self Generation Incentive Program.

The Federal Energy Regulatory Commission (“FERC”) has also taken steps to enable the participation of energy storage in wholesale energy markets. For example, in late 2016, FERC issued a final rule, Order No. 821, to further break down barriers preventing energy storage from fully participating in wholesale energy markets. Order 821 is currently under review before the U.S. Court of Appeals for the D.C. Circuit.

Solar Energy Systems—Government and Utility Programs and Incentives

U.S. federal, state and local governments have established various policies, incentives and financial mechanisms to reduce the cost of solar energy and to accelerate the adoption of solar energy. These incentives include tax credits, cash grants, tax abatements and rebates.

The federal government currently provides an uncapped investment tax credit (“ITC”) under two sections of the IRC: Section 48 and Section 25D. Section 48(a)(3) of the IRC allows a taxpayer to claim a credit of 26% of qualified expenditures for a commercial solar energy system that commences construction by December 31, 2020. The credit then declines to 22% in 2021 and a permanent 10% thereafter. We claim the Section 48 commercial credit when available for both our residential and commercial projects, based on ownership of the solar energy system. The federal government also provides accelerated depreciation for eligible commercial solar energy systems. Section 25D of the IRC allows a homeowner-taxpayer to claim a credit of 26% of qualified expenditures for a residential solar energy system owned by the homeowner that is placed in service by December 31, 2020. The credit then declines to 22% in 2021 and is scheduled to expire thereafter. Customers who purchase their solar energy systems for cash or through our solar loan offering are eligible to claim the Section 25D investment tax credit.

In addition to the federal ITC, many U.S. states offer personal and corporate tax credits and incentives for solar energy systems.

Regulations

Vehicle Safety and Testing

Our vehicles are subject to, and comply with or are otherwise exempt from, numerous regulatory requirements established by the National Highway Traffic Safety Administration (“NHTSA”), including all applicable United States Federal Motor Vehicle Safety Standards (“FMVSS”). Our vehicles fully comply with all applicable FMVSSs without the need for any exemptions, and we expect future Tesla vehicles to either fully comply or comply with limited exemptions related to new technologies. Additionally, there are regulatory changes being considered for several FMVSS, and while we anticipate compliance, there is no assurance until final regulation changes are enacted.

As a manufacturer, we must self-certify that our vehicles meet all applicable FMVSS, as well as the NHTSA bumper standard, or otherwise are exempt, before the vehicles can be imported or sold in the U.S. Numerous FMVSS apply to our vehicles, such as crash-worthiness requirements, crash avoidance requirements, and electric vehicle requirements. We are also required to comply with other federal laws administered by NHTSA, including the CAFE standards, Theft Prevention Act requirements, consumer information labeling requirements, Early Warning Reporting requirements regarding warranty claims, field reports, death and injury reports and foreign recalls, and owner’s manual requirements.

The Automobile Information and Disclosure Act requires manufacturers of motor vehicles to disclose certain information regarding the manufacturer’s suggested retail price, optional equipment and pricing. In addition, this law allows inclusion of city and highway fuel economy ratings, as determined by EPA, as well as crash test ratings as determined by NHTSA if such tests are conducted.

Our vehicles sold outside of the U.S. are subject to similar foreign safety, environmental and other regulations. Many of those regulations are different from those applicable in the U.S. and may require redesign and/or retesting. The European Union has established new rules regarding additional compliance oversight that are scheduled to commence in 2020, and there is also regulatory uncertainty related to the United Kingdom's withdrawal from the European Union. These changes could impact the rollout of new vehicle features in Europe.

Self-Driving

There are no federal U.S. regulations pertaining to the safety of self-driving vehicles; however, NHTSA has established recommended guidelines. Certain U.S. states have legal restrictions on self-driving vehicles, and many other states are considering them. This patchwork increases the legal complexity for our vehicles. In Europe, certain vehicle safety regulations apply to self-driving braking and steering systems, and certain treaties also restrict the legality of certain higher levels of self-driving vehicles. Self-driving laws and regulations are expected to continue to evolve in numerous jurisdictions in the U.S. and foreign countries, and may create restrictions on self-driving features that we develop.

Automobile Manufacturer and Dealer Regulation

State laws regulate the manufacture, distribution, sale and service of automobiles, and generally require motor vehicle manufacturers and dealers to be licensed in order to sell vehicles directly to consumers in the state. As we open additional Tesla stores and service centers, we secure dealer licenses (or their equivalent) and engage in sales activities to sell our vehicles directly to consumers. Certain states do not permit automobile manufacturers to be licensed as dealers or to act in the capacity of a dealer, or otherwise restrict a manufacturer's ability to deliver or service vehicles. To sell vehicles to residents of states where we are not licensed as a dealer, we generally conduct the transfer of title out of the state. In such states, we have opened "galleries" that serve an educational purpose and where the title transfer may not occur.

As we expand our retail footprint in the U.S., some automobile dealer trade associations have both challenged the legality of our operations in court and used administrative and legislative processes to attempt to prohibit or limit our ability to operate existing stores or expand to new locations. We expect that the dealer associations will continue to mount challenges to our business model. In addition, we expect the dealer associations to actively lobby state licensing agencies and legislators to interpret existing laws or enact new laws in ways not favorable to Tesla's ownership and operation of its own retail and service locations, and we intend to actively fight any such efforts to limit our ability to sell and service our own vehicles.

Battery Safety and Testing

Our battery pack conforms to mandatory regulations that govern transport of "dangerous goods," defined to include lithium-ion batteries, which may present a risk in transportation. The regulations vary by mode of shipping transportation, such as by ocean vessel, rail, truck, or air. We have completed the applicable transportation tests for our battery packs, demonstrating our compliance with applicable regulations.

We use lithium-ion cells in our high voltage battery packs in our vehicles and energy storage products. The use, storage, and disposal of our battery packs is regulated under federal law. We have agreements with third party battery recycling companies to recycle our battery packs and we are also developing our own recycling technology.

Solar Energy—General

We are not a "regulated utility" in the U.S., although we are subject to certain state and federal regulations applicable to solar and battery storage providers. To operate our systems, we obtain interconnection agreements from the utilities. In most cases, interconnection agreements are standard form agreements that have been pre-approved by the public utility commission or other regulatory body.

Sales of electricity and non-sale equipment leases by third parties, such as our leases, PPAs and subscription agreements, face regulatory challenges in some states and jurisdictions.

Solar Energy—Net Metering

Most states in the U.S. have a regulatory policy known as net energy metering, or net metering, available to solar customers. Net metering typically allows solar customers to interconnect their on-site solar energy systems to the utility grid and offset their utility electricity purchases by receiving a bill credit for excess energy generated by their solar energy system that is exported to the grid. In certain jurisdictions, regulators or utilities have reduced or eliminated the benefit available under net metering, or have proposed to do so.

Solar Energy—Mandated Renewable Capacity

Many states also have adopted procurement requirements for renewable energy production, such as an enforceable renewable portfolio standard, or RPS, or other policies that require covered entities to procure a specified percentage of total electricity delivered to customers in the state from eligible renewable energy sources, such as solar energy systems. In SREC state markets, the RPS requires electricity suppliers to secure a portion of their electricity from solar generators. The SREC program provides a means for the generation of SRECs, which can then be sold separately from the energy produced to covered entities who surrender the SRECs to the state to prove compliance with the state's renewable energy mandate.

Competition

Automotive

The worldwide automotive market is highly competitive and we expect it will become even more competitive in the future as we introduce additional vehicles in a broader cross-section of the passenger and commercial vehicle market and expand our vehicles' capabilities.

We believe that our vehicles compete in the market both based on their traditional segment classification as well as based on their propulsion technology. For example, Model S and Model X compete primarily with premium sedans and premium SUVs and Model 3 and Model Y compete with small to medium-sized sedans and compact SUVs, which are extremely competitive markets. Competing products typically include internal combustion vehicles from more established automobile manufacturers; however, many established and new automobile manufacturers have entered or have announced plans to enter the alternative fuel vehicle market. Overall, we believe these announcements and vehicle introductions promote the development of the alternative fuel vehicle market by highlighting the attractiveness of alternative fuel vehicles, particularly those fueled by electricity, relative to the internal combustion vehicle. Many major automobile manufacturers have electric vehicles available today in major markets including the U.S., China and Europe, and other current and prospective automobile manufacturers are also developing electric vehicles. In addition, several manufacturers offer hybrid vehicles, including plug-in versions.

Our vehicles also compete in the market based on the compelling user experience that they offer. We believe that a key factor in our success will be our Autopilot and FSD technologies that currently enable the driver-assistance features in our vehicles, and in which we are making significant strides through our proprietary and powerful FSD computer and remotely updateable artificial intelligence software. Ultimately, while we are subject to regulatory constraints over which we have no control, our goal is a fully autonomously-driven future that improves safety and provides our customers with convenience and additional income through participation in an autonomous Tesla ride-hailing network. This network, which will also include our own fleet of vehicles, will also allow us to access a new customer base even as modes of transportation evolve. Finally, our vehicles offer unparalleled in-vehicle entertainment features, currently including Internet search, music services, passenger karaoke, and parked video streaming and gaming.

Energy Generation and Storage

Energy Storage Systems

The market for energy storage products is also highly competitive. Established companies, such as AES Energy Storage, Siemens, LG Chem and Samsung, as well as various emerging companies, have introduced products that are similar to our product portfolio. There are several companies providing individual components of energy storage systems (such as cells, battery modules, and power electronics) as well as others providing integrated systems. We compete with these companies based on price, energy density and efficiency. We believe that the specifications of our products, our strong brand, and the modular, scalable nature of our Powerpack and Megapack products give us a competitive advantage when marketing our products.

Solar Energy Systems

The primary competitors to our solar energy business are the traditional local utility companies that supply energy to our potential customers. We compete with these traditional utility companies primarily based on price, predictability of price and the ease by which customers can switch to electricity generated by our solar energy systems. We also compete with solar energy companies that provide products and services similar to ours. Many solar energy companies only install solar energy systems, while others only provide financing for these installations. In the residential solar energy system installation market, our primary competitors include Vivint Solar Inc., Sunrun Inc., Trinity Solar, SunPower Corporation, and many smaller local solar companies.

The electricity produced by solar installations still represents a small fraction of total U.S. electricity generation. With tens of millions of single-family homes and businesses in our primary service territories, and many more in other locations, we have a large opportunity to expand and grow this business as we make our retrofit installations more accessible and ramp our innovative Solar Roof. We also believe that residential solar energy generation is gaining favorable regulatory momentum, as exemplified in part by the state of California recently requiring that new homes be built with solar generation starting in 2020.

Intellectual Property

We place a strong emphasis on our innovative approach and proprietary designs which bring intrinsic value and uniqueness to our product portfolio. As part of our business, we seek to protect the underlying intellectual property rights of these innovations and designs such as with respect to patents, trademarks, copyrights, trade secrets and other measures, including through employee and third party nondisclosure agreements and other contractual arrangements. For example, we place a high priority on obtaining patents to provide the broadest and strongest possible protection to enable our freedom to operate our innovations and designs within our products and technologies in the electric vehicle market as well as to protect and defend our product portfolio. We have also adopted a patent policy in which we irrevocably pledged that we will not initiate a lawsuit against any party for infringing our patents through activity relating to electric vehicles or related equipment for so long as such party is acting in good faith. We made this pledge in order to encourage the advancement of a common, rapidly-evolving platform for electric vehicles, thereby benefiting ourselves, other companies making electric vehicles, and the world.

Employees

As of December 31, 2019, Tesla, Inc. had 48,016 full-time employees. To date, we have not experienced any work stoppages, and we consider our relationship with our employees to be good.

Available Information

We file or furnish periodic reports and amendments thereto, including our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, proxy statements and other information with the Securities and Exchange Commission ("SEC"). In addition, the SEC maintains a website (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically. Our website is located at www.tesla.com and our reports, amendments thereto, proxy statements and other information are also made available, free of charge, on our investor relations website at ir.tesla.com as soon as reasonably practicable after we electronically file or furnish such information with the SEC. The information posted on our website is not incorporated by reference into this Annual Report on Form 10-K.

ITEM 1A. RISK FACTORS

You should carefully consider the risks described below together with the other information set forth in this report, which could materially affect our business, financial condition and future results. The risks described below are not the only risks facing our company. Risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and operating results.

Risks Related to Our Business and Industry

We have experienced in the past, and may experience in the future, delays or other complications in the design, manufacture, launch, and production ramp of our vehicles, energy products, and product features, or may not realize our manufacturing cost targets, which could harm our brand, business, prospects, financial condition and operating results.

We have previously experienced launch and production ramp delays or other complications in connection with new vehicle models such as Model S, Model X and Model 3, and new vehicle features such as the all-wheel drive dual motor drivetrain on Model S and the second version of our Autopilot hardware. For example, we encountered unanticipated supply chain constraints that led to initial delays in producing Model X and an isolated supplier limitation in the manufacture of Model 3. Similarly, during our initial Model 3 production ramp, we had challenges ramping fully automated processes, such as portions of the battery module assembly line, material flow system and the general assembly line, which we addressed by reducing the levels of automation and introducing semi-automated or manual processes. In addition, we have used a number of new manufacturing technologies, techniques and processes for our vehicles, such as aluminum spot welding systems and high-speed blow forming of certain difficult to stamp vehicle parts, and we may introduce new processes in the future. We have also introduced unique design features in our vehicles with different manufacturing challenges, such as large display screens, dual motor drivetrain, hardware for our Autopilot and FSD features and falcon-wing doors. There is no guarantee that we will be able to successfully and timely introduce and scale any such new processes or features.

In particular, our future business depends in large part on the high-volume production of Model 3 and Model Y, which we believe are our vehicles with the largest markets. We have limited experience to date in manufacturing Model 3 at high volumes and continuously increasing its production rates, particularly across multiple vehicle manufacturing facilities, which we commenced in the fourth quarter of 2019 with Gigafactory Shanghai coming online. In order to be successful, we will need to implement, maintain and/or ramp efficient and cost-effective manufacturing capabilities, processes and supply chains and achieve the design tolerances, high quality and maximum output rates we have planned, including at Gigafactory Shanghai, and for Model Y, which we commenced manufacturing at the Fremont Factory in the first quarter of 2020. Bottlenecks such as those we have experienced in the past with new product ramps and other unexpected challenges may also arise as we ramp production, and it will be important that we address them promptly while continuing to reduce our manufacturing costs. If we are not successful in doing so, or if we experience issues with our ongoing manufacturing process improvements and cost-down efforts, we could face delays in establishing and/or sustaining our Model 3 and Model Y ramps or be unable to meet our related cost and profitability targets.

Moreover, we will need to hire, train and compensate skilled employees to operate high-volume production facilities to support our vehicle ramp at the Fremont Factory and Gigafactory Shanghai, as well as at Gigafactory Nevada to support the manufacture of battery packs and drive units for certain of our vehicles. Finally, because our vehicle models, in particular Model 3 and Model Y, may share certain parts, suppliers or production facilities with each other, the volume or efficiency of production with respect to one model may impact also the production of other models or lead to bottlenecks that impact the production of all models.

We may also experience similar future delays or other complications in launching and/or ramping production of new vehicles, such as Tesla Semi, Cybertruck and the new Tesla Roadster, our energy storage products and the Solar Roof, as well as future features and services such as new Autopilot or FSD features and the autonomous Tesla ride-hailing network. Likewise, we may encounter delays with the design, construction and regulatory or other approvals necessary to build and bring online future manufacturing facilities, including our planned Gigafactory Berlin in Germany.

Any significant delay or other complication in the production ramp of our current products or the development, manufacture, launch and production ramp of our future products, features and services, including complications associated with expanding our production capacity and supply chain or obtaining or maintaining related regulatory approvals, or inability to manage such ramps cost-effectively, could materially damage our brand, business, prospects, financial condition and operating results.

We may be unable to meet our growing product sales, delivery and installation plans and vehicle servicing and charging network needs, or accurately project and manage this growth internationally, any of which could harm our business and prospects.

Concurrent with developing, launching and ramping our products, our success will depend on our ability to continue to significantly increase their sales, deliveries, installations and servicing worldwide, while allocating our available resources among multiple products simultaneously. As we expand globally, we will also need to ensure we are in compliance with any regulatory requirements applicable to the sale, installation and service of our products, the sale of electricity generated through our solar energy systems and operation of Superchargers in various jurisdictions, which could take considerable time and expense. These plans require significant cash investments and management resources and there is no guarantee that they will ultimately generate additional sales or installations of our products.

We continuously evaluate, and as appropriate evolve, our retail operations and product offerings in order to maximize our reach and optimize our costs, vehicle line-up and model differentiation, and purchasing experience. However, there is no guarantee that each step in our evolving strategy will be perceived as intended by prospective customers accustomed to more traditional sales models. In particular, we are targeting with Model 3 and Model Y a global mass demographic with a broad range of potential customers, in which we have limited experience projecting demand and pricing our products. Until we ramp local production at Gigafactory Shanghai and in the future at Gigafactory Berlin, we will have to contend with predominantly single-factory vehicle production at the Fremont Factory for numerous international variants. If our specific demand expectations for these variants prove inaccurate, we may not be able to timely generate sales matched to the specific vehicles that we produce in the same timeframe or that are commensurate with our operations in a given region, which may negatively impact our deliveries and operating results in a particular period. Likewise, as we develop and grow our energy storage product and solar business worldwide, our success will depend on our ability to correctly forecast demand for our products in different markets.

Moreover, because we do not have independent dealer networks, we are responsible for delivering all of our vehicles to our customers and meeting their vehicle servicing needs. While we have substantially implemented and improved many aspects of our delivery and service operations, we still have relatively limited experience with, and may face difficulties in, such deliveries and servicing at high volumes, particularly in international markets as we expand. For example, significant transit time may be required to transport vehicles in volume into international markets, and we also saw challenges in initially ramping our logistical channels in China and Europe as we delivered Model 3 there for the first time in the first quarter of 2019. To accommodate growing volumes, we have deployed a number of delivery models, such as deliveries to customers' homes and workplaces, some of which have not been previously tested at scale and in different geographies and may not ultimately be successful. Likewise, because of our unique expertise with our vehicles, we recommend that our vehicles be serviced by our service centers, Mobile Service technicians or certain authorized professionals that we have specifically trained and equipped. If we experience delays in adding such servicing capacity or experience unforeseen issues with the reliability of our vehicles, particular higher-volume and newer additions to our fleet such as Model 3 and Model Y, it could overburden our servicing capabilities and parts inventory. Finally, the increasing number of Tesla vehicles also requires us to continue to rapidly increase the number of our Supercharger stations and connectors throughout the world.

We are also expanding our installation capabilities for the Solar Roof as we continue its manufacturing ramp by training both our own personnel and third party installers. If we are not successful in growing this overall installation capability to keep pace with our increasing production, or if we experience unforeseen delays in the production ramp or inaccurately forecast demand for the Solar Roof, our operating results may be negatively impacted.

There is no assurance that we will be able to ramp our business to meet our sales, delivery, servicing, charging and installation targets globally, that our projections on which such targets are based will prove accurate, or that the pace of growth or coverage of our customer infrastructure network will meet customer expectations. Moreover, we may not be successful in undertaking this global expansion if we are unable to avoid cost overruns and other unexpected operating costs, adapt our products and conduct our operations to meet local requirements and regulations, implement required local infrastructure, systems and processes, and find and hire a significant number of additional sales, service, electrical installation, construction and administrative personnel. If we fail to manage our growth effectively, it could result in negative publicity and damage to our brand and have a material adverse effect on our business, prospects, financial condition and operating results.

Our future growth and success is dependent upon consumers' willingness to adopt electric vehicles and specifically our vehicles. We operate in the automotive industry, which is generally susceptible to cyclicity and volatility.

Our growth is highly dependent upon the worldwide adoption by consumers of alternative fuel vehicles in general and electric vehicles in particular. Although we have successfully grown demand for our vehicles thus far, there is no guarantee of such future demand, or that our vehicles will not compete with one another in the market. Moreover, the target demographics for our vehicles, in particular the mass market demographic for Model 3 and Model Y, are highly competitive. If the market for electric vehicles in general and Tesla vehicles in particular does not develop as we expect, develops more slowly than we expect, or if demand for our vehicles decreases in our markets, our business, prospects, financial condition and operating results could be harmed.

We have only relatively recently achieved high-volume production of vehicles, and are still at an earlier stage and have limited resources relative to our competitors. Moreover, the market for alternative fuel vehicles is rapidly evolving. As a result, the market for our vehicles could be affected by numerous factors, such as:

- perceptions about electric vehicle features, quality, safety, performance and cost;
- perceptions about the limited range over which electric vehicles may be driven on a single battery charge;
- competition, including from other types of alternative fuel vehicles, plug-in hybrid electric vehicles and high fuel-economy internal combustion engine vehicles;
- volatility in the cost of oil and gasoline;
- government regulations and economic incentives;
- access to charging facilities; and
- concerns about our future viability.

In addition, sales of vehicles in the automotive industry tend to be cyclical in many markets, which may expose us to increased volatility, especially as we expand and adjust our operations and retail strategies. Specifically, it is uncertain as to how such macroeconomic factors will impact us as a company that has been experiencing growth and increasing market share in an industry that has globally been experiencing a recent decline in sales.

We are dependent on our suppliers, the majority of which are single-source suppliers, and the inability of these suppliers to deliver necessary components of our products according to our schedule and at prices, quality levels and volumes acceptable to us, or our inability to efficiently manage these components, could have a material adverse effect on our financial condition and operating results.

Our products contain thousands of purchased parts that we source globally from hundreds of direct suppliers. We attempt to mitigate our supply chain risk by entering into long-term agreements where it is practical and beneficial to do so, including agreements we entered into with Panasonic to be our manufacturing partner and supplier; qualifying and obtaining components from multiple sources where sensible, such as the PV panels for our retrofit solar installations that we purchase from a variety of suppliers; and maintaining safety stock for key parts and assemblies and die banks for components with lengthy procurement lead times. However, our limited, and in most cases single-source, supply chain exposes us to multiple potential sources of delivery failure or component shortages for our production, such as those which we experienced in 2012 and 2016 in connection with our slower-than-planned Model S and Model X ramps. Furthermore, unexpected changes in business conditions, materials pricing, labor issues, wars, governmental changes, tariffs, natural disasters such as the March 2011 earthquakes in Japan, health epidemics, and other factors beyond our and our suppliers' control could also affect these suppliers' ability to deliver components to us on a timely basis. The loss of any supplier, particularly a single- or limited-source supplier, or the disruption in the supply of components from our suppliers, could lead to product design changes, production delays of key revenue-generating products, idle manufacturing facilities, and potential loss of access to important technology and parts for producing, servicing and supporting our products, any of which could result in negative publicity, damage to our brand and a material and adverse effect on our business, prospects, financial condition and operating results.

We may also be impacted by changes in our supply chain or production needs. We have experienced in the past, and may experience in the future, cost increases from certain of our suppliers in order to meet our quality targets and development timelines as well as due to our design changes. Likewise, any significant increases in our production, such as for Model 3 and our expectations for Model Y, has required and/or may in the future require us to procure additional components in a short amount of time. Our suppliers may not ultimately be able to sustainably and timely meet our cost, quality and volume needs, requiring us to replace them with other sources. While we believe that we will be able to secure additional or alternate sources of supply for most of our components in a relatively short time frame, there is no assurance that we will be able to do so or develop our own replacements for certain highly customized components. Additionally, we continuously negotiate with existing suppliers to obtain cost reductions and avoid unfavorable changes to terms, seek new and less expensive suppliers for certain parts, and attempt to redesign certain parts to make them less expensive to produce. If we are unsuccessful in our efforts to control and reduce supplier costs, our operating results will suffer.

Outside of the U.S., we have limited manufacturing experience and we may experience issues or delays increasing the level of localized procurement at our Gigafactory Shanghai and in the future at our Gigafactory Berlin. Furthermore, as the scale of our vehicle production increases, we will need to accurately forecast, purchase, warehouse and transport components to our manufacturing facilities and servicing locations internationally and at much higher volumes. If we are unable to accurately match the timing and quantities of component purchases to our actual needs or successfully implement automation, inventory management and other systems to accommodate the increased complexity in our supply chain, we may incur unexpected production disruption, storage, transportation and write-off costs, which could have a material adverse effect on our financial condition and operating results.

Any problems or delays in expanding Gigafactory Nevada or ramping and maintaining operations there could negatively affect the production and profitability of our products, such as Model 3, Model Y and our energy storage products. In addition, the battery cells produced there store large amounts of energy.

To lower the cost of cell production and produce cells in high volume, we have vertically integrated the production of lithium-ion cells at Gigafactory Nevada, where we also manufacture battery packs and drive units for certain vehicles and energy storage products and assemble our Megapack product. Production of lithium-ion cells at Gigafactory Nevada began in 2017, and we have no other direct experience in the production of lithium-ion cells. Given the size and complexity of this undertaking, it is possible that future events could result in issues or delays in further ramping our products and expanding production output at Gigafactory Nevada.

In order to achieve our volume and gross margin targets for our vehicles and energy storage products, we must continue to sustain and ramp significant cell production at Gigafactory Nevada, which, among other things, requires Panasonic to successfully operate and further ramp its cell production lines at significant volumes. Although Panasonic has a long track record of producing high-quality cells at significant volume at its factories in Japan, it has relatively limited experience with cell production at Gigafactory Nevada. In addition, we produce several components for Model 3 and Model Y, such as battery modules incorporating the lithium-ion cells produced by Panasonic and drive units (including to support Gigafactory Shanghai production), at Gigafactory Nevada. Some of the manufacturing lines for such components took longer than anticipated to ramp to their full capacity. While we have largely overcome this bottleneck after deploying multiple semi-automated lines and improving our original lines, additional bottlenecks may arise as we continue to increase the production rate and introduce new lines. If we are unable to maintain Gigafactory Nevada production, ramp output additionally over time as needed, and do so cost-effectively, or if we or Panasonic are unable to hire and retain a substantial number of highly skilled personnel, our ability to supply battery packs or other components for Model 3, Model Y and our other products could be negatively impacted, which could negatively affect our brand and harm our business, prospects, financial condition and operating results.

In addition, the high volumes of lithium-ion cells and battery modules and packs manufactured at Gigafactory Nevada are stored and recycled at our various facilities. Any mishandling of battery cells may cause disruption to the operation of such facilities. While we have implemented safety procedures related to the handling of the cells, there can be no assurance that a safety issue or fire related to the cells would not disrupt our operations. Such disruptions or issues could negatively affect our brand and harm our business, prospects, financial condition and operating results.

Any issues or delays in meeting our projected timelines, costs and production at or funding the ramp of Gigafactory Shanghai, or any difficulties in generating and maintaining local demand for vehicles manufactured there, could adversely impact our business, prospects, operating results and financial condition.

As part of our continuing work to increase production of our vehicles on a sustained basis, and in order to make them affordable in international markets by accessing local supply chains and workforces, we have established Gigafactory Shanghai in China. Currently, we have installed annual production capacity for 150,000 Model 3 vehicles there that we believe we will eventually be able to push to actual rates of production in excess of such number, and we have commenced construction of the next phase of Gigafactory Shanghai to add Model Y manufacturing capacity at least equivalent to that for Model 3. The ramp and further expansion of Gigafactory Shanghai are subject to a number of uncertainties inherent in all new manufacturing operations, including ongoing compliance with regulatory requirements, maintenance of operational licenses and approvals for additional expansion, potential supply chain constraints, hiring, training and retention of qualified employees, and the pace of bringing production equipment and processes online with the capability to manufacture high-quality units at scale. We have limited experience to date with operating manufacturing facilities abroad, and only recently began to sell Model 3 in China. If we experience any issues or delays in meeting our projected timelines, costs, capital efficiency and production capacity for Gigafactory Shanghai, or in maintaining and complying with the terms of local debt financing that we intend will largely fund it, or in generating and maintaining demand locally for the vehicles we manufacture at Gigafactory Shanghai, our business, prospects, operating results and financial condition could be adversely impacted.

In particular, local manufacturing is critical to our expansion and sales in China, which is the largest market for electric vehicles in the world. Our vehicle sales in China have been negatively impacted in the past by certain tariffs on automobiles manufactured in the U.S., such as our vehicles, and our costs for producing our vehicles in the U.S. have also been affected by import duties on certain components sourced from China. If we are not able to successfully and timely ramp Gigafactory Shanghai, we may continue to be exposed to the impact of such unfavorable tariffs, duties or costs to our detriment compared to locally-based competitors.

We face risks associated with our international operations, including unfavorable and uncertain regulatory, political, economic, tax and labor conditions, and with establishing ourselves in new markets, all of which could harm our business.

We have a global footprint with domestic and international operations and subsidiaries. Accordingly, we are subject to a variety of legal, political and regulatory requirements and social, environmental and economic conditions over which we have little control. For example, we may be impacted by trade policies, environmental conditions, political uncertainty and economic cycles involving geographic regions where we have significant operations, which are inherently unpredictable. We are subject to a number of risks associated in particular with international business activities that may increase our costs, impact our ability to sell our products and require significant management attention. These risks include conforming our products to various international regulatory and safety requirements as well as charging and other electric infrastructures, organizing local operating entities, difficulty in establishing, staffing and managing foreign operations, challenges in attracting customers, foreign government taxes, regulations and permit requirements, our ability to enforce our contractual rights, trade restrictions, customs regulations, tariffs and price or exchange controls, and preferences of foreign nations for domestically manufactured products.

Increases in costs, disruption of supply or shortage of materials, in particular for lithium-ion cells, could harm our business.

We may experience increases in the cost of or a sustained interruption in the supply or shortage of materials. Any such increase, supply interruption or shortage could materially and negatively impact our business, prospects, financial condition and operating results. We use various materials in our business including aluminum, steel, lithium, nickel, copper and cobalt, as well as lithium-ion cells from suppliers. The prices for these materials fluctuate, and their available supply may be unstable, depending on market conditions and global demand for these materials, including as a result of increased production of electric vehicles and energy storage products by our competitors, and could adversely affect our business and operating results. For instance, we are exposed to multiple risks relating to lithium-ion cells. These risks include:

- an increase in the cost, or decrease in the available supply, of materials used in the cells;
- disruption in the supply of cells due to quality issues or recalls by battery cell manufacturers or any issues that may arise with respect to cells manufactured at our own facilities; and
- fluctuations in the value of any foreign currencies in which battery cell and related raw material purchases are or may be denominated, such as the Japanese yen, against the U.S. dollar.

Our business is dependent on the continued supply of battery cells for the battery packs used in our vehicles and energy storage products. While we believe several sources of the battery cells are available for such battery packs, and expect to eventually rely substantially on battery cells manufactured at our own facilities, we have to date fully qualified only a very limited number of suppliers for the cells used in such battery packs and have very limited flexibility in changing cell suppliers. Any disruption in the supply of battery cells from such suppliers could disrupt production of our vehicles and of the battery packs we produce for energy products until such time as a different supplier is fully qualified. Furthermore, fluctuations or shortages in petroleum and other economic conditions may cause us to experience significant increases in freight charges and material costs. Substantial increases in the prices for our materials or prices charged to us, such as those charged by battery cell suppliers, would increase our operating costs, and could reduce our margins if we cannot recoup the increased costs through increased vehicle prices. Any attempts to increase product prices in response to increased material costs could result in cancellations of orders and reservations and therefore materially and adversely affect our brand, image, business, prospects and operating results.

If our vehicles or other products that we sell or install fail to perform as expected, our ability to develop, market and sell our products and services could be harmed.

If our vehicles or our energy products contain defects in design and manufacture that cause them not to perform as expected or that require repair, or certain features of our vehicles such as new Autopilot or FSD features take longer than expected to become enabled, are legally restricted or become subject to onerous regulation, our ability to develop, market and sell our products and services could be harmed. For example, the operation of our vehicles is highly dependent on software, which is inherently complex and may contain latent defects and errors or be subject to external attacks. Issues experienced by vehicle customers have included those related to the software for the 17 inch display screen, as well as the panoramic roof and the 12-volt battery in the Model S and the seats and doors in the Model X. Although we attempt to remedy any issues we observe in our products as effectively and rapidly as possible, such efforts may not be timely, may hamper production or may not be to the satisfaction of our customers. While we have performed extensive internal testing on the products we manufacture, we currently have a limited frame of reference by which to evaluate detailed long-term quality, reliability, durability and performance characteristics of our battery packs, powertrains, vehicles and energy storage products. There can be no assurance that we will be able to detect and fix any defects in our products prior to their sale to or installation for customers.

Any product defects, delays or legal restrictions on product features, or other failure of our products to perform as expected, could harm our reputation and result in delivery delays, product recalls, product liability claims, breach of warranty claims, and significant warranty and other expenses, and could have a material adverse impact on our business, financial condition, operating results and prospects.

We may become subject to product liability claims, which could harm our financial condition and liquidity if we are not able to successfully defend or insure against such claims.

Although we design our vehicles to be the safest vehicles on the road, product liability claims, even those without merit, could harm our business, prospects, operating results and financial condition. The automobile industry in particular experiences significant product liability claims and we face inherent risk of exposure to claims in the event our vehicles do not perform or are claimed to not have performed as expected. As is true for other automakers, our vehicles have been involved and we expect in the future will be involved in crashes resulting in death or personal injury, and such crashes where Autopilot or FSD features are engaged are the subject of significant public attention. We have experienced and we expect to continue to face claims arising from or related to misuse or claimed failures of new technologies that we are pioneering, including Autopilot and FSD features in our vehicles. In addition, the battery packs that we produce make use of lithium-ion cells. On rare occasions, lithium-ion cells can rapidly release the energy they contain by venting smoke and flames in a manner that can ignite nearby materials as well as other lithium-ion cells. While we have designed the battery pack to passively contain any single cell's release of energy without spreading to neighboring cells, there can be no assurance that a field or testing failure of our vehicles or other battery packs that we produce will not occur, in particular due to a high-speed crash, which could subject us to lawsuits, product recalls or redesign efforts, all of which would be time consuming and expensive.

Moreover, as our solar energy systems and energy storage products generate and store electricity, they have the potential to cause injury to people or property. A successful product liability claim against us could require us to pay a substantial monetary award. Our risks in this area are particularly pronounced given the relatively limited number of vehicles and energy storage products delivered to date and limited field experience of our products. Moreover, a product liability claim could generate substantial negative publicity about our products and business and could have a material adverse effect on our brand, business, prospects and operating results. In most jurisdictions, we generally self-insure against the risk of product liability claims for vehicle exposure, meaning that any product liability claims will likely have to be paid from company funds, not by insurance.

The markets in which we operate are highly competitive, and we may not be successful in competing in these industries. We currently face competition from new and established domestic and international competitors and expect to face competition from others in the future, including competition from companies with new technology.

The worldwide automotive market, particularly for alternative fuel vehicles, is highly competitive today and we expect it will become even more so in the future. There is no assurance that our vehicles will be successful in the respective markets in which they compete. A significant and growing number of established and new automobile manufacturers, as well as other companies, have entered or are reported to have plans to enter the alternative fuel vehicle market, including hybrid, plug-in hybrid and fully electric vehicles, as well as the market for self-driving technology and applications. In some cases, such competitors have announced an intention to produce electric vehicles exclusively at some point in the future. Most of our current and potential competitors have significantly greater financial, technical, manufacturing, marketing, vehicle sales resources and networks than we do and may be able to devote greater resources to the design, development, manufacturing, distribution, promotion, sale and support of their products. In particular, some competitors have also announced plans to compete with us in important and large markets for electric vehicles, such as China and in Europe. Increased competition could result in lower vehicle unit sales, price reductions, revenue shortfalls, loss of customers and loss of market share, which could harm our business, prospects, financial condition and operating results. In addition, Model 3 and Model Y face competition from existing and future automobile manufacturers in the extremely competitive entry-level premium sedan and compact SUV market, including BMW, Ford, Lexus, Mercedes and Volkswagen Group.

The solar and energy storage industries are highly competitive. We face competition from other manufacturers, developers and installers of solar and energy storage systems, as well as from large utilities. Decreases in the retail prices of electricity from utilities or other renewable energy sources could make our products less attractive to customers and lead to an increased rate of customer defaults under our existing long-term leases and PPAs. Moreover, prices for solar product components and prices per kWh for lithium-ion battery cells have declined and may continue to decline, which may adversely impact our ability to cost-effectively manufacture such components ourselves.

If we are unable to establish and maintain confidence in our long-term business prospects among consumers, analysts and within our industries, or are subject to negative publicity, then our financial condition, operating results, business prospects and access to capital may suffer materially.

Consumers may be less likely to purchase our products if they are not convinced that our business will succeed or that our service and support and other operations will continue in the long term. Similarly, suppliers and other third parties will be less likely to invest time and resources in developing business relationships with us if they are not convinced that our business will succeed. Accordingly, in order to build and maintain our business, we must maintain confidence among customers, suppliers, analysts, ratings agencies and other parties in our long-term financial viability and business prospects. Maintaining such confidence may be particularly complicated by certain factors including those that are largely outside of our control, such as our limited operating history, customer unfamiliarity with our products, any delays in scaling manufacturing, delivery and service operations to meet demand, competition and uncertainty regarding the future of electric vehicles or our other products and services, and our quarterly production and sales performance compared with market expectations.

In particular, Tesla's products, business, results of operations, statements and actions are well-publicized by a range of third parties. Such attention includes frequent criticism, which is often exaggerated or unfounded, such as speculation regarding the sufficiency or stability of our management team. Any such negative perceptions, whether caused by us or not, could harm our business and make it more difficult to raise additional funds if needed.

If we fail to effectively grow and manage the residual, financing and credit risks related to our vehicle financing programs, our business may suffer.

We offer financing arrangements for our vehicles in North America, Europe and Asia primarily through various financial institutions. We also currently offer leasing directly through our local subsidiaries for Model S, Model X and Model 3 in the U.S. and for Model S and Model X in Canada. Under a lease held directly by us, we typically receive only a very small portion of the total vehicle purchase price at the time of lease, followed by a stream of payments over the term of the lease. The profitability of any vehicles returned to us at the end of their leases depends on our ability to accurately project our vehicles' residual values at the outset of the leases, and such values may fluctuate prior to the end of their terms depending on various factors such as supply and demand of our used vehicles, economic cycles and the pricing of new vehicles. For example, we made certain adjustments to our vehicle prices during 2019 to reflect anticipated changes to our cost structure from periodically optimizing our retail strategy, and as a limited accommodation to customers in consideration of a reduction in the electric vehicle federal tax credit. Such pricing changes may impact the residual values of our vehicles. The leasing program also relies on our ability to secure adequate financing and/or business partners to fund and grow this program, and screen for and manage customer credit risk. We expect the availability of leasing and other financing options will be important for our vehicle customers. If we are unable to adequately fund our leasing program with internal funds, or partners or other external financing sources, and compelling alternative financing programs are not available for our customers, we may be unable to grow our deliveries. Furthermore, if our leasing business grows substantially, our business may suffer if we cannot effectively manage the greater levels of residual and credit risks resulting from growth. Finally, if we do not successfully monitor and comply with applicable national, state and/or local financial regulations and consumer protection laws governing lease transactions, we may become subject to enforcement actions or penalties, either of which may harm our business.

Moreover, we have provided resale value guarantees to customers and partners for certain financing programs, under which such counterparties may sell their vehicles back to us at certain points in time at pre-determined amounts. However, actual resale values, as with residual values for leased vehicles, are subject to similar fluctuations over the term of the financing arrangements, such as from the vehicle pricing changes discussed above. If the actual resale values of any vehicles resold or returned to us pursuant to these programs are materially lower than the pre-determined amounts we have offered, our operating results, profitability and/or liquidity could be negatively impacted.

The unavailability, reduction or elimination of, or unfavorable determinations with respect to, government and economic incentives in the U.S. and abroad supporting the development and adoption of electric vehicles, energy storage products or solar energy could have some impact on demand for our products and services.

We and our customers currently benefit from certain government and economic incentives supporting the development and adoption of electric vehicles. In the U.S. and abroad, such incentives include tax credits or rebates that encourage the purchase of electric vehicles. Specific policies in place around the world include exempting the purchase of electric vehicles from import taxes, value added taxes, or carbon dioxide and weight-based purchase taxes. Such programs could be reduced, eliminated or exhausted. For example, under current regulations, a \$7,500 federal tax credit that was available in the U.S. for the purchase of our vehicles was reduced in phases during 2019 and ended on December 31, 2019. We believe that this sequential phase-out likely pulled forward some vehicle demand into the periods preceding each reduction. Moreover, in July 2018, a previously available incentive for purchases of Model 3 in Ontario, Canada was cancelled and Tesla buyers in Germany lost access to electric vehicle incentives for a short period of time beginning late 2017. In April 2017 and January 2016, respectively, previously available incentives in Hong Kong and Denmark that favored the purchase of electric vehicles expired, negatively impacting sales. Effective March 2016, California implemented regulations phasing out a \$2,500 cash rebate on qualified electric vehicles for high-income consumers. Such developments could have some negative impact on demand for our vehicles, and we and our customers may have to adjust to them.

In addition, certain governmental rebates, tax credits and other financial incentives that are currently available with respect to our solar and energy storage product businesses allow us to lower our costs and encourage customers to buy our products and investors to invest in our solar financing funds. However, these incentives may expire on a particular date when the allocated funding is exhausted, reduced or terminated as renewable energy adoption rates increase, sometimes without warning. For example, the U.S. federal government currently offers an investment tax credit (ITC) for the installation of solar power facilities and energy storage systems that are charged from a co-sited solar power facility; however, the ITC is currently scheduled to decline in phases, from 26% for qualifying solar systems for which construction began by December 31, 2020, to 10% for commercial and utility systems and to 0% for customer-owned residential systems for which construction begins after December 31, 2021. Likewise, in jurisdictions where net energy metering is currently available, our customers receive bill credits from utilities for energy that their solar energy systems generate and export to the grid in excess of the electric load they use. Several jurisdictions have reduced, altered or eliminated the benefit available under net energy metering, or have proposed to do so. Such reductions in or termination of governmental incentives could adversely impact our results by making our products less competitive for potential customers, increasing our cost of capital and adversely impacting our ability to attract investment partners and to form new financing funds for our solar and energy storage assets.

Moreover, we and our fund investors claim the ITC and certain state incentives in amounts based on the fair market value of our solar and energy storage systems. Although we obtain independent appraisals to support the claimed fair market values, the relevant governmental authorities have audited such values and in certain cases have determined that they should be lower, and they may do so again in the future. Such determinations may result in adverse tax consequences and/or our obligation to make indemnification or other payments to our funds or fund investors.

Any failure by us to comply with the terms of our agreement with the Research Foundation for the State University of New York relating to our Gigafactory New York, could result in negative consequences for our business.

We are party to an operating lease and a research and development agreement through the SUNY Foundation. These agreements provide for the construction and use of our Gigafactory in Buffalo, New York, which we have primarily used for the development and production of our Solar Roof and other solar products and components, energy storage components, and Supercharger components, and for other lessor-approved functions. Under this agreement, we are obligated to, among other things, directly employ specified minimum numbers of personnel in the State of New York and spend or incur \$5.0 billion in combined capital, operational expenses, costs of goods sold and other costs in the State of New York during the 10-year period beginning April 30, 2018. While we expect significant operations at Gigafactory New York and the surrounding Buffalo area to continue, including with our ramp and manufacture of the Solar Roof, if we fail in any year over the course of the term of the agreement to meet these obligations, we would be obligated to pay a “program payment” of \$41.2 million to the SUNY Foundation for such year. Any inability on our part to comply with the requirements of this agreement may result in the payment of significant amounts to the SUNY Foundation, the termination of our lease at Gigafactory New York, and/or the need to adjust certain of our operations, in particular our production ramp of the Solar Roof or Supercharger components. Any of the foregoing events could have a material adverse effect on our business, prospects, financial condition and operating results.

If we are unable to attract and/or retain key employees and hire qualified personnel, our ability to compete could be harmed.

The loss of the services of any of our key employees could disrupt our operations, delay the development and introduction of our vehicles and services, and negatively impact our business, prospects and operating results. In particular, we are highly dependent on the services of Elon Musk, our Chief Executive Officer.

None of our key employees is bound by an employment agreement for any specific term and we may not be able to successfully attract and retain senior leadership necessary to grow our business. Our future success depends upon our ability to attract and retain executive officers and other key technology, sales, marketing, engineering, manufacturing and support personnel, especially to support our high-volume manufacture of vehicles, expansion plans and technological innovation, and any failure or delay in doing so could adversely impact our business, prospects, financial condition and operating results.

Key talent may leave Tesla due to various factors, such as a very competitive labor market for talented individuals with automotive or technology experience, or any negative publicity related to us. In California, Nevada and other regions where we have operations, including outside of the U.S., there is increasing competition for individuals with skillsets needed for our business, including specialized knowledge of electric vehicles, software engineering, manufacturing engineering, and other skills such as electrical and building construction expertise. This competition affects our ability to retain and hire key employees. Moreover, we have in the past conducted reductions in force in order to optimize our organizational structure and reduce costs, and certain senior personnel have also departed for various reasons. Our continued success depends upon our continued ability to hire new employees in a timely manner, especially to support our expansion plans, and to retain current employees or replace departed senior employees with qualified and experienced individuals, which is typically a time-consuming process. Additionally, we compete with both mature and prosperous companies that have far greater financial resources than we do and start-ups and emerging companies that promise short-term growth opportunities. Difficulties in retaining or recruiting employees could have an adverse effect on our performance and results.

Finally, our compensation philosophy for all of our personnel reflects our startup origins, with an emphasis on equity-based awards and benefits in order to closely align their incentives with the long-term interests of our stockholders. We have to periodically seek and obtain approval from our stockholders for future increases to the number of awards that may be granted and shares that may be purchased under our equity incentive and employee stock purchase plans. If we are unable to obtain the requisite stockholder approvals to obtain future increases to the number of awards that may be granted and shares that may be purchased under such plans, and compensate our personnel in accordance with our compensation philosophy, our ability to retain and hire qualified personnel would be negatively impacted.

We are highly dependent on the services of Elon Musk, our Chief Executive Officer.

We are highly dependent on the services of Elon Musk, our Chief Executive Officer and largest stockholder. Although Mr. Musk spends significant time with Tesla and is highly active in our management, he does not devote his full time and attention to Tesla. Mr. Musk also currently serves as Chief Executive Officer and Chief Technical Officer of Space Exploration Technologies Corp., a developer and manufacturer of space launch vehicles, and is involved in other emerging technology ventures.

We are continuously expanding and improving our information technology systems and use security measures designed to protect our systems against breaches and cyber-attacks. If these efforts are not successful, our business and operations could be disrupted or our intellectual property could be compromised, as a result of which our operating results and reputation could be harmed.

We are continuously expanding and improving our information technology systems, including implementing new internally developed systems and deploying such systems globally, to assist us in the management of our business. In particular, our volume production of multiple vehicles necessitates continued development, maintenance and improvement of our information technology systems in the U.S. and abroad, including at Gigafactory Shanghai, such as systems for product data management, procurement, inventory management, production planning and execution, sales, service and logistics, dealer management, financial, tax and regulatory compliance systems. We also maintain information technology measures designed to protect us against intellectual property theft, data breaches and other cyber-attacks. The implementation, maintenance, segregation and improvement of these systems require significant management time, support and cost. Moreover, there are inherent risks associated with developing, improving and expanding our core systems as well as implementing new systems and updating current systems, including the disruption of our data management, procurement, manufacturing execution, finance, supply chain and sales and service processes. These risks may affect our ability to manage our data and inventory, procure parts or supplies or manufacture, sell, deliver and service vehicles, adequately protect our intellectual property or achieve and maintain compliance with, or realize available benefits under, tax laws and other applicable regulations.

We cannot be sure that these systems or their required functionality will be effectively implemented, maintained or expanded as planned. If we do not successfully implement, maintain or expand these systems as planned, our operations may be disrupted, our ability to accurately and/or timely report our financial results could be impaired, and deficiencies may arise in our internal control over financial reporting, which may impact our ability to certify our financial results. Moreover, our proprietary information or intellectual property could be compromised or misappropriated and our reputation may be adversely affected. If these systems or their functionality do not operate as we expect them to, we may be required to expend significant resources to make corrections or find alternative sources for performing these functions.

Any unauthorized control or manipulation of our products' systems could result in loss of confidence in us and our products and harm our business.

Our products contain complex information technology systems. For example, our vehicles and energy storage products are designed with built-in data connectivity to accept and install periodic remote updates from us to improve or update their functionality. We have designed, implemented and tested security measures intended to prevent unauthorized access to our information technology networks, our products and their systems. However, hackers have reportedly attempted, and may attempt in the future, to gain unauthorized access to modify, alter and use such networks, products and systems to gain control of, or to change, our products' functionality, user interface and performance characteristics, or to gain access to data stored in or generated by our products. We encourage reporting of potential vulnerabilities in the security of our products via our security vulnerability reporting policy, and we aim to remedy any reported and verified vulnerability. Accordingly, we have received reports of potential vulnerabilities in the past and have attempted to remedy them. However, there can be no assurance that vulnerabilities will not be exploited in the future before they can be identified, or that our remediation efforts are or will be successful.

Any unauthorized access to or control of our products or their systems or any loss of data could result in legal claims or proceedings. In addition, regardless of their veracity, reports of unauthorized access to our products, their systems or data, as well as other factors that may result in the perception that our products, their systems or data are capable of being "hacked," could negatively affect our brand and harm our business, prospects, financial condition and operating results. We have been the subject of such reports in the past.

We are subject to substantial laws and regulations that could impose substantial costs, legal prohibitions or unfavorable changes upon our operations or products, and any failure to comply with these laws and regulations, including as they evolve, could negatively impact our ability to operate our manufacturing facilities and substantially harm our business and operating results.

As a manufacturing company, including with respect to our current facilities such as the Fremont Factory, Gigafactory Nevada, Gigafactory New York and Gigafactory Shanghai and our future facility at Gigafactory Berlin, we are or will be subject to complex environmental, manufacturing, health and safety laws and regulations at numerous jurisdictional levels in the U.S., China, Germany and other locations abroad, including laws relating to the use, handling, storage, recycling, disposal and human exposure to hazardous materials and with respect to constructing, expanding and maintaining our facilities. The costs of compliance, including remediating contamination if any is found on our properties and any changes to our operations mandated by new or amended laws, may be significant. We may also face unexpected delays in obtaining permits and approvals required by such laws in connection with our manufacturing facilities, which would hinder our operation of these facilities. Such costs and delays may adversely impact our business prospects and operating results. Furthermore, any violations of these laws may result in substantial fines and penalties, remediation costs, third party damages, or a suspension or cessation of our operations.

In addition, motor vehicles are subject to substantial regulation under international, federal, state and local laws. We incur significant costs in complying with these regulations and may be required to incur additional costs to comply with any changes to such regulations, and any failures to comply could result in significant expenses, delays or fines. We are subject to laws and regulations applicable to the supply, manufacture, import, sale and service of automobiles internationally. For example, in countries outside of the U.S., we are required to meet standards relating to vehicle safety, fuel economy and emissions, among other things, that are often materially different from requirements in the U.S., thus resulting in additional investment into the vehicles and systems to ensure regulatory compliance in those countries. This process may include official review and certification of our vehicles by foreign regulatory agencies prior to market entry, as well as compliance with foreign reporting and recall management systems requirements.

In particular, we offer in our vehicles Autopilot and FSD features that today assist drivers with certain tedious and potentially dangerous aspects of road travel, but which currently require drivers to remain engaged. We are continuing to develop our FSD technology with the goal of achieving full self-driving capability in the future. There is a variety of international, federal and state regulations that may apply to self-driving vehicles, which include many existing vehicle standards that were not originally intended to apply to vehicles that may not have a driver. Such regulations continue to rapidly change, which increases the likelihood of a patchwork of complex or conflicting regulations, or may delay products or restrict self-driving features and availability, any of which could adversely affect our business.

Finally, as a manufacturer and installer of solar generation and energy storage systems and a supplier of electricity generated and stored by the solar energy and energy storage systems we install for customers, we are impacted by federal, state and local regulations and policies concerning electricity pricing, the interconnection of electricity generation and storage equipment with the electric grid, and the sale of electricity generated by third-party owned systems. For example, existing or proposed regulations and policies would permit utilities to limit the amount of electricity generated by our customers with their solar energy systems, charge fees and penalties to our customers relating to the purchase of energy other than from the grid, adjust electricity rate designs such that the price of our solar products may not be competitive with that of electricity from the grid, restrict us and our customers from transacting under our PPAs or qualifying for government incentives and benefits that apply to solar power, and limit or eliminate net energy metering. If such regulations and policies are adopted, or if other regulations and policies that adversely impact the interconnection or use of our solar and energy storage systems are introduced, they could deter potential customers from purchasing our solar and energy storage products, threaten the economics of our existing contracts and cause us to cease solar and energy storage systems sales and operations in the relevant jurisdictions, which could harm our business, prospects, financial condition and results of operations.

Failure to comply with a variety of U.S. and international privacy and consumer protection laws to which we are subject could harm the Company.

Our privacy policy is posted on our website, and any failure by us or our vendor or other business partners to comply with it or with federal, state or international privacy, data protection or security laws or regulations relating to the collection, use, retention, security and transfer of personally identifiable information could result in regulatory or litigation-related actions against us, legal liability, fines, damages, ongoing audit requirements and other significant costs. Substantial expenses and operational changes may be required in connection with maintaining compliance with such laws, and in particular certain emerging privacy laws are still subject to a high degree of uncertainty as to their interpretation and application. For example, in May 2018, the General Data Protection Regulation began to fully apply to the processing of personal information collected from individuals located in the European Union, and has created new compliance obligations and has significantly increased fines for noncompliance. Similarly, beginning in January 2020, the California Consumer Privacy Act imposes certain legal obligations on our use and processing of personal information related to California residents. Although we take steps to protect the security and integrity of our customers' personal information, we may be required to expend significant resources to comply with data breach requirements if third parties improperly obtain and use the personal information of our customers or we otherwise experience a data loss with respect to customers' personal information. A major breach of our network security and systems could have negative consequences for our business and future prospects, including possible fines, penalties and damages, reduced customer demand for our vehicles and harm to our reputation and brand.

Our business may be adversely affected by any disruptions caused by union activities.

It is not uncommon for employees of certain trades at companies such as us to belong to a union, which can result in higher employee costs and increased risk of work stoppages. Moreover, regulations in some jurisdictions outside of the U.S. mandate employee participation in industrial collective bargaining agreements and work councils with certain consultation rights with respect to the relevant companies' operations. Although we work diligently to provide the best possible work environment for our employees, they may still decide to join or seek recognition to form a labor union, or we may be required to become a union signatory. From time to time, labor unions have engaged in campaigns to organize certain of our operations, as part of which such unions have filed unfair labor practice charges against us with the National Labor Relations Board, and they may do so in the future. In September 2019, an administrative law judge issued a recommended decision for Tesla on certain issues and against us on certain others. The National Labor Relations Board has not yet adopted the recommendation and we have appealed certain aspects of the recommended decision. Any unfavorable ultimate outcome for Tesla may have a negative impact on the perception of Tesla's treatment of our employees. Furthermore, we are directly or indirectly dependent upon companies with unionized work forces, such as parts suppliers and trucking and freight companies, and work stoppages or strikes organized by such unions could have a material adverse impact on our business, financial condition or operating results. If a work stoppage occurs, it could delay the manufacture and sale of our products and have a material adverse effect on our business, prospects, operating results or financial condition.

We may choose to or be compelled to undertake product recalls or take other similar actions, which could adversely affect our brand image and financial performance.

Any product recall with respect to our products may result in adverse publicity, damage our brand and adversely affect our business, prospects, operating results and financial condition. For example, certain vehicle recalls that we initiated have resulted from various causes, including a component that could prevent the parking brake from releasing once engaged, a concern with the firmware in the restraints control module in certain right-hand-drive vehicles, industry-wide issues with airbags from a particular supplier, Model X seat components that could cause unintended seat movement during a collision, and concerns of corrosion in Model S and Model X power steering assist motor bolts. Furthermore, testing of our products by government regulators or industry groups may require us to initiate product recalls or may result in negative public perceptions about the safety of our products. In the future, we may at various times, voluntarily or involuntarily, initiate a recall if any of our products or our electric vehicle powertrain components that we have provided to other vehicle OEMs, including any systems or parts sourced from our suppliers, prove to be defective or noncompliant with applicable laws and regulations, such as federal motor vehicle safety standards. Such recalls, whether voluntary or involuntary or caused by systems or components engineered or manufactured by us or our suppliers, could involve significant expense and could adversely affect our brand image in our target markets, as well as our business, prospects, financial condition and results of operations.

Our current and future warranty reserves may be insufficient to cover future warranty claims which could adversely affect our financial performance.

We provide a manufacturer's warranty on all new and used Tesla vehicles and production powertrain components and systems we sell. In addition, we also provide a warranty on the installation and components of the energy generation and storage systems we sell, and we pass through to our customers the inverter and panel manufacturers' warranties. Finally, we offer a performance guarantee with our leased solar energy systems that compensates a customer on an annual basis if their system does not meet the electricity production guarantees set forth in their PPA or lease. Under these performance guarantees, we bear the risk of electricity production shortfalls resulting from an inverter or panel failure. These risks are exacerbated in the event the panel or inverter manufacturers cease operations or fail to honor their warranties.

If our warranty reserves are inadequate to cover future warranty claims on our products, our business, prospects, financial condition and operating results could be materially and adversely affected. Warranty reserves include our management's best estimate of the projected costs to repair or to replace items under warranty. These estimates are based on actual claims incurred to date and an estimate of the nature, frequency and costs of future claims. Such estimates are inherently uncertain and changes to our historical or projected experience, especially with respect to products such as Model 3, Model Y and the Solar Roof that we have recently introduced and/or that we expect to produce at significantly greater volumes than our past products, may cause material changes to our warranty reserves in the future.

Our insurance coverage strategy may not be adequate to protect us from all business risks.

We may be subject, in the ordinary course of business, to losses resulting from products liability, accidents, acts of God and other claims against us, for which we may have no insurance coverage. As a general matter, we do not maintain as much insurance coverage as many other companies do, and in some cases, we do not maintain any at all. Additionally, the policies that we do have may include significant deductibles or self-insured retentions, and we cannot be certain that our insurance coverage will be sufficient to cover all future losses or claims against us. A loss that is uninsured or which exceeds policy limits may require us to pay substantial amounts, which could adversely affect our financial condition and operating results.

Our financial results may vary significantly from period to period due to fluctuations in our operating costs and other factors.

We expect our period-to-period financial results to vary based on our operating costs, which we anticipate will fluctuate as the pace at which we continue to design, develop and manufacture new products and increase production capacity by expanding our current manufacturing facilities and adding future facilities, may not be consistent or linear between periods. Additionally, our revenues from period to period may fluctuate as we introduce existing products to new markets for the first time and as we develop and introduce new products. As a result of these factors, we believe that quarter-to-quarter comparisons of our financial results, especially in the short term, are not necessarily meaningful and that these comparisons cannot be relied upon as indicators of future performance. Moreover, our financial results may not meet expectations of equity research analysts, ratings agencies or investors, who may be focused only on quarterly financial results. If any of this occurs, the trading price of our stock could fall substantially, either suddenly or over time.

Servicing our indebtedness requires a significant amount of cash, and there is no guarantee that we will have sufficient cash flow from our business to pay our substantial indebtedness.

As of December 31, 2019, we and our subsidiaries had outstanding \$12.49 billion in aggregate principal amount of indebtedness (see Note 12, *Debt*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K). Our substantial consolidated indebtedness may increase our vulnerability to any generally adverse economic and industry conditions. We and our subsidiaries may, subject to the limitations in the terms of our existing and future indebtedness, incur additional debt, secure existing or future debt or recapitalize our debt.

Pursuant to their terms, holders of our 1.25% Convertible Senior Notes due 2021, 2.375% Convertible Senior Notes due 2022 and 2.00% Convertible Senior Notes due 2024 (together, the “Tesla Convertible Notes”) may convert their respective Tesla Convertible Notes at their option prior to the scheduled maturities of the respective Tesla Convertible Notes under certain circumstances. Upon conversion of the applicable Tesla Convertible Notes, we will be obligated to deliver cash and/or shares in respect of the principal amounts thereof and the conversion value in excess of such principal amounts on such Tesla Convertible Notes. Moreover, our subsidiary’s Zero-Coupon Convertible Senior Notes due 2020 (the “Subsidiary Convertible Notes”) are convertible into shares of our common stock at a conversion price of \$300.00 per share. Finally, holders of the Tesla Convertible Notes and the Subsidiary Convertible Notes will have the right to require us to repurchase their notes upon the occurrence of a fundamental change at a purchase price equal to 100% of the principal amount of the notes, plus accrued and unpaid interest, if any, to, but not including, the fundamental change purchase date.

Our ability to make scheduled payments of the principal and interest on our indebtedness when due or to make payments upon conversion or repurchase demands with respect to our convertible notes, or to refinance our indebtedness as we may need or desire, depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may not continue to generate cash flow from operations in the future sufficient to satisfy our obligations under our existing indebtedness, and any future indebtedness we may incur, and to make necessary capital expenditures. If we are unable to generate such cash flow, we may be required to adopt one or more alternatives, such as reducing or delaying investments or capital expenditures, selling assets, refinancing or obtaining additional equity capital on terms that may be onerous or highly dilutive. Our ability to refinance existing or future indebtedness will depend on the capital markets and our financial condition at such time. In addition, our ability to make payments may be limited by law, by regulatory authority or by agreements governing our future indebtedness. We may not be able to engage in any of these activities or engage in these activities on desirable terms or at all, which could result in a default on our existing or future indebtedness and have a material adverse effect on our business, results of operations and financial condition.

Our debt agreements contain covenant restrictions that may limit our ability to operate our business.

The terms of certain of our credit facilities, including the Credit Agreement, contain, and any of our other future debt agreements may contain, covenant restrictions that limit our ability to operate our business, including restrictions on our ability to, among other things, incur additional debt or issue guarantees, create liens, repurchase stock or make other restricted payments, and make certain voluntary prepayments of specified debt. In addition, under certain circumstances we are required to comply with a fixed charge coverage ratio. As a result of these covenants, our ability to respond to changes in business and economic conditions and engage in beneficial transactions, including to obtain additional financing as needed, may be restricted. Furthermore, our failure to comply with our debt covenants could result in a default under our debt agreements, which could permit the holders to accelerate our obligation to repay the debt. If any of our debt is accelerated, we may not have sufficient funds available to repay it.

We may need or want to raise additional funds and these funds may not be available to us when we need them. If we cannot raise additional funds when we need or want them, our operations and prospects could be negatively affected.

The design, manufacture, sale, installation and/or servicing of automobiles, energy storage products and solar products is a capital-intensive business, and the specific timing of cash inflows and outflows may fluctuate substantially from period to period. Until we are consistently generating positive free cash flows, we may need or want to raise additional funds through the issuance of equity, equity-related or debt securities or through obtaining credit from financial institutions to fund, together with our principal sources of liquidity, the costs of developing and manufacturing our current or future vehicles, energy storage products and/or solar products, to pay any significant unplanned or accelerated expenses or for new significant strategic investments, or to refinance our significant consolidated indebtedness, even if not required to do so by the terms of such indebtedness. We need sufficient capital to fund ongoing operations, research and development projects for new products, establishment and/or increases of Model 3 and Model Y production capacity at the Fremont Factory and at Gigafactory Shanghai, the continued expansion of Gigafactory Nevada, the construction of Gigafactory Berlin, the manufacturing ramp of the Solar Roof at Gigafactory New York, and the continued expansion of our retail and service locations, body shops, Mobile Service fleet and Supercharger network. We cannot be certain that additional funds will be available to us on favorable terms when required, or at all. If we cannot raise additional funds when we need them, our financial condition, results of operations, business and prospects could be materially and adversely affected.

We could be subject to liability, penalties and other restrictive sanctions and adverse consequences arising out of certain governmental investigations and proceedings.

We are cooperating with certain government investigations as discussed in Note 16, *Commitments and Contingencies*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K. To our knowledge, no government agency in any such ongoing investigation has concluded that any wrongdoing occurred. However, we cannot predict the outcome or impact of any such ongoing matters, and there exists the possibility that we could be subject to liability, penalties and other restrictive sanctions and adverse consequences if the SEC, the DOJ, or any other government agency were to pursue legal action in the future. Moreover, we expect to incur costs in responding to related requests for information and subpoenas, and if instituted, in defending against any governmental proceedings.

For example, on October 16, 2018, the U.S. District Court for the Southern District of New York entered a final judgment approving the terms of a settlement filed with the Court on September 29, 2018, in connection with the actions taken by the SEC relating to Mr. Musk's statement on August 7, 2018 that he was considering taking Tesla private. Pursuant to the settlement, we, among other things, paid a civil penalty of \$20 million, appointed an independent director as the Chair of the Board, appointed two additional independent directors to our board of directors, and made further enhancements to our disclosure controls and other corporate governance-related matters. On April 26, 2019, this settlement was amended to clarify certain of the previously-agreed disclosure procedures, which was subsequently approved by the Court. All other terms of the prior settlement were reaffirmed without modification. Although we intend to continue to comply with the terms and requirements of the settlement, if there is a lack of compliance or an alleged lack of compliance, additional enforcement actions or other legal proceedings may be instituted against us.

If we update or discontinue the use of our manufacturing equipment more quickly than expected, we may have to shorten the useful lives of any equipment to be retired as a result of any such update, and the resulting acceleration in our depreciation could negatively affect our financial results.

We have invested and expect to continue to invest significantly in what we believe is state of the art tooling, machinery and other manufacturing equipment for our various product lines, and we depreciate the cost of such equipment over their expected useful lives. However, manufacturing technology may evolve rapidly, and we may decide to update our manufacturing process with cutting-edge equipment more quickly than expected. Moreover, we are continually implementing learnings as our engineering and manufacturing expertise and efficiency increase, which may result in our ability to manufacture our products using less of our currently installed equipment. Alternatively, as we ramp and mature the production of our products to higher levels, our learnings may cause us to discontinue the use of already installed equipment in favor of different or additional equipment. The useful life of any equipment that would be retired early as a result would be shortened, causing the depreciation on such equipment to be accelerated, and our results of operations could be negatively impacted.

We are exposed to fluctuations in currency exchange rates, which could negatively affect our financial results.

We transact business globally in multiple currencies and have foreign currency risks related to our revenue, costs of revenue and operating expenses denominated in currencies other than the U.S. dollar, primarily the euro, Japanese yen, Canadian dollar, Chinese yuan and Norwegian krone. To the extent we have significant revenues denominated in such foreign currencies, any strengthening of the U.S. dollar would tend to reduce our revenues as measured in U.S. dollars, as we have historically experienced. In addition, a portion of our costs and expenses have been, and we anticipate will continue to be, denominated in foreign currencies, including the Japanese yen. If we do not have fully offsetting revenues in these currencies and if the value of the U.S. dollar depreciates significantly against these currencies, our costs as measured in U.S. dollars as a percent of our revenues will correspondingly increase and our margins will suffer. Moreover, while we undertake limited hedging activities intended to offset the impact of currency translation exposure, it is impossible to predict or eliminate such impact. As a result, our operating results could be adversely affected.

We may face regulatory limitations on our ability to sell vehicles directly which could materially and adversely affect our ability to sell our electric vehicles.

We sell our vehicles directly to consumers using means that we believe will maximize our reach, currently including through our website and our own stores. While we intend to continue to leverage our most effective sales strategies, we may not be able to sell our vehicles through our own stores in each state in the U.S., as some states have laws that may be interpreted to impose limitations on this direct-to-consumer sales model. In some states, we have also opened galleries to educate and inform customers about our products, but such locations do not actually transact in the sale of vehicles. The application of these state laws to our operations continues to be difficult to predict. Laws in some states have limited our ability to obtain dealer licenses from state motor vehicle regulators and may continue to do so.

In addition, decisions by regulators permitting us to sell vehicles may be challenged by dealer associations and others as to whether such decisions comply with applicable state motor vehicle industry laws. We have prevailed in many of these lawsuits and such results have reinforced our continuing belief that state laws were not designed to prevent our distribution model. In some states, there have also been regulatory and legislative efforts by dealer associations to propose laws that, if enacted, would prevent us from obtaining dealer licenses in their states given our current sales model. A few states have passed legislation that clarifies our ability to operate, but at the same time limits the number of dealer licenses we can obtain or stores that we can operate.

Internationally, there may be laws in jurisdictions we have not yet entered or laws we are unaware of in jurisdictions we have entered that may restrict our sales or other business practices. Even for those jurisdictions we have analyzed, the laws in this area can be complex, difficult to interpret and may change over time. Continued regulatory limitations and other obstacles interfering with our ability to sell vehicles directly to consumers could have a negative and material impact on our business, prospects, financial condition and results of operations.

We may need to defend ourselves against intellectual property infringement claims, which may be time-consuming and could cause us to incur substantial costs.

Others, including our competitors, may hold or obtain patents, copyrights, trademarks or other proprietary rights that could prevent, limit or interfere with our ability to make, use, develop, sell or market our products and services, which could make it more difficult for us to operate our business. From time to time, the holders of such intellectual property rights may assert their rights and urge us to take licenses, and/or may bring suits alleging infringement or misappropriation of such rights. While we endeavor to obtain and protect the intellectual property rights that we expect will allow us to retain or advance our strategic initiatives, there can be no assurance that we will be able to adequately identify and protect the portions of intellectual property that are strategic to our business, or mitigate the risk of potential suits or other legal demands by our competitors. Accordingly, we may consider the entering into licensing agreements with respect to such rights, although no assurance can be given that such licenses can be obtained on acceptable terms or that litigation will not occur, and such licenses and associated litigation could significantly increase our operating expenses. In addition, if we are determined to have or believe there is a high likelihood that we have infringed upon a third party's intellectual property rights, we may be required to cease making, selling or incorporating certain components or intellectual property into the goods and services we offer, to pay substantial damages and/or license royalties, to redesign our products and services, and/or to establish and maintain alternative branding for our products and services. In the event that we were required to take one or more such actions, our business, prospects, operating results and financial condition could be materially adversely affected. In addition, any litigation or claims, whether or not valid, could result in substantial costs, negative publicity and diversion of resources and management attention.

Our facilities or operations could be adversely affected by events outside of our control, such as natural disasters, wars or health epidemics.

We may be impacted by natural disasters, wars, health epidemics or other events outside of our control. For example, our corporate headquarters, the Fremont Factory and Gigafactory Nevada are located in seismically active regions in Northern California and Nevada, and our Gigafactory Shanghai is located in a flood-prone area. If major disasters such as earthquakes, floods or other events occur, or our information system or communications network breaks down or operates improperly, our headquarters and production facilities may be seriously damaged, or we may have to stop or delay production and shipment of our products. In addition, beginning in late 2019, the media has reported a public health epidemic originating in China, prompting precautionary government-imposed closures of certain travel and business. Gigafactory Shanghai was closed for a brief time as a result, before it reopened in February 2020 and rejoined our U.S. factories, which had continued to operate. It is unknown whether and how global supply chains, particularly for automotive parts, may be affected if such an epidemic persists for an extended period of time. We may incur expenses or delays relating to such events outside of our control, which could have a material adverse impact on our business, operating results and financial condition.

Risks Related to the Ownership of Our Common Stock

The trading price of our common stock is likely to continue to be volatile.

The trading price of our common stock has been highly volatile and could continue to be subject to wide fluctuations in response to various factors, some of which are beyond our control. Our common stock has experienced an intra-day trading high of \$968.99 per share and a low of \$176.99 per share over the last 52 weeks. The stock market in general, and the market for technology companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. In particular, a large proportion of our common stock has been and may continue to be traded by short sellers which may put pressure on the supply and demand for our common stock, further influencing volatility in its market price. Public perception and other factors outside of our control may additionally impact the stock price of companies like us that garner a disproportionate degree of public attention, regardless of actual operating performance. In addition, in the past, following periods of volatility in the overall market and the market price of a particular company's securities, securities class action litigation has often been instituted against these companies. Moreover, stockholder litigation like this has been filed against us in the past. While we defend such actions vigorously, any judgment against us or any future stockholder litigation could result in substantial costs and a diversion of our management's attention and resources.

We may fail to meet our publicly announced guidance or other expectations about our business, which could cause our stock price to decline.

We may provide from time to time guidance regarding our expected financial and business performance, which may include projections regarding sales and production, as well as anticipated future revenues, gross margins, profitability and cash flows. Correctly identifying key factors affecting business conditions and predicting future events is inherently an uncertain process, and our guidance may not ultimately be accurate and has in the past been inaccurate in certain respects, such as the timing of new product manufacturing ramps. Our guidance is based on certain assumptions such as those relating to anticipated production and sales volumes (which generally are not linear throughout a given period), average sales prices, supplier and commodity costs, and planned cost reductions. If our guidance is not accurate or varies from actual results due to our inability to meet our assumptions or the impact on our financial performance that could occur as a result of various risks and uncertainties, the market value of our common stock could decline significantly.

Transactions relating to our convertible notes may dilute the ownership interest of existing stockholders, or may otherwise depress the price of our common stock.

The conversion of some or all of the Tesla Convertible Notes or the Subsidiary Convertible Notes would dilute the ownership interests of existing stockholders to the extent we deliver shares upon conversion of any of such notes. Our Subsidiary Convertible Notes have been historically, and the other Tesla Convertible Notes may become in the future, convertible at the option of their holders prior to their scheduled terms under certain circumstances. If holders elect to convert their convertible notes, we could be required to deliver to them a significant number of shares of our common stock. Any sales in the public market of the common stock issuable upon such conversion could adversely affect prevailing market prices of our common stock. In addition, the existence of the convertible notes may encourage short selling by market participants because the conversion of such notes could be used to satisfy short positions, or anticipated conversion of such notes into shares of our common stock could depress the price of our common stock.

Moreover, in connection with each issuance of the Tesla Convertible Notes, we entered into convertible note hedge transactions, which are expected to reduce the potential dilution and/or offset potential cash payments we are required to make in excess of the principal amount upon conversion of the applicable Tesla Convertible Notes. We also entered into warrant transactions with the hedge counterparties, which could separately have a dilutive effect on our common stock to the extent that the market price per share of our common stock exceeds the applicable strike price of the warrants on the applicable expiration dates. In addition, the hedge counterparties or their affiliates may enter into various transactions with respect to their hedge positions, which could also cause or prevent an increase or a decrease in the market price of our common stock or the convertible notes.

Elon Musk has pledged shares of our common stock to secure certain bank borrowings. If Mr. Musk were forced to sell these shares in order to satisfy his loan obligations, such sales could cause our stock price to decline.

Certain banking institutions have made extensions of credit to Elon Musk, our Chief Executive Officer, a portion of which was used to purchase shares of common stock in certain of our public offerings and private placements at the same prices offered to third party participants in such offerings and placements. We are not a party to these loans, which are partially secured by pledges of a portion of the Tesla common stock currently owned by Mr. Musk. If the price of our common stock were to decline substantially, Mr. Musk may be forced by one or more of the banking institutions to sell shares of Tesla common stock to satisfy his loan obligations if he could not do so through other means. Any such sales could cause the price of our common stock to decline further.

Anti-takeover provisions contained in our governing documents, applicable laws and our convertible notes could impair a takeover attempt.

Our certificate of incorporation and bylaws afford certain rights and powers to our board of directors that could contribute to the delay or prevention of an acquisition that it deems undesirable. We are also subject to Section 203 of the Delaware General Corporation Law and other provisions of Delaware law that limit the ability of stockholders in certain situations to effect certain business combinations. In addition, the terms of our convertible notes require us to repurchase such notes in the event of a fundamental change, including a takeover of our company. Any of the foregoing provisions and terms that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We are headquartered in Palo Alto, California. Our principal facilities include a large number of properties in North America, Europe and Asia utilized for manufacturing and assembly, warehousing, engineering, retail and service locations, Supercharger sites, and administrative and sales offices. Our facilities are used to support both of our reporting segments, and are suitable and adequate for the conduct of our business. We primarily lease such facilities with the exception of some manufacturing facilities. The following table sets forth the location of our primary owned and leased manufacturing facilities.

Primary Manufacturing Facilities	Location	Owned or Leased
Fremont Factory	Fremont, California	Owned
Gigafactory Nevada	Sparks, Nevada	Owned
Gigafactory New York	Buffalo, New York	Leased
Gigafactory Shanghai	Shanghai, China	*

* We own the building and the land use rights with an initial term of 50 years. The land use rights are treated as operating lease right-of-use assets.

ITEM 3. LEGAL PROCEEDINGS

For a description of our material pending legal proceedings, please see Note 16, *Commitments and Contingencies*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

In addition, the following matters are being disclosed pursuant to Item 103 of Regulation S-K because they relate to environmental regulations and aggregate civil penalties could potentially exceed \$100,000.

The Bay Area Air Quality Management District (the “BAAQMD”) has issued notices of violation to us relating to air permitting for the Fremont Factory, but has not initiated formal proceedings. We dispute certain of these allegations and are working to resolve them with the BAAQMD. Further, we assert that there has been no related adverse community or environmental impact. While we cannot predict the outcome of this matter, including the final amount of any penalties, it is not expected to have a material adverse impact on our business.

We have also received an information request from the U.S. Environmental Protection Agency (the “EPA”) under Section 114(a) of the Clean Air Act of 1963, as amended (the “Clean Air Act”). The EPA is reviewing the compliance of our Fremont Factory operations with applicable requirements under the Clean Air Act, and we are working with the EPA in responding to this request. While the outcome of this matter cannot be determined at this time, it is not currently expected to have a material adverse impact on our business.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information

Our common stock has traded on The NASDAQ Global Select Market under the symbol "TSLA" since it began trading on June 29, 2010. Our initial public offering was priced at \$17.00 per share on June 28, 2010.

Holders

As of February 7, 2020, there were 1,685 holders of record of our common stock. A substantially greater number of holders of our common stock are "street name" or beneficial holders, whose shares are held by banks, brokers and other financial institutions.

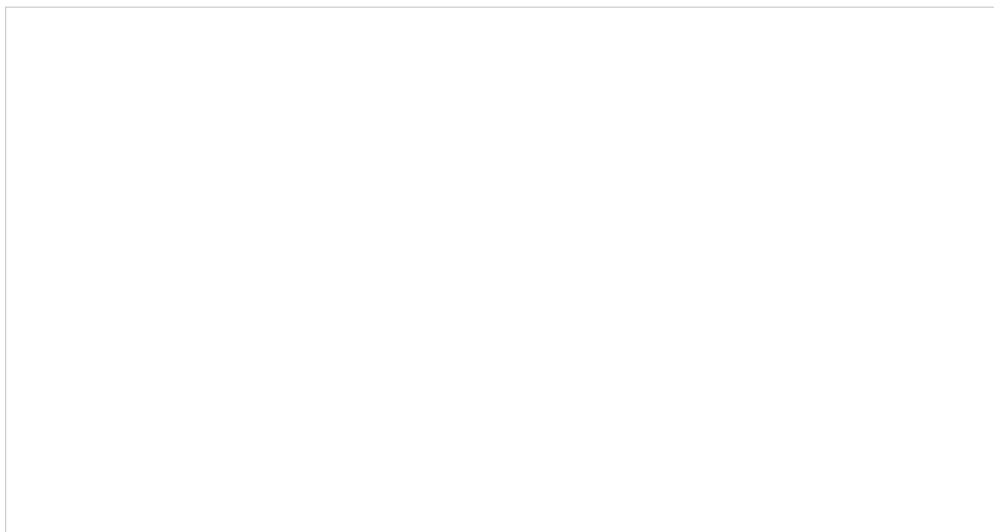
Dividend Policy

We have never declared or paid cash dividends on our common stock. We currently do not anticipate paying any cash dividends in the foreseeable future. Any future determination to declare cash dividends will be made at the discretion of our board of directors, subject to applicable laws, and will depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our board of directors may deem relevant.

Stock Performance Graph

This performance graph shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or incorporated by reference into any filing of Tesla, Inc. under the Securities Act of 1933, as amended (the "Securities Act"), or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

The following graph shows a comparison, from January 1, 2015 through December 31, 2019, of the cumulative total return on our common stock, The NASDAQ Composite Index and a group of all public companies sharing the same SIC code as us, which is SIC code 3711, “Motor Vehicles and Passenger Car Bodies” (Motor Vehicles and Passenger Car Bodies Public Company Group). Such returns are based on historical results and are not intended to suggest future performance. Data for The NASDAQ Composite Index and the Motor Vehicles and Passenger Car Bodies Public Company Group assumes an investment of \$100 on January 1, 2015 and reinvestment of dividends. We have never declared or paid cash dividends on our common stock nor do we anticipate paying any such cash dividends in the foreseeable future.



Unregistered Sales of Equity Securities

None.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

ITEM 6. SELECTED CONSOLIDATED FINANCIAL DATA

The following selected consolidated financial data should be read in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K and from the historical consolidated financial statements not included herein to fully understand factors that may affect the comparability of the information presented below (in millions, except per share data).

	Year Ended December 31,				
	2019 (3)	2018 (2)	2017	2016 (1)	2015
Consolidated Statements of Operations Data:					
Total revenues	\$ 24,578	\$ 21,461	\$ 11,759	\$ 7,000	\$ 4,046
Gross profit	\$ 4,069	\$ 4,042	\$ 2,223	\$ 1,599	\$ 924
Loss from operations	\$ (69)	\$ (388)	\$ (1,632)	\$ (667)	\$ (717)
Net loss attributable to common stockholders	\$ (862)	\$ (976)	\$ (1,962)	\$ (675)	\$ (889)
Net loss per share of common stock attributable to common stockholders, basic and diluted	\$ (4.92)	\$ (5.72)	\$ (11.83)	\$ (4.68)	\$ (6.93)
Weighted average shares used in computing net loss per share of common stock, basic and diluted	177	171	166	144	128

	As of December 31,				
	2019 (3)	2018 (2)	2017	2016 (1)	2015
Consolidated Balance Sheet Data:					
Working (deficit) capital	\$ 1,436	\$ (1,686)	\$ (1,104)	\$ 433	\$ (29)
Total assets	34,309	29,740	28,655	22,664	8,068
Total long-term obligations	15,532	13,434	15,348	10,923	4,126

- (1) We acquired SolarCity Corporation (“SolarCity”) on November 21, 2016. SolarCity’s financial results have been included in our financial results from the acquisition date as previously reported in our Annual Report on Form 10-K for the year ended December 31, 2016.
- (2) We adopted ASC 606 in 2018. Prior periods have not been revised. See Note 2, *Summary of Significant Accounting Policies*, of the notes to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for further details.
- (3) Includes the impact of the adoption of the new lease accounting standard in 2019. Prior periods have not been revised. See Note 2, *Summary of Significant Accounting Policies*, of the notes to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for further details.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis should be read in conjunction with the consolidated financial statements and the related notes included elsewhere in this Annual Report on Form 10-K. For discussion related to changes in financial condition and the results of operations for fiscal year 2017-related items, refer to Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for fiscal year 2018, which was filed with the Securities and Exchange Commission on February 19, 2019.

Overview and 2019 Highlights

Our mission is to accelerate the world's transition to sustainable energy. We design, develop, manufacture, lease and sell high-performance fully electric vehicles, solar energy generation systems and energy storage products. We also offer maintenance, installation, operation and other services related to our products.

Automotive

During 2019, we achieved annual vehicle delivery and production records of 367,656 and 365,232 total vehicles, respectively. We also laid the groundwork for our next phase of growth with the commencement of Model 3 production at Gigafactory Shanghai; preparations at the Fremont Factory for Model Y production, which commenced in the first quarter of 2020; the selection of Berlin, Germany as the site for our next factory for the European market; and the unveiling of Cybertruck. We also continued to enhance our user experience through improved Autopilot and FSD features, including the introduction of a new powerful on-board FSD computer and a new Smart Summon feature, and the expansion of a unique set of in-car entertainment options.

Energy Generation and Storage

We revamped key aspects of our solar operations in 2019 by streamlining traditionally complex ordering, permitting, installation and back-end service processes to enhance the customer experience, especially for retrofit solar installations. Our solar deployments grew approximately 48% and 26%, quarter-over-quarter, in the second half of the year. We also deployed 1.65 GWh of energy storage in 2019, more than the aggregate of all prior years. Finally, we further evolved our product offerings by launching the third generation of the Solar Roof, for which we are expanding both our manufacturing and installation capabilities, and Megapack, our largest utility-scale energy storage product to date.

Management Opportunities, Challenges and Risks and 2020 Outlook

Automotive—Production

A key focus in 2020 will be our efforts towards establishing and expanding capacity for vehicle production at volume across three continents. At the Fremont Factory, we commenced Model Y production earlier than anticipated, and combined with Model 3, we have installed annual production capacity for 400,000 vehicles. We expect to further increase this capacity to 500,000 vehicles through the installation of additional equipment.

At Gigafactory Shanghai, we have installed annual production capacity for 150,000 Model 3 vehicles that we believe we will eventually be able to push to actual rates of production in excess of such number, subject to local production of battery packs, which we began ramping there later than other processes. We have commenced construction of the next phase of Gigafactory Shanghai to add Model Y manufacturing capacity at least equivalent to that for Model 3. To finance our construction and expansion, in December 2019 our local subsidiary entered into a RMB 9.0 billion (or the equivalent amount in U.S. dollars) fixed asset term facility and a RMB 2.25 billion (or the equivalent amount in U.S. dollars) working capital revolving facility, part of which was used to repay a RMB 3.5 billion bridge loan entered into in March 2019. We are supplementing such financing with limited direct capital expenditures.

Finally, we have selected Germany as the site of our next factory for manufacturing vehicles for the European market, due to its strong manufacturing and engineering presence. However, the construction of and ramp at Gigafactory Berlin, as well as at Gigafactory Shanghai, are subject to a number of uncertainties inherent in all new manufacturing operations, including ongoing compliance with regulatory requirements, maintenance of operational licenses and approvals for additional expansion, potential supply chain constraints, hiring, training and retention of qualified employees, and the pace of bringing production equipment and processes online with the capability to manufacture high-quality units at scale. Ultimately, achieving increased total vehicle production cost-effectively across all of our manufacturing operations will require that we timely address any bottlenecks that may arise as we ramp, establish and maintain sustained supplier capacity, and successfully utilize manufacturing processes at the maximum output rates that we have planned for them.

Automotive—Demand and Sales

As the automotive industry continues to validate and grow the market for electric vehicles, we are generating demand and new customers even without traditional marketing and with relatively low marketing costs, and in 2019 our orders shifted to originating mostly from new customers without prior reservations. Production at Gigafactory Shanghai allows us to offer Model 3 in China at competitive local pricing and more quickly, which should drive further demand and opportunity in the world's largest market for mid-sized premium sedans, and we expect a similar impact in China for Model Y when we commence production there of this offering in the popular compact SUV segment.

Moreover, the significant interest generated by our unveiling of Cybertruck demonstrated our brand visibility, innovation and viability across an increasing range of vehicle segments. Meanwhile, we are making our existing vehicles incrementally more compelling, including through a planned software update for FSD-enabled vehicles to react to traffic lights and stop signs and navigate city intersections, and additional functionality of both in-vehicle software and the Tesla mobile app.

On the other hand, we may be impacted by trade and environmental policies, political uncertainty and economic cycles involving geographic regions where we have significant operations, which are inherently unpredictable. Sales of vehicles in the automotive industry also tend to be cyclical in many markets, which may expose us to increased volatility. Specifically, it is uncertain as to how such macroeconomic factors will impact us as a company that has been experiencing growth and increasing market share in an industry that has globally been experiencing a recent decline in sales. Finally, we make certain adjustments to our prices from time to time in the ordinary course of business, including as we introduce new vehicles and variants and optimize the pricing among them. Such pricing changes may impact our vehicles' resale values, and in turn our operating results. For example, if price reductions result in an increase to our estimates of the volume of vehicles that may potentially be returned to us under pre-existing resale value guarantees provided to customers and partners for certain financing programs, our gross profits may be reduced.

Automotive—Deliveries and Customer Infrastructure

We continue to optimize our manufacturing and global delivery patterns to address higher volumes of our predominantly single-factory production at the Fremont Factory. We expect to alleviate any related issues through local production at Gigafactory Shanghai and eventually at Gigafactory Berlin.

We also continue to expand and invest in our servicing and charging locations and capabilities to keep pace with our customer vehicle fleet and ensure a convenient and efficient customer experience. However, if our customer vehicles, particularly in the rapidly growing Model 3 fleet, experience unexpected reliability issues, it could outpace and overburden our servicing capabilities and parts inventory.

Energy Generation and Storage Demand, Production and Deployment

We expect to continue to grow our retrofit solar system deployments as we execute our new strategy, including through compelling financing options such as a subscription-based offering, which is currently available in California.

We are focused on training our personnel and third party partners to ramp installations of our Solar Roof, and are also hiring rapidly for its ongoing manufacturing ramp at Gigafactory New York. We expect such ramp will support our significant operations and our compliance with minimum hiring and cumulative investment targets under our agreement with the SUNY Foundation related to the construction and use of Gigafactory New York. However, if our expectations as to the costs and timelines of our investment and operations at Buffalo or our production ramp of the Solar Roof prove incorrect, we may incur additional expenses or substantial payments to the SUNY Foundation.

Finally, with the introduction of our 3 MWh Megapack, we now offer an even greater variety of scalable energy storage products with a wide range of markets and applications, and expect this product to drive additional interest from global project developers and utilities.

Trends in Cash Flow, Capital Expenditures and Operating Expenses

Our capital expenditures are difficult to project beyond the short term, given the number and breadth of our core projects at any given time. For example, the curve of any new product ramp, such as for Model Y and the Solar Roof, is inherently subject to uncertainty of timing, and if we are able to meet various milestones along such ramp more quickly than expected, our capital expenditures may be accelerated. We also continuously evaluate, and as appropriate adjust, our capital expenditures based on, among other things: our manufacturing plans for our various products, which we may rebalance from time to time based on the mix of demand among them and other contingent factors; the pace and prioritization of current projects under development; and the addition of any new projects. Moreover, we are generally increasing the capital efficiency of our projects with experience, and we may find that our actual capital expenditures on new projects are different than previously expected.

Subject to the above, considering the expected pace of the manufacturing ramps for our products, construction and expansion of our factories, and pipeline of announced projects under development, and consistent with our current strategy of using partners to manufacture battery cells, as well as considering all other infrastructure growth, we currently expect our average annual capital expenditures in 2020 and the two succeeding fiscal years to be \$2.5 billion to \$3.5 billion.

We expect operating expenses as a percentage of revenue to continue to decrease in the future as we focus on increasing operational efficiency and process automation, as well as from increases in expected overall revenues from our expanding sales. In particular, our efforts to scale down and optimize our cost structure relative to the size of our business have already manifested in total operating expenses decreasing from \$4.4 billion to \$4.1 billion from fiscal year 2018 to fiscal year 2019, including restructuring and other charges. Meanwhile, our total revenues increased from \$21.5 billion to \$24.6 billion in the same period.

In March 2018, our stockholders approved the 2018 CEO Performance Award, with vesting contingent on achieving market capitalization and operational milestones. We will incur significant non-cash stock-based compensation expense for each tranche under this award after the related operational milestone initially becomes probable of being met, and if later than the grant date, we will also have to record a cumulative catch-up expense at such time. Such catch-up expense may be material depending on the length of time elapsed from the grant date. For example, in the fourth quarter of 2019, as the result of an additional operational milestone becoming probable of achievement, we recorded a cumulative catch-up expense of \$72 million for service provided from the grant date. Moreover, as the expense for a tranche is recorded over the longer of (i) the expected achievement period of the relevant operational milestone and (ii) only if the related market capitalization milestone has not been achieved, its expected achievement period, the achievement of a market capitalization milestone earlier than expected may accelerate the rate at which such expense is recognized. Upon vesting of a tranche, all remaining associated expense will be recognized immediately. See Note 14, *Equity Incentive Plans—2018 CEO Performance Award*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for further details regarding the stock-based compensation relating to the 2018 CEO Performance Award.

Critical Accounting Policies and Estimates

The consolidated financial statements are prepared in accordance with accounting principles generally accepted in the U.S. ("GAAP"). The preparation of the consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses and related disclosures. We base our estimates on historical experience, as appropriate, and on various other assumptions that we believe to be reasonable under the circumstances. Changes in the accounting estimates are reasonably likely to occur from period to period. Accordingly, actual results could differ significantly from the estimates made by our management. We evaluate our estimates and assumptions on an ongoing basis. To the extent that there are material differences between these estimates and actual results, our future financial statement presentation, financial condition, results of operations and cash flows will be affected. We believe that the following critical accounting policies involve a greater degree of judgment and complexity than our other accounting policies. Accordingly, these are the policies we believe are the most critical to understanding and evaluating the consolidated financial condition and results of operations.

Revenue Recognition

Adoption of new revenue standard

On January 1, 2018, we adopted ASC 606, *Revenue from Contracts with Customers*, ("new revenue standard") using the modified retrospective method. The new revenue standard had a material impact in our consolidated financial statements. For further discussion, refer to Note 2, *Summary of Significant Accounting Policies*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Automotive Segment

Automotive Sales Revenue

Automotive Sales without Resale Value Guarantee

Automotive sales revenue includes revenues related to deliveries of new vehicles and pay-per-use charges, and specific other features and services that meet the definition of a performance obligation under the new revenue standard, including access to our Supercharger network, internet connectivity, Autopilot, FSD features and over-the-air software updates. We recognize revenue on automotive sales upon delivery to the customer, which is when the control of a vehicle transfers. Payments are typically received at the point control transfers or in accordance with payment terms customary to the business. Other features and services such as access to our Supercharger network, internet connectivity and over-the-air software updates are provisioned upon control transfer of a vehicle and recognized over time on a straight-line basis as we have a stand-ready obligation to deliver such services to the customer. We recognize revenue related to these other features and services over the performance period, which is generally the expected ownership life of the vehicle or the eight-year life of the vehicle. Revenue related to Autopilot and FSD features is recognized when functionality is delivered to the customer. For our obligations related to automotive sales, we estimate standalone selling price by considering costs used to develop and deliver the service, third-party pricing of similar options and other information that may be available.

At the time of revenue recognition, we reduce the transaction price and record a sales return reserve against revenue for estimated variable consideration related to future product returns based on historical experience. In addition, any fees that are paid or payable by us to a customer's lender when we arrange the financing are recognized as an offset against automotive sales revenue.

Costs to obtain a contract mainly relate to commissions paid to our sales personnel for the sale of vehicles. Commissions are not paid on other obligations such as access to our Supercharger network, internet connectivity, Autopilot, FSD features and over-the-air software updates. As our contract costs related to automotive sales are typically fulfilled within one year, the costs to obtain a contract are expensed as incurred. Amounts billed to customers related to shipping and handling are classified as automotive revenue, and we have elected to recognize the cost for freight and shipping when control over vehicles, parts, or accessories have transferred to the customer as an expense in cost of revenues. Our policy is to exclude taxes collected from a customer from the transaction price of automotive contracts.

Automotive Sales with Resale Value Guarantee or a Buyback Option

We offer resale value guarantees or similar buy-back terms to certain international customers who purchase vehicles and who finance their vehicles through one of our specified commercial banking partners. We also offer resale value guarantees in connection with automotive sales to certain leasing partners. Under these programs, we receive full payment for the vehicle sales price at the time of delivery and our counterparty has the option of selling their vehicle back to us during the guarantee period, which currently is generally at the end of the term of the applicable loan or financing program, for a pre-determined resale value.

With the exception of two programs which are discussed within the *Automotive Leasing* section, we recognize revenue when control transfers upon delivery to customers in accordance with the new revenue standard as a sale with a right of return as we do not believe the customer has a significant economic incentive to exercise the resale value guarantee provided to them. The process to determine whether there is a significant economic incentive includes a comparison of a vehicle's estimated market value at the time the option is exercisable with the guaranteed resale value to determine the customer's economic incentive to exercise. The performance obligations and the pattern of recognizing automotive sales with resale value guarantees are consistent with automotive sales without resale value guarantees with the exception of our estimate for sales return reserve. Sales return reserves for automotive sales with resale value guarantees are estimated based on historical experience plus consideration for expected future market values. On a quarterly basis, we assess the estimated market values of vehicles under our buyback options program to determine whether there have been changes to the likelihood of future product returns. As we accumulate more data related to the buyback values of our vehicles or as market conditions change, there may be material changes to their estimated values. The two programs that are still being recorded as operating leases are discussed in further detail below in *Vehicle Sales to Leasing Partners with a Resale Value Guarantee and a Buyback Option* and *Vehicle Sales to Customers with a Resale Value Guarantee where Exercise is Probable*.

Prior to the adoption of the new revenue standard, all transactions with resale value guarantees were recorded as operating leases. The amount of sale proceeds equal to the resale value guarantee was deferred until the guarantee expired or was exercised. For certain transactions that were considered interest bearing collateralized borrowings as required under ASC 840, *Leases* prior to January 1, 2019, we also accrued interest expense based on our borrowing rate. The remaining sale proceeds were deferred and recognized on a straight-line basis over the stated guarantee period to automotive leasing revenue. The guarantee period expired at the earlier of the end of the guarantee period or the pay-off of the initial loan. We capitalized the cost of these vehicles on the consolidated balance sheet as operating lease vehicles, net, and depreciated their value, less estimated residual value, to cost of automotive leasing revenue over the same period.

In cases where our counterparty retained ownership of the vehicle at the end of the guarantee period, the resale value guarantee liability and any remaining deferred revenue balances related to the vehicle were settled to automotive leasing revenue, and the net book value of the leased vehicle was expensed to cost of automotive leasing revenue. If our counterparty returned the vehicle to us during the guarantee period, we purchased the vehicle from our counterparty in an amount equal to the resale value guarantee and settled any remaining deferred balances to automotive leasing revenue, and we reclassified the net book value of the vehicle on the consolidated balance sheet to used vehicle inventory.

Automotive Regulatory Credits

In connection with the production and delivery of our zero emission vehicles in global markets, we have earned and will continue to earn various tradable automotive regulatory credits. We have sold these credits, and will continue to sell future credits, to automotive companies and other regulated entities who can use the credits to comply with emission standards and other regulatory requirements. For example, under California's Zero Emission Vehicle Regulation and those of states that have adopted California's standard, vehicle manufacturers are required to earn or purchase credits, referred to as ZEV credits, for compliance with their annual regulatory requirements. These laws provide that automakers may bank or sell to other regulated parties their excess credits if they earn more credits than the minimum quantity required by those laws. We also earn other types of saleable regulatory credits in the United States and abroad, including greenhouse gas, fuel economy and clean fuels credits. Payments for regulatory credits are typically received at the point control transfers to the customer, or in accordance with payment terms customary to the business. We recognize revenue on the sale of automotive regulatory credits at the time control of the regulatory credits is transferred to the purchasing party as automotive revenue in the consolidated statement of operations.

Automotive Leasing Revenue

Automotive leasing revenue includes revenue recognized under lease accounting guidance for our direct leasing programs as well as the two programs with resale value guarantees which continue to qualify for operating lease treatment. Prior to the adoption of the new revenue standard, all programs with resale value guarantees were accounted for as operating leases.

Direct Vehicle Leasing Program

We have outstanding leases under our direct vehicle leasing programs in the U.S., Canada and in certain countries in Europe. As of December 31, 2019, the direct vehicle leasing program is offered for all new Model S, Model X and Model 3 vehicles in the U.S. and new Model S and Model X vehicles in Canada. Qualifying customers are permitted to lease a vehicle directly from Tesla for up to 48 months. At the end of the lease term, customers are required to return the vehicles to us or for Model S and Model X leases, may opt to purchase the vehicles for a pre-determined residual value. We account for these leasing transactions as operating leases. We record leasing revenues to automotive leasing revenue on a straight-line basis over the contractual term, and we record the depreciation of these vehicles to cost of automotive leasing revenue.

We capitalize shipping costs and initial direct costs such as the incremental cost of referral fees and sales commissions from the origination of automotive lease agreements as an element of operating lease vehicles, net, and subsequently amortize these costs over the term of the related lease agreement. Our policy is to exclude taxes collected from a customer from the transaction price of automotive contracts.

Vehicle Sales to Leasing Partners with a Resale Value Guarantee and a Buyback Option

We offer buyback options in connection with automotive sales with resale value guarantees with certain leasing partner sales in the United States. These transactions entail a transfer of leases, which we have originated with an end-customer, to our leasing partner. As control of the vehicles has not been transferred in accordance with the new revenue standard, these transactions were accounted for as interest bearing collateralized borrowings in accordance with ASC 840, *Leases*, prior to January 1, 2019. Under this program, cash is received for the full price of the vehicle and the collateralized borrowing value is generally recorded within resale value guarantees and the customer upfront down payment is recorded within deferred revenue. We amortize the deferred revenue amount to automotive leasing revenue on a straight-line basis over the option period and accrue interest expense based on our borrowing rate. We capitalize vehicles under this program to operating lease vehicles, net, on the consolidated balance sheets, and we record depreciation from these vehicles to cost of automotive leasing revenue during the period the vehicle is under a lease arrangement. Cash received for these vehicles, net of revenue recognized during the period, is classified as collateralized lease (repayments) borrowings within cash flows from financing activities in the consolidated statements of cash flows. With the adoption of ASC 842 on January 1, 2019, all new agreements under this program are accounted for as operating leases under ASC 842 and there was no material change in the timing and amount of revenue recognized over the term. Consequently, any cash flows for new agreements are classified as operating cash activities on the consolidated statements of cash flows.

At the end of the lease term, we settle our liability in cash by either purchasing the vehicle from the leasing partner for the buyback option amount or paying a shortfall to the option amount the leasing partner may realize on the sale of the vehicle. Any remaining balances within deferred revenue and resale value guarantee will be settled to automotive leasing revenue. The end customers can extend the lease for a period of up to 6 months. In cases where the leasing partner retains ownership of the vehicle after the end of our option period, we expense the net value of the leased vehicle to cost of automotive leasing revenue.

Vehicle Sales to Customers with a Resale Value Guarantee where Exercise is Probable

For certain international programs where we have offered resale value guarantees to certain customers who purchased vehicles and where we expect the customer has a significant economic incentive to exercise the resale value guarantee provided to them, we continue to recognize these transactions as operating leases. The process to determine whether there is a significant economic incentive includes a comparison of a vehicle's estimated market value at the time the option is exercisable with the guaranteed resale value to determine the customer's economic incentive to exercise. We have not sold any vehicles under this program since the first half of 2017 and all current period activity relates to the exercise or cancellation of active transactions. The amount of sale proceeds equal to the resale value guarantee is deferred until the guarantee expires or is exercised. The remaining sale proceeds are deferred and recognized on a straight-line basis over the stated guarantee period to automotive leasing revenue. The guarantee period expires at the earlier of the end of the guarantee period or the pay-off of the initial loan. We capitalize the cost of these vehicles on the consolidated balance sheet as operating lease vehicles, net, and depreciate their value, less salvage value, to cost of automotive leasing revenue over the same period.

In cases where a customer retains ownership of a vehicle at the end of the guarantee period, the resale value guarantee liability and any remaining deferred revenue balances related to the vehicle are settled to automotive leasing revenue, and the net book value of the leased vehicle is expensed to cost of automotive leasing revenue. If a customer returns the vehicle to us during the guarantee period, we purchase the vehicle from the customer in an amount equal to the resale value guarantee and settle any remaining deferred balances to automotive leasing revenue, and we reclassify the net book value of the vehicle on the consolidated balance sheets to used vehicle inventory.

Energy Generation and Storage Segment

Energy Generation and Storage Sales

Energy generation and storage sales revenue consists of the sale of solar energy systems and energy storage systems to residential, small commercial, and large commercial and utility grade customers, including solar subscription-based arrangements. Upon adoption of ASC 842, energy generation and storage sales revenue includes agreements for solar energy systems and PPAs that commence after January 1, 2019, as these are now accounted for under the new revenue standard. Sales of solar energy systems to residential and small scale commercial customers consist of the engineering, design, and installation of the system. Post-installation, residential and small scale commercial customers receive a proprietary monitoring system that captures and displays historical energy generation data. Residential and small scale commercial customers pay the full purchase price of the solar energy system upfront. Revenue for the design and installation obligation is recognized when control transfers, which is when we install a solar energy system and the system passes inspection by the utility or the authority having jurisdiction. Revenue for the monitoring service is recognized ratably as a stand-ready obligation over the warranty period of the solar energy system. Sales of energy storage systems to residential and small scale commercial customers consist of the installation of the energy storage system and revenue is recognized when control transfers, which is when the product has been delivered or, if we are performing installation, when installed and commissioned. Payment for such storage systems is made upon invoice or in accordance with payment terms customary to the business.

For large commercial and utility grade solar energy system and energy storage system sales which consist of the engineering, design, and installation of the system, customers make milestone payments that are consistent with contract-specific phases of a project. Revenue from such contracts is recognized over time using the percentage of completion method based on cost incurred as a percentage of total estimated contract costs for energy storage system sales and as a percentage of total estimated labor hours for solar energy system sales. Certain large-scale commercial and utility grade solar energy system and energy storage system sales also include operations and maintenance service which are negotiated with the design and installation contracts and are thus considered to be a combined contract with the design and installation service. For certain large commercial and utility grade solar energy systems and energy storage systems where the percentage of completion method does not apply, revenue is recognized when control transfers, which is when the product has been delivered to the customer and commissioned for energy storage systems and when the project has received permission to operate from the utility for solar energy systems. Operations and maintenance service revenue is recognized ratably over the respective contract term for solar energy system sales and upon delivery of the service for energy storage system sales. Customer payments for such services are usually paid annually or quarterly in advance.

In instances where there are multiple performance obligations in a single contract, we allocate the consideration to the various obligations in the contract based on the relative standalone selling price method. Standalone selling prices are estimated based on estimated costs plus margin or using market data for comparable products. Costs incurred on the sale of residential installations before the solar energy systems are completed are included as work in process within inventory in the consolidated balance sheets. However, any fees that are paid or payable by us to a solar loan lender would be recognized as an offset against revenue. Costs to obtain a contract relate mainly to commissions paid to our sales personnel related to the sale of solar energy systems and energy storage systems. As our contract costs related to solar energy system and energy storage system sales are typically fulfilled within one year, the costs to obtain a contract are expensed as incurred.

As part of our solar energy system and energy storage system contracts, we may provide the customer with performance guarantees that warrant that the underlying system will meet or exceed the minimum energy generation or retention requirements specified in the contract. In certain instances, we may receive a bonus payment if the system performs above a specified level. Conversely, if a solar energy system or energy storage system does not meet the performance guarantee requirements, we may be required to pay liquidated damages. Other forms of variable consideration related to our large commercial and utility grade solar energy system and energy storage system contracts include variable customer payments that will be made based on our energy market participation activities. Such guarantees and variable customer payments represent a form of variable consideration and are estimated at contract inception at their most likely amount and updated at the end of each reporting period as additional performance data becomes available. Such estimates are included in the transaction price only to the extent that it is probable a significant reversal of revenue will not occur.

We record as deferred revenue any non-refundable amounts that are collected from customers related to fees charged for prepayments and remote monitoring service and operations and maintenance service, which is recognized as revenue ratably over the respective customer contract term.

Energy Generation and Storage Leasing

For revenue arrangements where we are the lessor under operating lease agreements for energy generation and storage products, we record lease revenue from minimum lease payments, including upfront rebates and incentives earned from such systems, on a straight-line basis over the life of the lease term, assuming all other revenue recognition criteria have been met. The difference between the payments received and the revenue recognized is recorded as deferred revenue on the consolidated balance sheet.

For solar energy systems where customers purchase electricity from us under PPAs prior to January 1, 2019, we have determined that these agreements should be accounted for as operating leases pursuant to ASC 840. Revenue is recognized based on the amount of electricity delivered at rates specified under the contracts, assuming all other revenue recognition criteria are met.

We record as deferred revenue any amounts that are collected from customers, including lease prepayments, in excess of revenue recognized and operations and maintenance service, which is recognized as revenue ratably over the respective customer contract term. Deferred revenue also includes the portion of rebates and incentives received from utility companies and various local and state government agencies, which is recognized as revenue over the lease term.

We capitalize initial direct costs from the execution of agreements for solar energy systems and PPAs, which include the referral fees and sales commissions, as an element of solar energy systems, net, and subsequently amortize these costs over the term of the related agreements.

Inventory Valuation

Inventories are stated at the lower of cost or net realizable value. Cost is computed using standard cost for vehicles and energy storage products, which approximates actual cost on a first-in, first-out basis. In addition, cost for solar energy systems is recorded using actual cost. We record inventory write-downs for excess or obsolete inventories based upon assumptions about current and future demand forecasts. If our inventory on-hand is in excess of our future demand forecast, the excess amounts are written-off.

We also review our inventory to determine whether its carrying value exceeds the net amount realizable upon the ultimate sale of the inventory. This requires us to determine the estimated selling price of our vehicles less the estimated cost to convert the inventory on-hand into a finished product. Once inventory is written-down, a new, lower cost basis for that inventory is established and subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis.

Should our estimates of future selling prices or production costs change, additional and potentially material increases to this reserve may be required. A small change in our estimates may result in a material charge to our reported financial results.

Warranties

We provide a manufacturer's warranty on all new and used vehicles and production powertrain components and systems we sell. In addition, we also provide a warranty on the installation and components of the energy generation and storage systems we sell for periods typically between 10 to 25 years. We accrue a warranty reserve for the products sold by us, which includes our best estimate of the projected costs to repair or replace items under warranties and recalls when identified. These estimates are based on actual claims incurred to date and an estimate of the nature, frequency and costs of future claims. These estimates are inherently uncertain given our relatively short history of sales, and changes to our historical or projected warranty experience may cause material changes to the warranty reserve in the future. The warranty reserve does not include projected warranty costs associated with our vehicles subject to lease accounting and our solar energy systems under lease contracts or PPAs, as the costs to repair these warranty claims are expensed as incurred. The portion of the warranty reserve expected to be incurred within the next 12 months is included within accrued liabilities and other, while the remaining balance is included within other long-term liabilities on the consolidated balance sheets. Warranty expense is recorded as a component of cost of revenues in the consolidated statements of operations.

Stock-Based Compensation

We use the fair value method of accounting for our stock options and restricted stock units ("RSUs") granted to employees and our employee stock purchase plan (the "ESPP") to measure the cost of employee services received in exchange for the stock-based awards. The fair value of stock option awards with only service and/or performance conditions and ESPP is estimated on the grant or offering date using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model requires inputs such as the risk-free interest rate, expected term and expected volatility. These inputs are subjective and generally require significant judgment. The fair value of RSUs is measured on the grant date based on the closing fair market value of our common stock. The resulting cost is recognized over the period during which an employee is required to provide service in exchange for the awards, usually the vesting period, which is generally four years for stock options and RSUs and six months for the ESPP. Stock-based compensation expense is recognized on a straight-line basis, net of actual forfeitures in the period.

For performance-based awards, stock-based compensation expense is recognized over the expected performance achievement period of individual performance milestones when the achievement of each individual performance milestone becomes probable. For performance-based awards with a vesting schedule based entirely on the attainment of both performance and market conditions, stock-based compensation expense associated with each tranche is recognized over the longer of (i) the expected achievement period for the operational milestone for such tranche and (ii) the expected achievement period for the related market capitalization milestone determined on the grant date, beginning at the point in time when the relevant operational milestone is considered probable of being met. If such operational milestone becomes probable any time after the grant date, we will recognize a cumulative catch-up expense from the grant date to that point in time. If the related market capitalization milestone is achieved earlier than its expected achievement period and the achievement of the related operational milestone, then the stock-based compensation expense will be recognized over the expected achievement period for the operational milestone, which may accelerate the rate at which such expense is recognized. If additional operational milestones become probable, stock-based compensation expense will be recorded in the period it becomes probable including cumulative catch-up expense for the service provided since the grant date. The fair value of such awards is estimated on the grant date using Monte Carlo simulations.

As we accumulate additional employee stock-based awards data over time and as we incorporate market data related to our common stock, we may calculate significantly different volatilities and expected lives, which could materially impact the valuation of our stock-based awards and the stock-based compensation expense that we will recognize in future periods. Stock-based compensation expense is recorded in cost of revenues, research and development expense and selling, general and administrative expense in the consolidated statements of operations.

Income Taxes

We are subject to federal and state taxes in the U.S. and in many foreign jurisdictions. Significant judgment is required in determining our provision for income taxes, our deferred tax assets and liabilities and any valuation allowance recorded against our net deferred tax assets. We make these estimates and judgments about our future taxable income that are based on assumptions that are consistent with our future plans. Tax laws, regulations, and administrative practices may be subject to change due to economic or political conditions including fundamental changes to the tax laws applicable to corporate multinationals. The U.S., many countries in the European Union and a number of other countries are actively considering changes in this regard. As of December 31, 2019, we had recorded a full valuation allowance on our net U.S. deferred tax assets because we expect that it is more likely than not that our U.S. deferred tax assets will not be realized in the foreseeable future. Should the actual amounts differ from our estimates, the amount of our valuation allowance could be materially impacted.

Furthermore, significant judgment is required in evaluating our tax positions. In the ordinary course of business, there are many transactions and calculations for which the ultimate tax settlement is uncertain. As a result, we recognize the effect of this uncertainty on our tax attributes based on our estimates of the eventual outcome. These effects are recognized when, despite our belief that our tax return positions are supportable, we believe that it is more likely than not that those positions may not be fully sustained upon review by tax authorities. We are required to file income tax returns in the U.S. and various foreign jurisdictions, which requires us to interpret the applicable tax laws and regulations in effect in such jurisdictions. Such returns are subject to audit by the various federal, state and foreign taxing authorities, who may disagree with respect to our tax positions. We believe that our consideration is adequate for all open audit years based on our assessment of many factors, including past experience and interpretations of tax law. We review and update our estimates in light of changing facts and circumstances, such as the closing of a tax audit, the lapse of a statute of limitations or a change in estimate. To the extent that the final tax outcome of these matters differs from our expectations, such differences may impact income tax expense in the period in which such determination is made. The eventual impact on our income tax expense depends in part if we still have a valuation allowance recorded against our deferred tax assets in the period that such determination is made.

Principles of Consolidation

The consolidated financial statements reflect our accounts and operations and those of our subsidiaries in which we have a controlling financial interest. In accordance with the provisions of ASC 810, *Consolidation*, we consolidate any variable interest entity ("VIE") of which we are the primary beneficiary. We form VIEs with our financing fund investors in the ordinary course of business in order to facilitate the funding and monetization of certain attributes associated with our solar energy systems and leases under our direct vehicle leasing programs. The typical condition for a controlling financial interest ownership is holding a majority of the voting interests of an entity; however, a controlling financial interest may also exist in entities, such as VIEs, through arrangements that do not involve controlling voting interests. ASC 810 requires a variable interest holder to consolidate a VIE if that party has the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and the obligation to absorb losses of the VIE that could potentially be significant to the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE. We do not consolidate a VIE in which we have a majority ownership interest when we are not considered the primary beneficiary. We have determined that we are the primary beneficiary of all the VIEs. We evaluate our relationships with all the VIEs on an ongoing basis to ensure that we continue to be the primary beneficiary. All intercompany transactions and balances have been eliminated upon consolidation.

Noncontrolling Interests and Redeemable Noncontrolling Interests

Noncontrolling interests and redeemable noncontrolling interests represent third-party interests in the net assets under certain funding arrangements, or funds, that we enter into to finance the costs of solar energy systems and vehicles under operating leases. We have determined that the contractual provisions of the funds represent substantive profit sharing arrangements. We have further determined that the appropriate methodology for calculating the noncontrolling interest and redeemable noncontrolling interest balances that reflects the substantive profit sharing arrangements is a balance sheet approach using the hypothetical liquidation at book value ("HLBV") method. We, therefore, determine the amount of the noncontrolling interests and redeemable noncontrolling interests in the net assets of the funds at each balance sheet date using the HLBV method, which is presented on the consolidated balance sheet as noncontrolling interests in subsidiaries and redeemable noncontrolling interests in subsidiaries. Under the HLBV method, the amounts reported as noncontrolling interests and redeemable noncontrolling interests in the consolidated balance sheet represent the amounts the third-parties would hypothetically receive at each balance sheet date under the liquidation provisions of the funds, assuming the net assets of the funds were liquidated at their recorded amounts determined in accordance with GAAP and with tax laws effective at the balance sheet date and distributed to the third-parties. The third-parties' interests in the results of operations of the funds are determined as the difference in the noncontrolling interest and redeemable noncontrolling interest balances in the consolidated balance sheets between the start and end of each reporting period, after taking into account any capital transactions between the funds and the third-parties. However, the redeemable noncontrolling interest balance is at least equal to the redemption amount. The redeemable noncontrolling interest balance is presented as temporary equity in the mezzanine section of the consolidated balance sheet since these third-parties have the right to redeem their interests in the funds for cash or other assets.

Results of Operations

Revenues

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Automotive sales	\$ 19,952	\$ 17,632	\$ 8,535	\$ 2,320	13%	\$ 9,097	107%
Automotive leasing	869	883	1,107	(14)	-2%	(224)	-20%
Total automotive revenues	20,821	18,515	9,642	2,306	12%	8,873	92%
Services and other	2,226	1,391	1,001	835	60%	390	39%
Total automotive & services and other segment revenue	23,047	19,906	10,643	3,141	16%	9,263	87%
Energy generation and storage segment revenue	1,531	1,555	1,116	(24)	-2%	439	39%
Total revenues	\$ 24,578	\$ 21,461	\$ 11,759	\$ 3,117	15%	\$ 9,702	83%

Automotive & Services and Other Segment

Automotive sales revenue includes revenues related to cash sales of new Model S, Model X and Model 3 vehicles, including access to our Supercharger network, internet connectivity, Autopilot and FSD features and over-the-air software updates, as well as sales of regulatory credits to other automotive manufacturers. Cash deliveries are vehicles that are not subject to lease accounting.

Automotive leasing revenue includes the amortization of revenue for Model S, Model X and Model 3 vehicles under direct lease agreements as well as those sold with resale value guarantees accounted for as operating leases under lease accounting. We began offering direct leasing for Model 3 vehicles in the second quarter of 2019.

Services and other revenue consists of non-warranty after-sales vehicle services, sales of used vehicles, retail merchandise, sales by our acquired subsidiaries to third party customers, and vehicle insurance revenue.

2019 Compared to 2018

Automotive sales revenue increased \$2.32 billion, or 13%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018, primarily due to an increase of 137,969 Model 3 cash deliveries from production scaling and an increase of \$175 million in sales of regulatory credits to \$594 million. The increase was partially offset by a decrease of 30,487 Model S and Model X cash deliveries. The deliveries in the year ended December 31, 2019 were at lower average selling prices than the prior year due to price adjustments we made to our vehicle offerings and the introduction of lower end Model 3 trims in 2019. Due to the price adjustments, we estimated that there is a greater likelihood that customers will exercise their buyback options that were provided prior to such adjustments. As a result, along with the estimated variable consideration related to normal future product returns for vehicles sold under the buyback options program, we adjusted our sales return reserve on vehicles previously sold under our buyback options program resulting in a reduction of automotive sales revenues of \$555 million. Refer to Note 2, *Summary of Significant Accounting Policies*, to the consolidated statements included elsewhere in this Annual Report on Form 10-K.

Automotive leasing revenue decreased \$14 million, or 2%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The decrease was primarily due to a decrease in cumulative vehicles under our resale value guarantee leasing programs which are accounted for as operating leases. The decrease was partially offset by an increase in cumulative vehicles under our direct vehicle leasing program, partially due to the introduction of Model 3 direct leasing in the second quarter of 2019.

Services and other revenue increased \$835 million, or 60%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The increase was primarily due to an increase in used vehicle sales from an increased volume of trade-in vehicles, partially offset by lower average selling prices for traded-in Tesla vehicles due to price adjustments we made to our vehicle offerings in 2019. Additionally, there was an increase in non-warranty maintenance services revenue as our fleet continues to grow.

Energy Generation and Storage Segment

Energy generation and storage revenue includes sales and leasing of solar energy generation and energy storage products, services related to such products, and sales of solar energy systems incentives.

2019 Compared to 2018

Energy generation and storage revenue decreased by \$24 million, or 2%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018, primarily due to decreases in deployments of solar cash and loan jobs partially offset increases in deployments of Powerwall, Powerpack, and Megapack.

Cost of Revenues and Gross Margin

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Cost of revenues							
Automotive sales	\$ 15,939	\$ 13,686	\$ 6,725	\$ 2,253	16%	\$ 6,961	104%
Automotive leasing	459	488	708	(29)	-6%	(220)	-31%
Total automotive cost of revenues	16,398	14,174	7,433	2,224	16%	6,741	91%
Services and other	2,770	1,880	1,229	890	47%	651	53%
Total automotive & services and other segment cost of revenues	19,168	16,054	8,662	3,114	19%	7,392	85%
Energy generation and storage segment	1,341	1,365	874	(24)	-2%	491	56%
Total cost of revenues	\$ 20,509	\$ 17,419	\$ 9,536	\$ 3,090	18%	\$ 7,883	83%
Gross profit total automotive	\$ 4,423	\$ 4,341	\$ 2,209				
Gross margin total automotive	21%	23%	23%				
Gross profit total automotive & services and other segment	\$ 3,879	\$ 3,852	\$ 1,981				
Gross margin total automotive & services and other segment	17%	19%	19%				
Gross profit energy generation and storage segment	\$ 190	\$ 190	\$ 242				
Gross margin energy generation and storage segment	12%	12%	22%				
Total gross profit	\$ 4,069	\$ 4,042	\$ 2,223				
Total gross margin	17%	19%	19%				

Automotive & Services and Other Segment

Cost of automotive sales revenue includes direct parts, material and labor costs, manufacturing overhead, including depreciation costs of tooling and machinery, shipping and logistic costs, vehicle connectivity costs, allocations of electricity and infrastructure costs related to our Supercharger network, and reserves for estimated warranty expenses. Cost of automotive sales revenues also includes adjustments to warranty expense and charges to write down the carrying value of our inventory when it exceeds its estimated net realizable value and to provide for obsolete and on-hand inventory in excess of forecasted demand.

Cost of automotive leasing revenue includes primarily the amortization of operating lease vehicles over the lease term, as well as warranty expenses recognized as incurred. Cost of automotive leasing revenue also includes vehicle connectivity costs and allocations of electricity and infrastructure costs related to our Supercharger network for vehicles under our leasing programs.

Costs of services and other revenue includes costs associated with providing non-warranty after-sales services, costs to acquire and certify used vehicles, costs for retail merchandise, and costs to provide vehicle insurance. Cost of services and other revenue also includes direct parts, material and labor costs, manufacturing overhead associated with the sales by our acquired subsidiaries to third party customers.

2019 Compared to 2018

Cost of automotive sales revenue increased \$2.25 billion, or 16%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018, primarily due to an increase of 137,969 Model 3 cash deliveries and higher average Model S and Model X costs per unit compared to the prior year due to the discontinuation of lower end trims in 2019. The increases were partially offset by a decrease of 30,487 Model S and Model X cash deliveries and a decrease in average Model 3 costs per unit compared to the prior year primarily due to lower end trims introduced in 2019 and temporary under-utilization of manufacturing capacity at lower production volumes in the first half of 2018. Additionally, due to price adjustments we made to our vehicle offerings in 2019, we estimated that there is a greater likelihood that customers will exercise their buyback options that were provided prior to such adjustments. If customers elect to exercise the buyback options, we expect to be able to subsequently resell the returned vehicles, which resulted in a reduction of automotive cost of sales of \$451 million for the year ended December 31, 2019. Refer to Note 2, *Summary of Significant Accounting Policies*, to the consolidated statements included elsewhere in this Annual Report on Form 10-K.

Cost of automotive leasing revenue decreased \$29 million, or 6%, in the year ended December 31, 2019 compared to the year ended December 31, 2018. The decrease was primarily due to a decrease in cumulative vehicles under our resale value guarantee leasing programs which are accounted for as operating leases. The decrease was partially offset by an increase in cumulative vehicles under our direct vehicle leasing program, partially due to the introduction of Model 3 leasing in the second quarter of 2019.

Cost of services and other revenue increased \$890 million, or 47%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The increase was primarily due to the costs of used vehicle sales from the increased volumes of trade-in vehicles. Additionally, there were increases in the costs of our new service centers, additional service personnel in existing and new service centers, Mobile Service capabilities, parts distribution centers and investment in new body shops to provide maintenance services to our rapidly growing fleet of vehicles.

Gross margin for total automotive decreased from 23% to 21% in the year ended December 31, 2019 as compared to the year ended December 31, 2018, primarily due to lower Model S and Model X margins from lower selling prices due to price adjustments we made to our vehicle offerings in 2019, a higher proportion of Model 3 as a percentage of our total automotive sales compared to the prior period. Additionally, the price adjustments also resulted in a reduction in gross automotive sales profit of \$104 million from the adjustment of our sales return reserve on vehicles previously sold under our buyback options program. The decrease was partially offset by improvement of Model 3 margins compared to the prior year as we achieved additional manufacturing efficiencies in the production of Model 3 and an increase of \$175 million in sales of regulatory credits.

Gross margin for total automotive & services and other segment decreased from 19% to 17% in the year ended December 31, 2019 as compared to the year ended December 31, 2018, primarily due to the automotive gross margin impacts discussed above and a higher proportion of services and other within the segment, which operates at lower gross margins than our automotive business.

Energy Generation and Storage Segment

Cost of energy generation and storage revenue includes direct and indirect material and labor costs, warehouse rent, freight, warranty expense, other overhead costs and amortization of certain acquired intangible assets. In addition, where arrangements are accounted for as operating leases, the cost of revenue is primarily comprised of depreciation of the cost of leased solar energy systems, maintenance costs associated with those systems and amortization of any initial direct costs.

2019 Compared to 2018

Cost of energy generation and storage revenue decreased by \$24 million, or 2%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The decrease was primarily due to a decrease in deployments of solar cash and loan jobs, partially offset by increases in deployments of Powerwall, Powerpack, and Megapack.

Gross margin for energy generation and storage remained relatively consistent at 12% in the year ended December 31, 2019 as compared to the year ended December 31, 2018. Energy storage gross margins improved in the current year as a result of lower materials costs, partially offset by lower gross margins in our cash and loan solar business driven by higher costs from temporary manufacturing under-utilization of our Solar Roof ramp.

Research and Development Expense

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Research and development	\$ 1,343	\$ 1,460	\$ 1,378	\$ (117)	-8%	\$ 82	6%
As a percentage of revenues	5%	7%	12%				

Research and development (“R&D”) expenses consist primarily of personnel costs for our teams in engineering and research, manufacturing engineering and manufacturing test organizations, prototyping expense, contract and professional services and amortized equipment expense.

R&D expenses as a percentage of revenue decreased from 7% to 5% in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The decrease was primarily from an increase in overall revenues from our expanding sales, as well as from our focus on increasing operational efficiency and process automation, our efforts to scale down and optimize our cost structure relative to the size of our business.

R&D expenses decreased \$117 million, or 8%, in the year ended December 31, 2019 compared to the year ended December 31, 2018. The decrease was primarily due to a \$95 million decrease in employee and labor related expenses from cost efficiency initiatives and a \$26 million decrease in professional and outside service expenses.

Selling, General and Administrative Expense

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Selling, general and administrative	\$ 2,646	\$ 2,835	\$ 2,477	\$ (189)	-7%	\$ 358	14%
As a percentage of revenues	11%	13%	21%				

Selling, general and administrative (“SG&A”) expenses generally consist of personnel and facilities costs related to our stores, marketing, sales, executive, finance, human resources, information technology and legal organizations, as well as fees for professional and contract services and litigation settlements.

SG&A expenses as a percentage of revenue decreased from 13% to 11% in year ended December 31, 2019 as compared to the year ended December 31, 2018. The decrease was primarily from an increase in overall revenues from our expanding sales, as well as from our focus on increasing operational efficiency and process automation, our efforts to scale down and optimize our cost structure relative to the size of our business.

SG&A expenses decreased \$189 million, or 7%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The decrease was primarily due to a \$302 million decrease in employee and labor related expenses from decreased headcount and cost efficiency initiatives, partially offset by a \$112 million increase in stock-based compensation expense. The increase in stock-based compensation expense was primarily related to the 2018 CEO Performance Award as we recorded a \$72 million cumulative catch-up expense for the service provided from the grant date when an additional operational milestone was considered probable of being met in the fourth quarter of 2019. Additionally, the expense period was shorter in the prior year as it commenced upon the grant approval date of March 21, 2018.

Restructuring and other

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Restructuring and other	\$ 149	\$ 135	\$ —	\$ 14	10%	\$ 135	N/A
As a percentage of revenues	1%	1%	0%				

During the year ended December 31, 2019, we carried out certain restructuring actions in order to reduce costs and improve efficiency. As a result, we recognized \$50 million of costs primarily related to employee termination expenses and losses from closing certain stores impacting both segments. We recognized \$47 million in impairment related to the IPR&D intangible asset as we abandoned further development efforts (refer to Note 4, *Goodwill and Intangible Assets* for details) and \$15 million for the related equipment within the energy generation and storage segment. We also incurred a loss of \$37 million for closing operations in certain facilities. On the statement of cash flows, the amounts were presented in the captions in which such amounts would have been recorded absent the impairment charges. The employee termination expenses were substantially paid by December 31, 2019, while the remaining amounts were non-cash.

During the year ended December 31, 2018, we carried-out certain restructuring actions in order to reduce costs and improve efficiency and recognized \$37 million of employee termination expenses and estimated losses from sub-leasing a certain facility. The employee termination cash expenses of \$27 million were substantially paid by the end of 2018, while the remaining amounts were non-cash. Also included within restructuring and other activities was \$55 million of expenses (materially all of which were non-cash) from restructuring the energy generation and storage segment, which comprised of disposals of certain tangible assets, the shortening of the useful life of a trade name intangible asset and a contract termination penalty. In addition, we concluded that a small portion of the IPR&D asset is not commercially feasible. Consequently, we recognized an impairment loss of \$13 million. We recognized settlement and legal expenses of \$30 million in the year ended December 31, 2018 for the settlement with the SEC relating to a take-private proposal for Tesla. These expenses were substantially paid by the end of 2018.

Interest Expense

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Interest expense	\$ 685	\$ 663	\$ 471	\$ 22	3%	\$ 192	41%
As a percentage of revenues	3%	3%	4%				

Interest expense increased by \$22 million, or 3%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The increase was primarily due to an increase in our average outstanding indebtedness at relatively consistent weighted average interest rates as compared to the year ended December 31, 2018.

Other Income (Expense), Net

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Other income (expense), net	\$ 45	\$ 22	\$ (125)	\$ 23	105%	\$ 147	Not meaningful
As a percentage of revenues	0%	0%	-1%				

Other income (expense), net, consists primarily of foreign exchange gains and losses related to our foreign currency-denominated monetary assets and liabilities and changes in the fair values of our fixed-for-floating interest rate swaps. We expect our foreign exchange gains and losses will vary depending upon movements in the underlying exchange rates.

Other income (expense), net, increased by \$23 million, or 105%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The change was primarily due to favorable fluctuations in foreign currency exchange rates, offset by losses from interest rate swaps related to our debt facilities year-over-year.

Provision for Income Taxes

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Provision for income taxes	\$ 110	\$ 58	\$ 32	\$ 52	90%	\$ 26	81%
Effective tax rate	-17%	-6%	-1%				

Our provision for income taxes increased by \$52 million, or 90%, in the year ended December 31, 2019 as compared to the year ended December 31, 2018, primarily due to the increase in taxable profits in certain foreign jurisdictions year-over-year.

Net Income (Loss) Attributable to Noncontrolling Interests and Redeemable Noncontrolling Interests

(Dollars in millions)	Year Ended December 31,			2019 vs. 2018 Change		2018 vs. 2017 Change	
	2019	2018	2017	\$	%	\$	%
Net income (loss) attributable to noncontrolling interests and redeemable noncontrolling interests in subsidiaries	\$ 87	\$ (87)	\$ (279)	\$ 174	Not meaningful	\$ 192	-69%

Our net income (loss) attributable to noncontrolling interests and redeemable noncontrolling interests was related to financing fund arrangements.

Net income (loss) attributable to noncontrolling interests and redeemable noncontrolling interests changed unfavorably by \$174 million in the year ended December 31, 2019 as compared to the year ended December 31, 2018. The change was primarily due to lower activities in our financing fund arrangements.

Liquidity and Capital Resources

As of December 31, 2019, we had \$6.27 billion of cash and cash equivalents. Balances held in foreign currencies had a U.S. dollar equivalent of \$1.26 billion and consisted primarily of Chinese yuan, euros and Canadian dollars. Our sources of cash are predominantly from our deliveries of vehicles, sales and installations of our energy storage products and solar energy systems, proceeds from debt facilities, proceeds from financing funds and proceeds from equity offerings.

Our sources of liquidity and cash flows enable us to fund ongoing operations, research and development projects for new products, establishment and/or increases of Model 3 and Model Y production capacity at the Fremont Factory and at Gigafactory Shanghai, the continued expansion of Gigafactory Nevada, the construction of Gigafactory Berlin, the manufacturing ramp of the Solar Roof at Gigafactory New York, and the continued expansion of our retail and service locations, body shops, Mobile Service fleet and Supercharger network.

As discussed in and subject to the considerations referenced in Part II, Item 7, *Management's Discussion and Analysis of Financial Condition and Results of Operations—Management Opportunities, Challenges and Risks and 2020 Outlook—Trends in Cash Flow, Capital Expenditures and Operating Expenses* in this Annual Report on Form 10-K, considering the expected pace of the manufacturing ramps for our products, construction and expansion of our factories, and pipeline of projects under development, and consistent with our current strategy of using a partner to manufacture battery cells, as well as considering all other infrastructure growth, we currently expect our average annual capital expenditures in 2020 and the two succeeding fiscal years to be \$2.5 billion to \$3.5 billion.

We expect that the cash we generate from our core operations will generally be sufficient to cover our future capital expenditures and to pay down our near-term debt obligations, although we may choose to seek alternative financing sources. For example, we expect that much of our investment in Gigafactory Shanghai will continue to be funded through indebtedness arranged through local financial institutions in China, such as the RMB 9.0 billion (or the equivalent amount in U.S. dollars) fixed asset term facility and RMB 2.25 billion (or the equivalent amount in U.S. dollars) working capital revolving facility that our local subsidiary entered into in December 2019, and we expect the same with respect to Gigafactory Berlin. As always, we continually evaluate our capital expenditure needs and may decide it is best to raise additional capital to fund the rapid growth of our business, to further strengthen our balance sheet, or for general corporate purposes.

We have an agreement to spend or incur \$5.0 billion in combined capital, operational expenses, costs of goods sold and other costs in the State of New York during the 10-year period following full production at Gigafactory New York. We anticipate meeting these obligations through our operations at this facility and other operations within the State of New York, and we do not believe that we face a significant risk of default.

We expect that our current sources of liquidity together with our projection of cash flows from operating activities will provide us with adequate liquidity over at least the next 12 months. A large portion of our future expenditures is to fund our growth, and we can adjust our capital and operating expenditures by operating segment, including future expansion of our product offerings, retail and service locations, body shops, Mobile Service fleet, and Supercharger network. We may need or want to raise additional funds in the future, and these funds may not be available to us when we need or want them, or at all. If we cannot raise additional funds when we need or want them, our operations and prospects could be negatively affected.

In addition, we had \$3.03 billion of unused committed amounts under our credit facilities and financing funds as of December 31, 2019, some of which are subject to satisfying specified conditions prior to draw-down (such as pledging to our lenders sufficient amounts of qualified receivables, inventories, leased vehicles and our interests in those leases, solar energy systems and the associated customer contracts, our interests in financing funds or various other assets; and contributing or selling qualified solar energy systems and the associated customer contracts or qualified leased vehicles and our interests in those leases into the financing funds). Upon the draw-down of any unused committed amounts, there are no restrictions on use of available funds for general corporate purposes. For details regarding our indebtedness and financing funds, refer to Note 12, *Debt*, and Note 17, *Variable Interest Entity Arrangements*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Summary of Cash Flows

(Dollars in millions)	Year Ended December 31,			
	2019	2018	2017	
Net cash provided by (used in) operating activities	\$ 2,405	\$ 2,098	\$ (61)	
Net cash used in investing activities	\$ (1,436)	\$ (2,337)	\$ (4,196)	
Net cash provided by financing activities	\$ 1,529	\$ 574	\$ 4,415	

Cash Flows from Operating Activities

Our cash flows from operating activities are significantly affected by our cash investments to support the growth of our business in areas such as research and development and selling, general and administrative and working capital, especially inventory, which includes vehicles in transit. Our operating cash inflows include cash from vehicle sales, customer lease payments, customer deposits, cash from sales of regulatory credits and energy generation and storage products. These cash inflows are offset by our payments to suppliers for production materials and parts used in our manufacturing process, operating expenses, operating lease payments and interest payments on our financings.

Net cash provided by operating activities increased by \$307 million to \$2.41 billion during the year ended December 31, 2019 from \$2.10 billion during the year ended December 31, 2018. This favorable change was primarily due to the increase in net income, excluding non-cash expenses and gains, of \$902 million, partially offset by the increase in net operating assets and liabilities of \$407 million and \$188 million of the repayment of our 0.25% Convertible Senior Notes due in 2019 which was classified as an operating activity, as this represented an interest payment on the discounted convertible notes. The increase in net operating assets and liabilities was mainly driven by a smaller increase in accounts payable and accrued liabilities in 2019 as compared to 2018, as we were ramping for Model 3 production in 2018 and a larger increase in operating lease vehicles in 2019 as compared to 2018 as we began offering Model 3 leasing in 2019. The increase in net operating assets and liabilities was partially offset by a smaller increase in inventory and a larger increase in deferred revenue in 2019 as compared to 2018.

Cash Flows from Investing Activities

Cash flows from investing activities and their variability across each period related primarily to capital expenditures, which were \$1.33 billion during 2019, mainly for Gigafactory Shanghai construction, Model 3 production, and Model Y preparations, and \$2.10 billion during 2018, mainly for Model 3 production. Design, acquisition and installation of solar energy systems amounted to \$105 million and \$218 million for the years ended December 31, 2019 and 2018, respectively.

Cash Flows from Financing Activities

Cash flows from financing activities during the year ended December 31, 2019 consisted primarily of \$1.82 billion from the issuance of the 2.00% Convertible Senior Notes due in 2024 ("2024 Notes"), net of transaction costs, and \$848 million from the issuance of common stock, net of underwriting discounts, in registered public offerings, \$736 million of net borrowings under loan agreements entered into by certain Chinese subsidiaries, \$394 million of net borrowings for automotive asset-backed notes, and \$174 million from the issuance of warrants in connection with the offering of the 2024 Notes. These cash inflows were partially offset by a \$732 million portion of the repayment of our 0.25% Convertible Senior Notes due in 2019 that was classified as financing activity, a \$566 million repayment of our 1.625% Convertible Senior Notes due in 2019, a purchase of convertible note hedges of \$476 million in connection with the offering of the 2024 Notes, and collateralized lease repayments of \$389 million. See Note 12, *Debt*, and Note 2, *Summary of Significant Accounting Policies*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for further details regarding our debt obligations and collateralized borrowings, respectively.

Cash flows from financing activities during the year ended December 31, 2018 consisted primarily of \$1.18 billion of net borrowings under automobile asset-backed notes, \$431 million of net borrowings under the senior secured asset-based revolving credit agreement (the "Credit Agreement"), \$334 million from the issuance of solar asset-backed notes and \$296 million of proceeds from exercises of stock options and other stock issuances. These cash inflows were partially offset by net repayments of \$582 million under our vehicle lease-backed loan and security agreements (the "Warehouse Agreements"), collateralized lease repayments of \$559 million, repayments of \$230 million of the 2.75% Convertible Senior Notes due on November 1, 2018, and repayments of \$210 million under the revolving aggregation credit facility.

Contractual Obligations

We are party to contractual obligations involving commitments to make payments to third parties, including certain debt financing arrangements and leases, primarily for stores, service centers, certain manufacturing and corporate offices. These also include, as part of our normal business practices, contracts with suppliers for purchases of certain raw materials, components and services to facilitate adequate supply of these materials and services and capacity reservation contracts. The following table sets forth, as of December 31, 2019, certain significant obligations that will affect our future liquidity (in millions):

	Total	Year Ended December 31,					Thereafter
		2020	2021	2022	2023	2024	
Operating lease obligations, including imputed interest	\$ 1,459	\$ 296	\$ 262	\$ 210	\$ 173	\$ 146	\$ 372
Finance lease obligations, including imputed interest	1,795	474	478	600	225	5	13
Purchase obligations (1)	16,292	5,729	2,946	3,645	3,948	24	—
Debt, including scheduled interest (2)	14,031	1,774	2,594	2,287	1,993	2,575	2,808
Total	<u>\$ 33,577</u>	<u>\$ 8,273</u>	<u>\$ 6,280</u>	<u>\$ 6,742</u>	<u>\$ 6,339</u>	<u>\$ 2,750</u>	<u>\$ 3,193</u>

- (1) These amounts represent (i) purchase orders of \$2.50 billion issued under binding and enforceable agreements with all vendors as of December 31, 2019 and (ii) \$13.79 billion in other estimable purchase obligations pursuant to such agreements, primarily relating to the purchase of lithium-ion cells produced by Panasonic at Gigafactory Nevada, including any additional amounts we may have to pay vendors if we do not meet certain minimum purchase obligations. In cases where no purchase orders were outstanding under binding and enforceable agreements as of December 31, 2019, we have included estimated amounts based on our best estimates and assumptions or discussions with the relevant vendors as of such date or, where applicable, on amounts or assumptions included in such agreements for purposes of discussion or reference. In certain cases, such estimated amounts were subject to contingent events. Furthermore, these amounts do not include future payments for purchase obligations that were recorded in accounts payable or accrued liabilities as of December 31, 2019.
- (2) Debt, including scheduled interest, includes our non-recourse indebtedness of \$5.29 billion. Non-recourse debt refers to debt that is recourse to only assets of our subsidiaries. Short-term scheduled interest payments and amortization of convertible senior note conversion features, debt discounts and deferred financing costs for the year ended December 31, 2020 is \$375 million. Long-term scheduled interest payments and amortization of convertible senior note conversion features, debt discounts and deferred financing costs for the years thereafter is \$1.86 billion.

The table above excludes unrecognized tax benefits of \$247 million because if recognized, they would be an adjustment to our deferred tax assets.

We offer resale value guarantees or similar buyback terms to certain customers who purchase and finance their vehicles through one of our specified commercial banking partners and certain leasing partners (refer to *Automotive Sales with Resale Value Guarantee or a Buyback Option* in Note 2, *Significant Accounting Policies*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K). The maximum amount we could be required to pay under these programs, should customers exercise their resale value guarantees or buyback options, would be \$1.70 billion over the next five years, of which \$226 million is within a 12-month period from December 31, 2019. We have not included this in the table above as it is unknown how many customers will exercise their options. Additionally, we plan to resell any vehicles which are returned to us and therefore, the actual exposure to us is deemed to be limited.

Off-Balance Sheet Arrangements

During the periods presented, we did not have relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which were established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Recent Accounting Pronouncements

See Note 2, *Summary of Significant Accounting Policies*, to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Foreign Currency Risk

We transact business globally in multiple currencies and hence have foreign currency risks related to our revenue, costs of revenue and operating expenses denominated in currencies other than the U.S. dollar (primarily the euro, Japanese yen, Canadian dollar, Chinese yuan and Norwegian krone). In general, we are a net receiver of currencies other than the U.S. dollar for our foreign subsidiaries. Accordingly, changes in exchange rates and, in particular, a strengthening of the U.S. dollar have in the past, and may in the future, negatively affect our revenue and other operating results as expressed in U.S. dollars as we do not typically hedge foreign currency.

We have also experienced, and will continue to experience, fluctuations in our net income (loss) as a result of gains (losses) on the settlement and the re-measurement of monetary assets and liabilities denominated in currencies that are not the local currency (primarily consisting of our intercompany and cash and cash equivalents balances). For the year ended December 31, 2019, we recognized a net foreign currency gain of \$48 million in other (expense) income, net, with our largest re-measurement exposures from the U.S. dollar, British pound and Canadian dollar as our subsidiaries are denominated in various local currencies. For the year ended December 31, 2018, we recognized a net foreign currency gain of \$2 million in other (expense) income, net, with our largest re-measurement exposures from the euro, New Taiwan dollar and Canadian dollar.

We considered the historical trends in foreign currency exchange rates and determined that it is reasonably possible that adverse changes in foreign currency exchange rates of 10% for all currencies could be experienced in the near-term. These changes were applied to our total monetary assets and liabilities denominated in currencies other than our local currencies at the balance sheet date to compute the impact these changes would have had on our net income (loss) before income taxes. These changes would have resulted in an adverse impact of \$362 million at December 31, 2019 and \$176 million at December 31, 2018 assuming no foreign currency hedging.

Interest Rate Risk

We are exposed to interest rate risk on our borrowings that bear interest at floating rates. Pursuant to our risk management policies, in certain cases, we utilize derivative instruments to manage some of this risk. We do not enter into derivative instruments for trading or speculative purposes. A hypothetical 10% change in our interest rates would have increased or decreased our interest expense for the years ended December 31, 2019 and 2018 by \$8 million and \$9 million, respectively.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Tesla, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Tesla, Inc. and its subsidiaries (the “Company”) as of December 31, 2019 and 2018, and the related consolidated statements of operations, of comprehensive loss, of redeemable noncontrolling interests and equity and of cash flows for each of the three years in the period ended December 31, 2019, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company’s internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control—Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control—Integrated Framework* (2013) issued by the COSO.

Changes in Accounting Principles

As discussed in Note 2 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019 and the manner in which it accounts for revenue from contracts with customers in 2018.

Basis for Opinions

The Company’s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management’s Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company’s consolidated financial statements and on the Company’s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Automotive Sales To Customers With a Resale Value Guarantee or Buyback Option

As described in Note 2 to the consolidated financial statements, the sales return reserve related to resale value guarantees or buyback options was \$639 million as of December 31, 2019, of which \$93 million was short-term. The Company offers some customers resale value guarantees or buyback options. Under these programs, the Company receives full payment for the vehicle sales price at the time of delivery and the customer has the option of selling their vehicle back to the Company during the guarantee period for a pre-determined resale value. In circumstances where management does not believe the customer has a significant economic incentive to exercise the resale value guarantee or buyback option provided to them, the Company recognizes revenue when control transfers upon delivery to a customer as a sale with a right of return. In circumstances where management believes the customer has a significant economic incentive to exercise the resale value guarantee or buyback option, the Company recognizes the transaction as an operating lease. Management's determination of whether there is a significant economic incentive includes comparing and considering a vehicle's estimated market value at the time the option is exercisable with the guaranteed resale value. Sales return reserves are estimated based on historical experience plus estimates of expected future market values. On a quarterly basis, management reassesses the estimated future market values of vehicles under these programs, taking into account price adjustments on new vehicles and other changes in market value subsequent to the initial sale to determine the need for changes to the reserve.

The principal considerations for our determination that performing procedures relating to automotive sales to customers with a resale value guarantee or buyback option is a critical audit matter are there was significant judgment by management in determining the sales return reserve when customers do not have a significant economic incentive to exercise their option. This in turn led to high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating evidence in the sales return reserve when customers do not have a significant economic incentive.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to automotive revenue recognition for sales to customers with a resale value guarantee or buyback option as well as the related sales return reserve, including controls over management's estimate of expected future market values and historical experience. These procedures also included, among others, testing management's process for determining whether customers have a significant economic incentive to exercise their put rights under the resale value guarantee and buyback option programs and, if not, the related sales return reserve. This included evaluating the appropriateness of the model applied and the reasonableness of significant assumptions, including historical experience and the estimated expected future market values used in the comparison to guaranteed resale amounts. Evaluating assumptions related to historical experience and estimated expected future market values involved evaluating whether the assumptions used were reasonable considering current and past performance and consistency with evidence obtained in other areas of the audit. Procedures were performed to evaluate the reliability, completeness and relevance of management's data used in the development of the historical experience assumption.

Automotive Warranty Reserve

As described in Note 2 to the consolidated financial statements, total accrued warranty, which primarily relates to the automotive segment, was \$1,089 million as of December 31, 2019. The Company provides a manufacturer's warranty on all new and used Tesla vehicles. As described in Note 2, a warranty reserve is accrued for these products sold, which includes management's best estimate of the projected costs to repair or replace items under warranty, including recalls when identified. These estimates are based on actual claims incurred to date and an estimate of the nature, frequency and costs of future claims.

The principal considerations for our determination that performing procedures relating to the automotive warranty reserve is a critical audit matter are there was significant judgment by management in determining the warranty reserve. This in turn led to significant auditor judgment, subjectivity, and effort in performing procedures to evaluate the estimate of the nature, frequency and costs of future claims, and the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's estimate of the automotive warranty reserve, including controls over management's estimate of the nature, frequency and costs of future claims as well as the completeness and accuracy of actual claims incurred to date. These procedures also included, among others, testing management's process for determining the automotive warranty reserve. This included evaluating the appropriateness of the model applied and the reasonableness of significant assumptions, including the nature and frequency of future claims and the related costs to repair or replace items under warranty. Evaluating the assumptions related to the nature and frequency of future claims and the related costs to repair or replace items under warranty involved evaluating whether the assumptions used were reasonable considering current and past performance, including a lookback analysis comparing prior period forecasted claims to actual claims incurred. These procedures also included developing an independent estimate of a portion of the warranty accrual, comparing the independent estimate to management's estimate to evaluate the reasonableness of the estimate, and testing the completeness and accuracy of historical vehicle claims. Procedures were performed to test the reliability, completeness, and relevance of management's data related to the historical claims processed and that such claims were appropriately used by management in the estimation of future claims. Professionals with specialized skill and knowledge were used to assist in evaluating the appropriateness of aspects of management's model for estimating the nature and frequency of future claims, and testing management's warranty reserve for a portion of future warranty claims.

/s/PricewaterhouseCoopers LLP

San Jose, California
February 13, 2020

We have served as the Company's auditor since 2005.

Tesla, Inc.
Consolidated Balance Sheets
(in millions, except per share data)

	December 31, 2019	December 31, 2018
Assets		
Current assets		
Cash and cash equivalents	\$ 6,268	\$ 3,686
Restricted cash	246	193
Accounts receivable, net	1,324	949
Inventory	3,552	3,113
Prepaid expenses and other current assets	713	366
Total current assets	12,103	8,307
Operating lease vehicles, net	2,447	2,090
Solar energy systems, net	6,138	6,271
Property, plant and equipment, net	10,396	11,330
Operating lease right-of-use assets	1,218	—
Intangible assets, net	339	282
Goodwill	198	68
MyPower customer notes receivable, net of current portion	393	422
Restricted cash, net of current portion	269	398
Other assets	808	572
Total assets	\$ 34,309	\$ 29,740
Liabilities		
Current liabilities		
Accounts payable	\$ 3,771	\$ 3,405
Accrued liabilities and other	2,905	2,094
Deferred revenue	1,163	630
Resale value guarantees	317	503
Customer deposits	726	793
Current portion of debt and finance leases	1,785	2,568
Total current liabilities	10,667	9,993
Debt and finance leases, net of current portion	11,634	9,404
Deferred revenue, net of current portion	1,207	991
Resale value guarantees, net of current portion	36	329
Other long-term liabilities	2,655	2,710
Total liabilities	26,199	23,427
Commitments and contingencies (Note 16)		
Redeemable noncontrolling interests in subsidiaries	643	556
Equity		
Stockholders' equity		
Preferred stock; \$0.001 par value; 100 shares authorized; no shares issued and outstanding	—	—
Common stock; \$0.001 par value; 2,000 shares authorized; 181 and 173 shares issued and outstanding as of December 31, 2019 and 2018, respectively	0	0
Additional paid-in capital	12,737	10,249
Accumulated other comprehensive loss	(36)	(8)
Accumulated deficit	(6,083)	(5,318)
Total stockholders' equity	6,618	4,923
Noncontrolling interests in subsidiaries	849	834
Total liabilities and equity	\$ 34,309	\$ 29,740

The accompanying notes are an integral part of these consolidated financial statements.

Tesla, Inc.
Consolidated Statements of Operations
(in millions, except per share data)

	Year Ended December 31,		
	2019	2018	2017
Revenues			
Automotive sales	\$ 19,952	\$ 17,632	\$ 8,535
Automotive leasing	869	883	1,107
Total automotive revenues	20,821	18,515	9,642
Energy generation and storage	1,531	1,555	1,116
Services and other	2,226	1,391	1,001
Total revenues	24,578	21,461	11,759
Cost of revenues			
Automotive sales	15,939	13,686	6,725
Automotive leasing	459	488	708
Total automotive cost of revenues	16,398	14,174	7,433
Energy generation and storage	1,341	1,365	874
Services and other	2,770	1,880	1,229
Total cost of revenues	20,509	17,419	9,536
Gross profit	4,069	4,042	2,223
Operating expenses			
Research and development	1,343	1,460	1,378
Selling, general and administrative	2,646	2,835	2,477
Restructuring and other	149	135	—
Total operating expenses	4,138	4,430	3,855
Loss from operations	(69)	(388)	(1,632)
Interest income	44	24	19
Interest expense	(685)	(663)	(471)
Other income (expense), net	45	22	(125)
Loss before income taxes	(665)	(1,005)	(2,209)
Provision for income taxes	110	58	32
Net loss	(775)	(1,063)	(2,241)
Net income (loss) attributable to noncontrolling interests and redeemable noncontrolling interests in subsidiaries	87	(87)	(279)
Net loss attributable to common stockholders	<u>\$ (862)</u>	<u>\$ (976)</u>	<u>\$ (1,962)</u>
Net loss per share of common stock attributable to common stockholders			
Basic	(4.92)	\$ (5.72)	\$ (11.83)
Diluted	(4.92)	\$ (5.72)	\$ (11.83)
Weighted average shares used in computing net loss per share of common stock			
Basic	177	171	166
Diluted	177	171	166

The accompanying notes are an integral part of these consolidated financial statements.

Tesla, Inc.
Consolidated Statements of Comprehensive Loss
(in millions)

	Year Ended December 31,		
	2019	2018	2017
Net loss	\$ (775)	\$ (1,063)	\$ (2,241)
Other comprehensive loss:			
Reclassification adjustment for net gains on derivatives into net loss	—	—	(6)
Foreign currency translation adjustment	(28)	(42)	63
Comprehensive loss	(803)	(1,105)	(2,184)
Less: Comprehensive income (loss) attributable to noncontrolling interests and redeemable noncontrolling interests in subsidiaries	87	(87)	(279)
Comprehensive loss attributable to common stockholders	<u>\$ (890)</u>	<u>\$ (1,018)</u>	<u>\$ (1,905)</u>

The accompanying notes are an integral part of these consolidated financial statements.

Tesla, Inc.

Consolidated Statements of Redeemable Noncontrolling Interests and Equity
(in millions, except per share data)

	Redeemable Noncontrolling Interests	Common Stock		Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity	Noncontrolling Interests in Subsidiaries	Total Equity
		Shares	Amount						
Balance as of December 31, 2016	\$ 367	162	\$ 0	\$ 7,774	\$ (2,997)	\$ (24)	\$ 4,753	\$ 785	\$ 5,538
Adjustment of prior periods due to adoption of Accounting Standards Update No. 2016-09	—	—	—	15	(15)	—	—	—	—
Conversion feature of Convertible Senior Notes due in 2022	—	—	—	146	—	—	146	—	146
Purchases of convertible note hedges	—	—	—	(204)	—	—	(204)	—	(204)
Sales of warrants	—	—	—	53	—	—	53	—	53
Exercises of conversion feature of convertible senior notes	—	1	0	230	—	—	230	—	230
Issuance of common stock for equity incentive awards and acquisitions, net of transaction costs	—	4	0	269	—	—	269	—	269
Issuance of common stock in March 2017 public offering at \$262.00 per share, net of issuance costs of \$3	—	2	0	400	—	—	400	—	400
Stock-based compensation	—	—	—	485	—	—	485	—	485
Contributions from noncontrolling interests	193	—	—	—	—	—	—	597	597
Distributions to noncontrolling interests	(101)	—	—	—	—	—	—	(164)	(164)
Other	(3)	—	—	10	—	—	10	—	10
Net loss	(58)	—	—	—	(1,962)	—	(1,962)	(221)	(2,183)
Other comprehensive income	—	—	—	—	—	57	57	—	57
Balance as of December 31, 2017	\$ 398	169	\$ 0	\$ 9,178	\$ (4,974)	\$ 33	\$ 4,237	\$ 997	\$ 5,234
Adjustments for prior periods from adopting ASC 606	8	—	—	—	623	—	623	(89)	534
Adjustments for prior periods from adopting Accounting Standards Update No. 2017-05	—	—	—	—	9	—	9	—	9
Issuance of common stock for equity incentive awards	—	4	0	296	—	—	296	—	296
Stock-based compensation	—	—	—	775	—	—	775	—	775
Contributions from noncontrolling interests	276	—	—	—	—	—	—	161	161
Distributions to noncontrolling interests	(61)	—	—	—	—	—	—	(210)	(210)
Other	(3)	—	—	—	—	—	—	—	—
Net loss	(62)	—	—	—	(976)	—	(976)	(25)	(1,001)
Other comprehensive loss	—	—	—	—	—	(41)	(41)	—	(41)
Balance as of December 31, 2018	\$ 556	173	\$ 0	\$ 10,249	\$ (5,318)	\$ (8)	\$ 4,923	\$ 834	\$ 5,757
Adjustments for prior periods from adopting ASC 842	—	—	—	—	97	—	97	—	97
Conversion feature of Convertible Senior Notes due in 2024	—	—	—	491	—	—	491	—	491
Purchase of convertible note hedges	—	—	—	(476)	—	—	(476)	—	(476)
Sales of warrants	—	—	—	174	—	—	174	—	174
Issuance of common stock for equity incentive awards and acquisitions, net of transaction costs	—	5	0	482	—	—	482	—	482
Issuance of common stock in May 2019 public offering at \$243.00 per share, net of issuance costs of \$15	—	3	0	848	—	—	848	—	848
Stock-based compensation	—	—	—	973	—	—	973	—	973
Contributions from noncontrolling interests	105	—	—	—	—	—	—	174	174
Distributions to noncontrolling interests	(65)	—	—	—	—	—	—	(198)	(198)
Other	(1)	—	—	(4)	—	—	(4)	—	(4)
Net income (loss)	48	—	—	—	(862)	—	(862)	39	(823)
Other comprehensive loss	—	—	—	—	—	(28)	(28)	—	(28)
Balance as of December 31, 2019	\$ 643	181	\$ 0	\$ 12,737	\$ (6,083)	\$ (36)	\$ 6,618	\$ 849	\$ 7,467

The accompanying notes are an integral part of these consolidated financial statements.

Tesla, Inc.
Consolidated Statements of Cash Flows
(in millions)

	Year Ended December 31,		
	2019	2018	2017
Cash Flows from Operating Activities			
Net loss	\$ (775)	\$ (1,063)	\$ (2,241)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Depreciation, amortization and impairment	2,154	1,901	1,636
Stock-based compensation	898	749	467
Amortization of debt discounts and issuance costs	188	159	91
Inventory and purchase commitments write-downs	193	85	132
Loss on disposals of fixed assets	146	162	106
Foreign currency transaction (gains) loss	(48)	(2)	52
Loss related to SolarCity acquisition	—	—	58
Non-cash interest and other operating activities	186	49	135
Operating cash flow related to repayment of discounted convertible notes	(188)	—	—
Changes in operating assets and liabilities, net of effect of business combinations:			
Accounts receivable	(367)	(497)	(25)
Inventory	(429)	(1,023)	(179)
Operating lease vehicles	(764)	(215)	(1,523)
Prepaid expenses and other current assets	(288)	(82)	(72)
Other non-current assets	115	(207)	(15)
Accounts payable and accrued liabilities	682	1,723	388
Deferred revenue	801	406	469
Customer deposits	(58)	(96)	170
Resale value guarantee	(150)	(111)	209
Other long-term liabilities	109	160	81
Net cash provided by (used in) operating activities	2,405	2,098	(61)
Cash Flows from Investing Activities			
Purchases of property and equipment excluding finance leases, net of sales	(1,327)	(2,101)	(3,415)
Purchases of solar energy systems	(105)	(218)	(666)
Purchase of intangible assets	(5)	—	—
Receipt of government grants	46	—	—
Business combinations, net of cash acquired	(45)	(18)	(115)
Net cash used in investing activities	(1,436)	(2,337)	(4,196)
Cash Flows from Financing Activities			
Proceeds from issuances of common stock in public offerings, net of underwriting discounts	848	—	400
Proceeds from issuances of convertible and other debt	10,669	6,176	7,138
Repayments of convertible and other debt	(9,161)	(5,247)	(3,996)
Repayments of borrowings issued to related parties	—	(100)	(165)
Collateralized lease repayments	(389)	(559)	511
Proceeds from exercises of stock options and other stock issuances	263	296	259
Principal payments on finance leases	(321)	(181)	(103)
Common stock and debt issuance costs	(37)	(15)	(63)
Purchase of convertible note hedges	(476)	—	(204)
Proceeds from settlement of convertible note hedges	—	—	287
Proceeds from issuance of warrants	174	—	53
Payments for settlements of warrants	—	—	(230)
Proceeds from investments by noncontrolling interests in subsidiaries	279	437	790
Distributions paid to noncontrolling interests in subsidiaries	(311)	(227)	(262)
Payments for buy-outs of noncontrolling interests in subsidiaries	(9)	(6)	—
Net cash provided by financing activities	1,529	574	4,415
Effect of exchange rate changes on cash and cash equivalents and restricted cash	8	(23)	40
Net increase in cash and cash equivalents and restricted cash	2,506	312	198
Cash and cash equivalents and restricted cash, beginning of period	4,277	3,965	3,767
Cash and cash equivalents and restricted cash, end of period	\$ 6,783	\$ 4,277	\$ 3,965
Supplemental Non-Cash Investing and Financing Activities			
Equity issued in connection with business combination	\$ 207	\$ —	\$ —
Acquisitions of property and equipment included in liabilities	\$ 562	\$ 249	\$ 914
Estimated fair value of facilities under build-to-suit leases	\$ —	\$ 94	\$ 313
Supplemental Disclosures			
Cash paid during the period for interest, net of amounts capitalized	\$ 455	\$ 381	\$ 183
Cash paid during the period for taxes, net of refunds	\$ 54	\$ 35	\$ 66

The accompanying notes are an integral part of these consolidated financial statements.

Tesla, Inc.
Notes to Consolidated Financial Statements

Note 1 – Overview

Tesla, Inc. (“Tesla”, the “Company”, “we”, “us” or “our”) was incorporated in the State of Delaware on July 1, 2003. We design, develop, manufacture and sell high-performance fully electric vehicles and design, manufacture, install and sell solar energy generation and energy storage products. Our Chief Executive Officer, as the chief operating decision maker (“CODM”), organizes the Company, manages resource allocations and measures performance among two operating and reportable segments: (i) automotive and (ii) energy generation and storage.

Note 2 – Summary of Significant Accounting Policies

Principles of Consolidation

The accompanying consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles (“GAAP”) and reflect our accounts and operations and those of our subsidiaries in which we have a controlling financial interest. In accordance with the provisions of Accounting Standards Codification (“ASC”) 810, *Consolidation*, we consolidate any variable interest entity (“VIE”) of which we are the primary beneficiary. We form VIEs with financing fund investors in the ordinary course of business in order to facilitate the funding and monetization of certain attributes associated with solar energy systems and leases under our direct vehicle leasing programs. The typical condition for a controlling financial interest ownership is holding a majority of the voting interests of an entity; however, a controlling financial interest may also exist in entities, such as VIEs, through arrangements that do not involve controlling voting interests. ASC 810 requires a variable interest holder to consolidate a VIE if that party has the power to direct the activities of the VIE that most significantly impact the VIE’s economic performance and the obligation to absorb losses of the VIE that could potentially be significant to the VIE or the right to receive benefits from the VIE that could potentially be significant to the VIE. We do not consolidate a VIE in which we have a majority ownership interest when we are not considered the primary beneficiary. We have determined that we are the primary beneficiary of all the VIEs (see Note 17, *Variable Interest Entity Arrangements*). We evaluate our relationships with all the VIEs on an ongoing basis to ensure that we continue to be the primary beneficiary. All intercompany transactions and balances have been eliminated upon consolidation.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities and disclosures in the accompanying notes. Estimates are used for, but not limited to, determining the transaction price of products and services in arrangements with multiple performance obligations and determining the amortization period of these obligations, significant economic incentive for residual value guarantee arrangements, sales return reserves, the collectability of accounts receivable, inventory valuation, fair value of long-lived assets, goodwill, fair value of financial instruments, residual value of operating lease vehicles, depreciable lives of property and equipment and solar energy systems, fair value and residual value of solar energy systems subject to leases, warranty liabilities, income taxes, contingencies, determining lease pass-through financing obligations, the valuation of build-to-suit lease assets, fair value of interest rate swaps and inputs used to value stock-based compensation. In addition, estimates and assumptions are used for the accounting for business combinations, including the fair values and useful lives of acquired assets, assumed liabilities and noncontrolling interests. Management bases its estimates on historical experience and on various other assumptions believed to be reasonable, the results of which form the basis for making judgments about the carrying values of assets and liabilities. Actual results could differ from those estimates.

Revenue Recognition

Adoption of new accounting standards

ASU 2014-09, *Revenue - Revenue from Contracts with Customers*. On January 1, 2018, we adopted the new accounting standard ASC 606, *Revenue from Contracts with Customers* and all the related amendments ("new revenue standard") using the modified retrospective method. As a policy election, the new revenue standard was applied only to contracts that were not substantially completed as of the date of adoption. We recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the January 1, 2018 opening balance of accumulated deficit. The prior period consolidated financial statements have not been retrospectively adjusted and continue to be reported under the accounting standards in effect for those periods.

A majority of our automotive sales revenue is recognized when control transfers upon delivery to customers. For certain vehicle sales where revenue was previously deferred as an in-substance operating lease, such as certain vehicle sales to customers or leasing partners with a resale value guarantee, we recognize revenue when the vehicles are delivered as a sale with a right of return. As a result, the corresponding operating lease asset, deferred revenue, and resale value guarantee balances as of December 31, 2017, were reclassified to accumulated deficit as part of our adoption entry. Furthermore, the warranty liability related to such vehicles has been accrued as a result of the change from in-substance operating leases to vehicle sales. Prepayments on contracts that can be cancelled without significant penalties, such as vehicle maintenance plans, have been reclassified from deferred revenue to customer deposits. Refer to the *Automotive Sales Revenue* and *Automotive Leasing Revenue* sections below for further discussion of the impact on various categories of vehicle sales.

Automotive Segment

Automotive Sales Revenue

Automotive Sales without Resale Value Guarantee

Automotive sales revenue includes revenues related to deliveries of new vehicles and pay-per-use charges, and specific other features and services that meet the definition of a performance obligation under the new revenue standard, including access to our Supercharger network, internet connectivity, Autopilot, Full Self-Driving ("FSD") features and over-the-air software updates. We recognize revenue on automotive sales upon delivery to the customer, which is when the control of a vehicle transfers. Payments are typically received at the point control transfers or in accordance with payment terms customary to the business. Other features and services such as access to our Supercharger network, internet connectivity and over-the-air software updates are provisioned upon control transfer of a vehicle and recognized over time on a straight-line basis as we have a stand-ready obligation to deliver such services to the customer. We recognize revenue related to these other features and services over the performance period, which is generally the expected ownership life of the vehicle or the eight-year life of the vehicle. Revenue related to Autopilot and FSD features is recognized when functionality is delivered to the customer. For our obligations related to automotive sales, we estimate standalone selling price by considering costs used to develop and deliver the service, third-party pricing of similar options and other information that may be available.

At the time of revenue recognition, we reduce the transaction price and record a sales return reserve against revenue for estimated variable consideration related to future product returns. Such estimates are based on historical experience and are immaterial in all periods presented. In addition, any fees that are paid or payable by us to a customer's lender when we arrange the financing are recognized as an offset against automotive sales revenue.

Costs to obtain a contract mainly relate to commissions paid to our sales personnel for the sale of vehicles. Commissions are not paid on other obligations such as access to our Supercharger network, internet connectivity, Autopilot, FSD features and over-the-air software updates. As our contract costs related to automotive sales are typically fulfilled within one year, the costs to obtain a contract are expensed as incurred. Amounts billed to customers related to shipping and handling are classified as automotive revenue, and we have elected to recognize the cost for freight and shipping when control over vehicles, parts, or accessories have transferred to the customer as an expense in cost of revenues. Our policy is to exclude taxes collected from a customer from the transaction price of automotive contracts.

Automotive Sales with Resale Value Guarantee or a Buyback Option

We offer resale value guarantees or similar buy-back terms to certain international customers who purchase vehicles and who finance their vehicles through one of our specified commercial banking partners. We also offer resale value guarantees in connection with automotive sales to certain leasing partners. Under these programs, we receive full payment for the vehicle sales price at the time of delivery and our counterparty has the option of selling their vehicle back to us during the guarantee period, which currently is generally at the end of the term of the applicable loan or financing program, for a pre-determined resale value.

With the exception of two programs which are discussed within the *Automotive Leasing* section, we recognize revenue when control transfers upon delivery to customers in accordance with the new revenue standard as a sale with a right of return as we do not believe the customer has a significant economic incentive to exercise the resale value guarantee provided to them. The process to determine whether there is a significant economic incentive includes a comparison of a vehicle's estimated market value at the time the option is exercisable with the guaranteed resale value to determine the customer's economic incentive to exercise. The performance obligations and the pattern of recognizing automotive sales with resale value guarantees are consistent with automotive sales without resale value guarantees with the exception of our estimate for sales return reserve. Sales return reserves for automotive sales with resale value guarantees are estimated based on historical experience plus consideration for expected future market values. On a quarterly basis, we assess the estimated market values of vehicles under our buyback options program to determine whether there have been changes to the likelihood of future product returns. As we accumulate more data related to the buyback values of our vehicles or as market conditions change, there may be material changes to their estimated values. Due to price adjustments we made to our vehicle offerings during 2019, we estimated that there is a greater likelihood that customers will exercise their buyback options that were provided prior to such adjustments. As a result, along with the estimated variable consideration related to normal future product returns for vehicles sold under the buyback options program, we adjusted our sales return reserve on vehicles previously sold under our buyback options program resulting in a reduction of automotive sales revenues of \$555 million for the year ended December 31, 2019. If customers elect to exercise the buyback option, we expect to be able to subsequently resell the returned vehicles, which resulted in a corresponding reduction in cost of automotive sales of \$451 million for the year ended December 31, 2019. The net impact was \$104 million reduction in gross profit for the year ended December 31, 2019. The total sales return reserve on vehicles previously sold under our buyback options program was \$639 million as of December 31, 2019, of which \$93 million was short term. The two programs that are still being recorded as operating leases are discussed in further detail below in *Vehicle Sales to Leasing Partners with a Resale Value Guarantee and a Buyback Option* and *Vehicle Sales to Customers with a Resale Value Guarantee where Exercise is Probable*.

Prior to the adoption of the new revenue standard, all transactions with resale value guarantees were recorded as operating leases. The amount of sale proceeds equal to the resale value guarantee was deferred until the guarantee expired or was exercised. For certain transactions that were considered interest bearing collateralized borrowings as required under ASC 840, *Leases* prior to January 1, 2019, we also accrued interest expense based on our borrowing rate. The remaining sale proceeds were deferred and recognized on a straight-line basis over the stated guarantee period to automotive leasing revenue. The guarantee period expired at the earlier of the end of the guarantee period or the pay-off of the initial loan. We capitalized the cost of these vehicles on the consolidated balance sheet as operating lease vehicles, net, and depreciated their value, less estimated residual value, to cost of automotive leasing revenue over the same period.

In cases where our counterparty retained ownership of the vehicle at the end of the guarantee period, the resale value guarantee liability and any remaining deferred revenue balances related to the vehicle were settled to automotive leasing revenue, and the net book value of the leased vehicle was expensed to cost of automotive leasing revenue. If our counterparty returned the vehicle to us during the guarantee period, we purchased the vehicle from our counterparty in an amount equal to the resale value guarantee and settled any remaining deferred balances to automotive leasing revenue, and we reclassified the net book value of the vehicle on the consolidated balance sheet to used vehicle inventory.

Deferred revenue activity related to the access to our Supercharger network, internet connectivity, Autopilot, FSD features and over-the-air software updates on automotive sales with and without resale value guarantee consisted of the following (in millions):

	Year ended December 31,	
	2019	2018
Deferred revenue on automotive sales with and without resale value guarantee— beginning of period	\$ 883	\$ 476
Additions	880	532
Net changes in liability for pre-existing contracts	9	(13)
Revenue recognized	(300)	(112)
Deferred revenue on automotive sales with and without resale value guarantee— end of period	\$ 1,472	\$ 883

Deferred revenue is equivalent to the total transaction price allocated to the performance obligations that are unsatisfied, or partially unsatisfied, as of December 31, 2019. From the deferred revenue balance as of December 31, 2018, revenue recognized during the year ended December 31, 2019 was \$220 million. From the deferred revenue balance as of January 1, 2018, revenue recognized during the year ended December 31, 2018 was \$81 million. Of the total deferred revenue on automotive sales with and without resale value guarantees as of December 31, 2019, we expect to recognize \$751 million of revenue in the next 12 months. The remaining balance will be recognized over the performance period as discussed above in *Automotive Sales without Resale Value Guarantee*.

Automotive Regulatory Credits

In connection with the production and delivery of our zero emission vehicles in global markets, we have earned and will continue to earn various tradable automotive regulatory credits. We have sold these credits, and will continue to sell future credits, to automotive companies and other regulated entities who can use the credits to comply with emission standards and other regulatory requirements. For example, under California's Zero Emission Vehicle Regulation and those of states that have adopted California's standard, vehicle manufacturers are required to earn or purchase credits, referred to as ZEV credits, for compliance with their annual regulatory requirements. These laws provide that automakers may bank or sell to other regulated parties their excess credits if they earn more credits than the minimum quantity required by those laws. We also earn other types of saleable regulatory credits in the United States and abroad, including greenhouse gas, fuel economy and clean fuels credits. Payments for regulatory credits are typically received at the point control transfers to the customer, or in accordance with payment terms customary to the business.

We recognize revenue on the sale of automotive regulatory credits at the time control of the regulatory credits is transferred to the purchasing party as automotive revenue in the consolidated statements of operations. Revenue from the sale of automotive regulatory credits totaled \$594 million, \$419 million and \$360 million for the years ended December 31, 2019, 2018 and 2017, respectively. Deferred revenue related to sales of automotive regulatory credits was \$140 million and \$0 as of December 31, 2019 and 2018, respectively. We expect to recognize the deferred revenue as of December 31, 2019 in the next 12 months.

Automotive Leasing Revenue

Automotive leasing revenue includes revenue recognized under lease accounting guidance for our direct leasing programs as well as the two programs with resale value guarantees which continue to qualify for operating lease treatment. Prior to the adoption of the new revenue standard, all programs with resale value guarantees were accounted for as operating leases.

Direct Vehicle Leasing Program

We have outstanding leases under our direct vehicle leasing programs in the U.S., Canada and in certain countries in Europe. As of December 31, 2019, the direct vehicle leasing program is offered for all new Model S, Model X and Model 3 vehicles in the U.S. and for new Model S and Model X vehicles in Canada. Qualifying customers are permitted to lease a vehicle directly from Tesla for up to 48 months. At the end of the lease term, customers are required to return the vehicles to us or for Model S and Model X leases, may opt to purchase the vehicles for a pre-determined residual value. We account for these leasing transactions as operating leases. We record leasing revenues to automotive leasing revenue on a straight-line basis over the contractual term, and we record the depreciation of these vehicles to cost of automotive leasing revenue. For the years ended December 31, 2019, 2018 and 2017, we recognized \$532 million, \$393 million and \$221 million of direct vehicle leasing revenue, respectively. As of December 31, 2019 and 2018, we had deferred \$218 million and \$110 million, respectively, of lease-related upfront payments, which will be recognized on a straight-line basis over the contractual terms of the individual leases.

We capitalize shipping costs and initial direct costs such as the incremental cost of referral fees and sales commissions from the origination of automotive lease agreements as an element of operating lease vehicles, net, and subsequently amortize these costs over the term of the related lease agreement. Our policy is to exclude taxes collected from a customer from the transaction price of automotive contracts. Total capitalized costs were immaterial as of December 31, 2019 and 2018.

Vehicle Sales to Leasing Partners with a Resale Value Guarantee and a Buyback Option

We offer buyback options in connection with automotive sales with resale value guarantees with certain leasing partner sales in the United States. These transactions entail a transfer of leases, which we have originated with an end-customer, to our leasing partner. As control of the vehicles has not been transferred in accordance with the new revenue standard, these transactions were accounted for as interest bearing collateralized borrowings in accordance with ASC 840, *Leases*, prior to January 1, 2019. Under this program, cash is received for the full price of the vehicle and the collateralized borrowing value is generally recorded within resale value guarantees and the customer upfront down payment is recorded within deferred revenue. We amortize the deferred revenue amount to automotive leasing revenue on a straight-line basis over the option period and accrue interest expense based on our borrowing rate. The option period expires at the earlier of the end of the contractual option period or the pay-off of the initial loan. We capitalize vehicles under this program to operating lease vehicles, net, on the consolidated balance sheets, and we record depreciation from these vehicles to cost of automotive leasing revenue during the period the vehicle is under a lease arrangement. Cash received for these vehicles, net of revenue recognized during the period, is classified as collateralized lease (repayments) borrowings within cash flows from financing activities in the consolidated statements of cash flows. Following the adoption of ASC 842 on January 1, 2019, all new agreements under this program are accounted for as operating leases and there was no material change in the timing and amount of revenue recognized over the term. Consequently, any cash flows for new agreements are classified as operating cash activities on the consolidated statements of cash flows.

At the end of the lease term, we settle our liability in cash by either purchasing the vehicle from the leasing partner for the buyback option amount or paying a shortfall to the option amount the leasing partner may realize on the sale of the vehicle. Any remaining balances within deferred revenue and resale value guarantee will be settled to automotive leasing revenue. The end customers can extend the lease for a period of up to 6 months. In cases where the leasing partner retains ownership of the vehicle after the end of our option period, we expense the net value of the leased vehicle to cost of automotive leasing revenue. The maximum amount we could be required to pay under this program, should we decide to repurchase all vehicles, was \$214 million and \$480 million as of December 31, 2019 and 2018, respectively, including \$178 million within a 12-month period from December 31, 2019. As of December 31, 2019 and 2018, we had \$238 million and \$558 million, respectively, of such borrowings recorded in resale value guarantees and \$29 million and \$93 million, respectively, recorded in deferred revenue liability. For the year ended December 31, 2019 and 2018, we recognized \$186 million and \$332 million, respectively, of leasing revenue related to this program. The net carrying amount of operating lease vehicles under this program was \$190 million and \$469 million, respectively, as of December 31, 2019 and 2018.

Vehicle Sales to Customers with a Resale Value Guarantee where Exercise is Probable

For certain international programs where we have offered resale value guarantees to certain customers who purchased vehicles and where we expect the customer has a significant economic incentive to exercise the resale value guarantee provided to them, we continue to recognize these transactions as operating leases. The process to determine whether there is a significant economic incentive includes a comparison of a vehicle's estimated market value at the time the option is exercisable with the guaranteed resale value to determine the customer's economic incentive to exercise. We have not sold any vehicles under this program since the first half of 2017 and all current period activity relates to the exercise or cancellation of active transactions. The amount of sale proceeds equal to the resale value guarantee is deferred until the guarantee expires or is exercised. The remaining sale proceeds are deferred and recognized on a straight-line basis over the stated guarantee period to automotive leasing revenue. The guarantee period expires at the earlier of the end of the guarantee period or the pay-off of the initial loan. We capitalize the cost of these vehicles on the consolidated balance sheet as operating lease vehicles, net, and depreciate their value, less salvage value, to cost of automotive leasing revenue over the same period.

In cases where a customer retains ownership of a vehicle at the end of the guarantee period, the resale value guarantee liability and any remaining deferred revenue balances related to the vehicle are settled to automotive leasing revenue, and the net book value of the leased vehicle is expensed to cost of automotive leasing revenue. If a customer returns the vehicle to us during the guarantee period, we purchase the vehicle from the customer in an amount equal to the resale value guarantee and settle any remaining deferred balances to automotive leasing revenue, and we reclassify the net book value of the vehicle on the consolidated balance sheets to used vehicle inventory. As of December 31, 2019 and 2018, \$115 million and \$150 million, respectively, of the guarantees were exercisable by customers within the next 12 months. For the year ended December 31, 2019 and 2018, we recognized \$150 million and \$158 million, respectively, of leasing revenue related to this program. The net carrying amount of operating lease vehicles under this program was \$83 million and \$212 million, respectively, as of December 31, 2019 and 2018.

Services and Other Revenue

Services and other revenue consists of non-warranty after-sales vehicle services, sales of used vehicles, retail merchandise, sales by our acquired subsidiaries to third party customers, and vehicle insurance revenue. There were no significant changes to the timing or amount of revenue recognition as a result of our adoption of the new revenue standard.

Revenues related to repair and maintenance services are recognized over time as services are provided and extended service plans are recognized over the performance period of the service contract as the obligation represents a stand-ready obligation to the customer. We sell used vehicles, services, service plans, vehicle components and merchandise separately and thus use standalone selling prices as the basis for revenue allocation to the extent that these items are sold in transactions with other performance obligations. Payment for used vehicles, services, and merchandise are typically received at the point when control transfers to the customer or in accordance with payment terms customary to the business. Payments received for prepaid plans are refundable upon customer cancellation of the related contracts and are included within customer deposits on the consolidated balance sheet. Deferred revenue related to services and other revenue was immaterial as of December 31, 2019 and 2018.

Energy Generation and Storage Segment

Energy Generation and Storage Sales

Energy generation and storage sales revenue consists of the sale of solar energy systems and energy storage systems to residential, small commercial, and large commercial and utility grade customers. Upon adoption of the new lease standard (refer to *Leases* section below for details), energy generation and storage sales revenue includes agreements for solar energy systems and power purchase agreements (“PPAs”) that commence after January 1, 2019, as these are now accounted for under the new revenue standard. Sales of solar energy systems to residential and small scale commercial customers consist of the engineering, design, and installation of the system. Post installation, residential and small scale commercial customers receive a proprietary monitoring system that captures and displays historical energy generation data. Residential and small scale commercial customers pay the full purchase price of the solar energy system upfront. Revenue for the design and installation obligation is recognized when control transfers, which is when we install a solar energy system and the system passes inspection by the utility or the authority having jurisdiction. Revenue for the monitoring service is recognized ratably as a stand-ready obligation over the warranty period of the solar energy system. Sales of energy storage systems to residential and small scale commercial customers consist of the installation of the energy storage system and revenue is recognized when control transfers, which is when the product has been delivered or, if we are performing installation, when installed and commissioned. Payment for such storage systems is made upon invoice or in accordance with payment terms customary to the business.

For large commercial and utility grade solar energy system and energy storage system sales which consist of the engineering, design, and installation of the system, customers make milestone payments that are consistent with contract-specific phases of a project. Revenue from such contracts is recognized over time using the percentage of completion method based on cost incurred as a percentage of total estimated contract costs for energy storage system sales and as a percentage of total estimated labor hours for solar energy system sales. Certain large-scale commercial and utility grade solar energy system and energy storage system sales also include operations and maintenance service which are negotiated with the design and installation contracts and are thus considered to be a combined contract with the design and installation service. For certain large commercial and utility grade solar energy systems and energy storage systems where the percentage of completion method does not apply, revenue is recognized when control transfers, which is when the product has been delivered to the customer and commissioned for energy storage systems and when the project has received permission to operate from the utility for solar energy systems. Operations and maintenance service revenue is recognized ratably over the respective contract term for solar energy system sales and upon delivery of the service for energy storage system sales. Customer payments for such services are usually paid annually or quarterly in advance.

In instances where there are multiple performance obligations in a single contract, we allocate the consideration to the various obligations in the contract based on the relative standalone selling price method. Standalone selling prices are estimated based on estimated costs plus margin or using market data for comparable products. Costs incurred on the sale of residential installations before the solar energy systems are completed are included as work in process within inventory in the consolidated balance sheets. However, any fees that are paid or payable by us to a solar loan lender would be recognized as an offset against revenue. Costs to obtain a contract relate mainly to commissions paid to our sales personnel related to the sale of solar energy systems and energy storage systems. As our contract costs related to solar energy system and energy storage system sales are typically fulfilled within one year, the costs to obtain a contract are expensed as incurred.

As part of our solar energy system and energy storage system contracts, we may provide the customer with performance guarantees that warrant that the underlying system will meet or exceed the minimum energy generation or retention requirements specified in the contract. In certain instances, we may receive a bonus payment if the system performs above a specified level. Conversely, if a solar energy system or energy storage system does not meet the performance guarantee requirements, we may be required to pay liquidated damages. Other forms of variable consideration related to our large commercial and utility grade solar energy system and energy storage system contracts include variable customer payments that will be made based on our energy market participation activities. Such guarantees and variable customer payments represent a form of variable consideration and are estimated at contract inception at their most likely amount and updated at the end of each reporting period as additional performance data becomes available. Such estimates are included in the transaction price only to the extent that it is probable a significant reversal of revenue will not occur.

We record as deferred revenue any non-refundable amounts that are collected from customers related to fees charged for prepayments and remote monitoring service and operations and maintenance service, which is recognized as revenue ratably over the respective customer contract term. As of December 31, 2019 and 2018, deferred revenue related to such customer payments amounted to \$156 million and \$149 million, respectively. Revenue recognized from the deferred revenue balance as of December 31, 2018 was \$41 million for the year ended December 31, 2019. Revenue recognized from the deferred revenue balance as of January 1, 2018 was \$41 million for the year ended December 31, 2018. We have elected the practical expedient to omit disclosure of the amount of the transaction price allocated to remaining performance obligations for energy generation and storage sales with an original expected contract length of one year or less and the amount that we have the right to invoice when that amount corresponds directly with the value of the performance to date. As of December 31, 2019, total transaction price allocated to performance obligations that were unsatisfied or partially unsatisfied for contracts with an original expected length of more than one year was \$103 million. Of this amount, we expect to recognize \$5 million in the next 12 months and the remaining over a period up to 28 years.

Energy Generation and Storage Leasing

For revenue arrangements where we are the lessor under operating lease agreements for energy generation and storage products, we record lease revenue from minimum lease payments, including upfront rebates and incentives earned from such systems, on a straight-line basis over the life of the lease term, assuming all other revenue recognition criteria have been met. The difference between the payments received and the revenue recognized is recorded as deferred revenue on the consolidated balance sheet.

For solar energy systems where customers purchase electricity from us under PPAs prior to January 1, 2019, we have determined that these agreements should be accounted for as operating leases pursuant to ASC 840. Revenue is recognized based on the amount of electricity delivered at rates specified under the contracts, assuming all other revenue recognition criteria are met.

We record as deferred revenue any amounts that are collected from customers, including lease prepayments, in excess of revenue recognized and operations and maintenance service, which is recognized as revenue ratably over the respective customer contract term. As of December 31, 2019 and 2018, deferred revenue related to such customer payments amounted to \$226 million and \$225 million, respectively. Deferred revenue also includes the portion of rebates and incentives received from utility companies and various local and state government agencies, which is recognized as revenue over the lease term. As of December 31, 2019 and December 31, 2018, deferred revenue from rebates and incentives amounted to \$36 million and \$37 million, respectively.

We capitalize initial direct costs from the execution of agreements for solar energy systems and PPAs, which include the referral fees and sales commissions, as an element of solar energy systems, net, and subsequently amortize these costs over the term of the related agreements.

Revenue by source

The following table disaggregates our revenue by major source (in millions):

	Year Ended December 31,	
	2019	2018
Automotive sales without resale value guarantee	\$ 19,212	\$ 15,810
Automotive sales with resale value guarantee (1)	146	1,403
Automotive regulatory credits	594	419
Energy generation and storage sales (2)	1,000	1,056
Services and other	2,226	1,391
Total revenues from sales and services	23,178	20,079
Automotive leasing	869	883
Energy generation and storage leasing (2)	531	499
Total revenues	\$ 24,578	\$ 21,461

- (1) We made pricing adjustments to our vehicle offerings in 2019, which resulted in a reduction of automotive sales with resale value guarantee revenues. Refer to *Automotive Sales with Resale Value Guarantee* section above for details. The amount presented represents automotive sales with resale value guarantee in year ended December 31, 2019 net of such pricing adjustments impact.
- (2) Under ASC 842, *Leases*, solar energy systems sales and PPAs that commence after January 1, 2019, where we are the lessor and were previously accounted for as leases, no longer meet the definition of a lease and are instead accounted for in accordance with the new revenue standard (refer to the *Leases* section below for details).

Cost of Revenues

Automotive Segment

Automotive Sales

Cost of automotive sales revenue includes direct parts, material and labor costs, manufacturing overhead, including depreciation costs of tooling and machinery, shipping and logistic costs, vehicle connectivity costs, allocations of electricity and infrastructure costs related to our Supercharger network, and reserves for estimated warranty expenses. Cost of automotive sales revenues also includes adjustments to warranty expense and charges to write down the carrying value of our inventory when it exceeds its estimated net realizable value and to provide for obsolete and on-hand inventory in excess of forecasted demand.

Automotive Leasing

Cost of automotive leasing revenue includes primarily the amortization of operating lease vehicles over the lease term, as well as warranty expenses recognized as incurred. Cost of automotive leasing revenue also includes vehicle connectivity costs and allocations of electricity and infrastructure costs related to our Supercharger network for vehicles under our leasing programs.

Services and Other

Costs of services and other revenue includes costs associated with providing non-warranty after-sales services, costs to acquire and certify used vehicles, costs for retail merchandise, and costs to provide vehicle insurance. Cost of services and other revenue also includes direct parts, material and labor costs, manufacturing overhead associated with the sales by our acquired subsidiaries to third party customers.

Energy Generation and Storage Segment

Energy Generation and Storage

Energy generation and storage cost of revenue includes direct and indirect material and labor costs, warehouse rent, freight, warranty expense, other overhead costs and amortization of certain acquired intangible assets. In addition, where arrangements are accounted for as operating leases, the cost of revenue is primarily comprised of depreciation of the cost of leased solar energy systems, maintenance costs associated with those systems and amortization of any initial direct costs.

Leases

In February 2016, the FASB issued ASU No. 2016-02 ("ASC 842"), Leases, to require lessees to recognize all leases, with certain exceptions, on the balance sheet, while recognition on the statement of operations will remain similar to lease accounting under ASC 840. Subsequently, the FASB issued ASU No. 2018-10, Codification Improvements to Topic 842, Leases, ASU No. 2018-11, Targeted Improvements, ASU No. 2018-20, Narrow-Scope Improvements for Lessors, and ASU 2019-01, Codification Improvements, to clarify and amend the guidance in ASU No. 2016-02. ASC 842 eliminates real estate-specific provisions and modifies certain aspects of lessor accounting. We adopted ASC 842 as of January 1, 2019 using the cumulative effect adjustment approach ("adoption of the new lease standard"). In addition, we elected the package of practical expedients permitted under the transition guidance within the new standard, which allowed us to carry forward the historical determination of contracts as leases, lease classification and not reassess initial direct costs for historical lease arrangements. Accordingly, previously reported financial statements, including footnote disclosures, have not been recast to reflect the application of the new standard to all comparative periods presented. The finance lease classification under ASC 842 includes leases previously classified as capital leases under ASC 840.

Agreements for solar energy system leases and PPAs (solar leases) that commence after January 1, 2019, where we are the lessor and were previously accounted for as operating leases no longer meet the definition of a lease upon the adoption of ASC 842 and are instead accounted for in accordance with the revenue standard. Under these two types of arrangements, the customer is not responsible for the design of the energy system but rather approved the energy system benefits in terms of energy capacity and production to be received over the term. Accordingly, the revenue from solar leases commencing after January 1, 2019 are now recognized as earned, based on the amount of capacity provided or electricity delivered at the contractual billing rates, assuming all other revenue recognition criteria have been met. Under the practical expedient available under ASC 606-10-55-18, we recognize revenue based on the value of the service which is consistent with the billing amount.

We have lease agreements with lease and non-lease components, and have elected to utilize the practical expedient to account for lease and non-lease components together as a single combined lease component, from both a lessee and lessor perspective. From a lessor perspective, the timing and pattern of transfer are the same for the non-lease components and associated lease component and, the lease component, if accounted for separately, would be classified as an operating lease. Additionally, leases previously identified as build-to-suit leasing arrangements under legacy lease accounting (ASC 840), were derecognized pursuant to the transition guidance provided for build-to-suit leases in ASC 842. Accordingly, these leases have been reassessed as operating leases as of the adoption date under ASC 842, and are included on the consolidated balance sheet as of December 31, 2019.

Operating lease assets are included within operating lease right-of-use assets, and the corresponding operating lease liabilities are included within accrued liabilities and other for the current portion, and within other long-term liabilities for the long-term portion on our consolidated balance sheet as of December 31, 2019. Finance lease assets are included within property, plant and equipment, net, and the corresponding finance lease liabilities are included within current portion of long-term debt and finance leases for the current portion, and within long-term debt and finance leases, net of current portion for the long-term portion on our consolidated balance sheet as of December 31, 2019.

We have elected not to present short-term leases on the consolidated balance sheet as these leases have a lease term of 12 months or less at lease inception and do not contain purchase options or renewal terms that we are reasonably certain to exercise. All other lease assets and lease liabilities are recognized based on the present value of lease payments over the lease term at commencement date. Because most of our leases do not provide an implicit rate of return, we used our incremental borrowing rate based on the information available at adoption date in determining the present value of lease payments.

Adoption of the new lease standard on January 1, 2019 had a material impact on our consolidated financial statements. The most significant impacts related to the (i) recognition of right-of-use ("ROU") assets of \$1.29 billion and lease liabilities of \$1.24 billion for operating leases on the consolidated balance sheet, and (ii) de-recognition of build-to-suit lease assets and liabilities of \$1.62 billion and \$1.74 billion, respectively, with the net impact of \$97 million recorded to accumulated deficit, as of January 1, 2019. We also reclassified prepaid expenses and other current asset balances of \$142 million and deferred rent balance, including tenant improvement allowances, and other liability balances of \$70 million relating to our existing lease arrangements as of December 31, 2018, into the ROU asset balance as of January 1, 2019. ROU assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. The standard did not materially impact our consolidated statement of operations and consolidated statement of cash flows.

The cumulative effect of the changes made to our consolidated balance sheet as of January 1, 2019 for the adoption of the new lease standard was as follows (in millions):

	Balances at December 31, 2018	Adjustments from Adoption of New Lease Standard	Balances at January 1, 2019
Assets			
Prepaid expenses and other current assets	\$ 366	\$ —	\$ 366
Property, plant and equipment, net	11,330	(1,617)	9,713
Operating lease right-of-use assets	—	1,286	1,286
Other assets	572	(141)	431
Liabilities			
Accrued liabilities and other	2,094	118	2,212
Current portion of long-term debt and finance leases	2,568	—	2,568
Long-term debt and finance leases, net of current portion	9,404	—	9,404
Other long-term liabilities	2,710	(687)	2,023
Equity			
Accumulated deficit	(5,318)	97	(5,221)

Research and Development Costs

Research and development costs are expensed as incurred.

Marketing, Promotional and Advertising Costs

Marketing, promotional and advertising costs are expensed as incurred and are included as an element of selling, general and administrative expense in the consolidated statement of operations. We incurred marketing, promotional and advertising costs of \$27 million, \$32 million and \$37 million in the years ended December 31, 2019, 2018 and 2017, respectively, of which the majority is related to promotional activities.

Income Taxes

Income taxes are computed using the asset and liability method, under which deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized.

We record liabilities related to uncertain tax positions when, despite our belief that our tax return positions are supportable, we believe that it is more likely than not that those positions may not be fully sustained upon review by tax authorities. Accrued interest and penalties related to unrecognized tax benefits are classified as income tax expense.

Comprehensive Income (Loss)

Comprehensive income (loss) is comprised of net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) consists of unrealized gains and losses on cash flow hedges and foreign currency translation adjustments that have been excluded from the determination of net income (loss).

Stock-Based Compensation

We recognize compensation expense for costs related to all share-based payments, including stock options, restricted stock units (“RSUs”) and our employee stock purchase plan (the “ESPP”). The fair value of stock option awards with only service and/or performance conditions and the ESPP is estimated on the grant or offering date using the Black-Scholes option-pricing model. The fair value of RSUs is measured on the grant date based on the closing fair market value of our common stock. Stock-based compensation expense is recognized on a straight-line basis over the requisite service period, net of actual forfeitures in the period.

For performance-based awards, stock-based compensation expense is recognized over the expected performance achievement period of individual performance milestones when the achievement of each individual performance milestone becomes probable. For performance-based awards with a vesting schedule based entirely on the attainment of both performance and market conditions, stock-based compensation expense associated with each tranche is recognized over the longer of (i) the expected achievement period for the operational milestone for such tranche and (ii) the expected achievement period for the related market capitalization milestone determined on the grant date, beginning at the point in time when the relevant operational milestone is considered probable of being met. If such operational milestone becomes probable any time after the grant date, we will recognize a cumulative catch-up expense from the grant date to that point in time. If the related market capitalization milestone is achieved earlier than its expected achievement period and the achievement of the related operational milestone, then the stock-based compensation expense will be recognized over the expected achievement period for the operational milestone, which may accelerate the rate at which such expense is recognized. The fair value of such awards is estimated on the grant date using Monte Carlo simulations (see Note 14, *Equity Incentive Plans*).

As we accumulate additional employee stock-based awards data over time and as we incorporate market data related to our common stock, we may calculate significantly different volatilities and expected lives, which could materially impact the valuation of our stock-based awards and the stock-based compensation expense that we will recognize in future periods. Stock-based compensation expense is recorded in cost of revenues, research and development expense and selling, general and administrative expense in the consolidated statements of operations.

Noncontrolling Interests and Redeemable Noncontrolling Interests

Noncontrolling interests and redeemable noncontrolling interests represent third-party interests in the net assets under certain funding arrangements, or funds, that we enter into to finance the costs of solar energy systems and vehicles under operating leases. We have determined that the contractual provisions of the funds represent substantive profit sharing arrangements. We have further determined that the appropriate methodology for calculating the noncontrolling interest and redeemable noncontrolling interest balances that reflects the substantive profit sharing arrangements is a balance sheet approach using the hypothetical liquidation at book value ("HLBV") method. We, therefore, determine the amount of the noncontrolling interests and redeemable noncontrolling interests in the net assets of the funds at each balance sheet date using the HLBV method, which is presented on the consolidated balance sheet as noncontrolling interests in subsidiaries and redeemable noncontrolling interests in subsidiaries. Under the HLBV method, the amounts reported as noncontrolling interests and redeemable noncontrolling interests in the consolidated balance sheet represent the amounts the third-parties would hypothetically receive at each balance sheet date under the liquidation provisions of the funds, assuming the net assets of the funds were liquidated at their recorded amounts determined in accordance with GAAP and with tax laws effective at the balance sheet date and distributed to the third-parties. The third-parties' interests in the results of operations of the funds are determined as the difference in the noncontrolling interest and redeemable noncontrolling interest balances in the consolidated balance sheets between the start and end of each reporting period, after taking into account any capital transactions between the funds and the third-parties. However, the redeemable noncontrolling interest balance is at least equal to the redemption amount. The redeemable noncontrolling interest balance is presented as temporary equity in the mezzanine section of the consolidated balance sheet since these third-parties have the right to redeem their interests in the funds for cash or other assets.

Net Income (Loss) per Share of Common Stock Attributable to Common Stockholders

Basic net income (loss) per share of common stock attributable to common stockholders is calculated by dividing net income (loss) attributable to common stockholders by the weighted-average shares of common stock outstanding for the period. During the year ended December 31, 2019, we increased net loss attributable to common stockholders by \$8 million to arrive at the numerator used to calculate net loss per share. This adjustment represents the difference between the cash we paid to a financing fund investor for their noncontrolling interest in one of our subsidiaries and the carrying amount of the noncontrolling interest on our consolidated balance sheet, in accordance with ASC 260, *Earnings per Share*. Potentially dilutive shares, which are based on the weighted-average shares of common stock underlying outstanding stock-based awards, warrants and convertible senior notes using the treasury stock method or the if-converted method, as applicable, are included when calculating diluted net income (loss) per share of common stock attributable to common stockholders when their effect is dilutive. Since we intend to settle or have settled in cash the principal outstanding under our 0.25% Convertible Senior Notes due in 2019, 1.25% Convertible Senior Notes due in 2021, 2.375% Convertible Senior Notes due in 2022, 2.00% Convertible Senior Notes due in 2024 and 5.50% Convertible Senior Notes due in 2022 (assumed in our Maxwell Technologies, Inc. acquisition), we use the treasury stock method when calculating their potential dilutive effect, if any. Furthermore, in connection with the offerings of our notes, we entered into convertible note hedges and warrants (see Note 12, *Debt*). However, our convertible note hedges are not included when calculating potentially dilutive shares since their effect is always anti-dilutive. Warrants which have a strike price above our share price were out of the money and have not been included in the table below.

The following table presents the potentially dilutive shares that were excluded from the computation of diluted net income (loss) per share of common stock attributable to common stockholders, because their effect was anti-dilutive (in millions):

	Year Ended December 31,		
	2019	2018	2017
Stock-based awards	10	10	10
Convertible senior notes	1	1	2
Warrants	—	—	1

Business Combinations

We account for business acquisitions under ASC 805, *Business Combinations*. The total purchase consideration for an acquisition is measured as the fair value of the assets given, equity instruments issued and liabilities assumed at the acquisition date. Costs that are directly attributable to the acquisition are expensed as incurred. Identifiable assets (including intangible assets), liabilities assumed (including contingent liabilities) and noncontrolling interests in an acquisition are measured initially at their fair values at the acquisition date. We recognize goodwill if the fair value of the total purchase consideration and any noncontrolling interests is in excess of the net fair value of the identifiable assets acquired and the liabilities assumed. We recognize a bargain purchase gain within other income (expense), net, on the consolidated statement of operations if the net fair value of the identifiable assets acquired and the liabilities assumed is in excess of the fair value of the total purchase consideration and any noncontrolling interests. We include the results of operations of the acquired business in the consolidated financial statements beginning on the acquisition date.

Cash and Cash Equivalents

All highly liquid investments with an original maturity of three months or less at the date of purchase are considered cash equivalents. Our cash equivalents are primarily comprised of money market funds.

Restricted Cash

We maintain certain cash balances restricted as to withdrawal or use. Our restricted cash is comprised primarily of cash as collateral for our sales to lease partners with a resale value guarantee, letters of credit, real estate leases, insurance policies, credit card borrowing facilities and certain operating leases. In addition, restricted cash includes cash received from certain fund investors that have not been released for use by us and cash held to service certain payments under various secured debt facilities.

The following table totals cash and cash equivalents and restricted cash as reported on the consolidated balance sheets; the sums are presented in the consolidated statements of cash flows (in millions):

	December 31, 2019	December 31, 2018	December 31, 2017	December 31, 2016
Cash and cash equivalents	\$ 6,268	\$ 3,686	\$ 3,368	\$ 3,393
Restricted cash, current portion	246	193	155	106
Restricted cash, net of current portion	269	398	442	268
Total as presented in the consolidated statements of cash flows	<u>\$ 6,783</u>	<u>\$ 4,277</u>	<u>\$ 3,965</u>	<u>\$ 3,767</u>

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable primarily include amounts related to receivables from financial institutions and leasing companies offering various financing products to our customers, sales of energy generation and storage products, sales of regulatory credits to other automotive manufacturers and maintenance services on vehicles owned by leasing companies. We provide an allowance against accounts receivable to the amount we reasonably believe will be collected. We write-off accounts receivable when they are deemed uncollectible.

We typically do not carry significant accounts receivable related to our vehicle and related sales as customer payments are due prior to vehicle delivery, except for amounts due from commercial financial institutions for approved financing arrangements between our customers and the financial institutions.

MyPower Customer Notes Receivable

We have customer notes receivable under the legacy MyPower loan program. MyPower was offered by SolarCity to provide residential customers with the option to finance the purchase of a solar energy system through a 30-year loan. The outstanding balances, net of any allowance for potentially uncollectible amounts, are presented on the consolidated balance sheet as a component of prepaid expenses and other current assets for the current portion and as MyPower customer notes receivable, net of current portion, for the long-term portion. In determining the allowance and credit quality for customer notes receivable, we identify significant customers with known disputes or collection issues and also consider our historical level of credit losses and current economic trends that might impact the level of future credit losses. Customer notes receivable that are individually impaired are charged-off as a write-off of the allowance for losses. Since acquisition, there have been no new significant customers with known disputes or collection issues, and the amount of potentially uncollectible amounts has been insignificant. In addition, there were no material non-accrual or past due customer notes receivable as of December 31, 2019.

Concentration of Risk

Credit Risk

Financial instruments that potentially subject us to a concentration of credit risk consist of cash, cash equivalents, restricted cash, accounts receivable, convertible note hedges, and interest rate swaps. Our cash balances are primarily invested in money market funds or on deposit at high credit quality financial institutions in the U.S. These deposits are typically in excess of insured limits. As of December 31, 2019 and 2018, no entity represented 10% or more of our total accounts receivable balance. The risk of concentration for our interest rate swaps is mitigated by transacting with several highly-rated multinational banks.

Supply Risk

We are dependent on our suppliers, the majority of which are single source suppliers, and the inability of these suppliers to deliver necessary components of our products in a timely manner at prices, quality levels and volumes acceptable to us, or our inability to efficiently manage these components from these suppliers, could have a material adverse effect on our business, prospects, financial condition and operating results.

Inventory Valuation

Inventories are stated at the lower of cost or net realizable value. Cost is computed using standard cost for vehicles and energy storage products, which approximates actual cost on a first-in, first-out basis. In addition, cost for solar energy systems is recorded using actual cost. We record inventory write-downs for excess or obsolete inventories based upon assumptions about current and future demand forecasts. If our inventory on-hand is in excess of our future demand forecast, the excess amounts are written-off.

We also review our inventory to determine whether its carrying value exceeds the net amount realizable upon the ultimate sale of the inventory. This requires us to determine the estimated selling price of our vehicles less the estimated cost to convert the inventory on-hand into a finished product. Once inventory is written-down, a new, lower cost basis for that inventory is established and subsequent changes in facts and circumstances do not result in the restoration or increase in that newly established cost basis.

Should our estimates of future selling prices or production costs change, additional and potentially material increases to this reserve may be required. A small change in our estimates may result in a material charge to our reported financial results.

Operating Lease Vehicles

Vehicles that are leased as part of our direct vehicle leasing program, vehicles delivered to leasing partners with a resale value guarantee and a buyback option, and vehicles delivered to customers with resale value guarantee where exercise is probable are classified as operating lease vehicles as the related revenue transactions are treated as operating leases under ASC 842 (refer to the *Automotive Leasing Revenue* section above for details). Operating lease vehicles are recorded at cost less accumulated depreciation. We generally depreciate their value, less salvage value, using the straight-line method to cost of automotive leasing revenue over the contractual period. The total cost of operating lease vehicles recorded on the consolidated balance sheets as of December 31, 2019 and 2018 was \$2.85 billion and \$2.55 billion, respectively. Accumulated depreciation related to leased vehicles as of December 31, 2019 and 2018 was \$406 million and \$458 million, respectively.

Solar Energy Systems, Net

We are the lessor of solar energy systems. Prior to January 1, 2019, these leases were accounted for as operating leases in accordance with ASC 840. Under ASC 840, to determine lease classification, we evaluated the lease terms to determine whether there was a transfer of ownership or bargain purchase option at the end of the lease, whether the lease term was greater than 75% of the useful life or whether the present value of the minimum lease payments exceeded 90% of the fair value at lease inception. As discussed in the *Leases* section above, agreements for solar energy system leases and PPAs that commence after January 1, 2019 no longer meet the definition of a lease upon the adoption of ASC 842 and are instead accounted for in accordance with the new revenue standard. We utilize periodic appraisals to estimate useful lives and fair values at lease inception and residual values at lease termination. Solar energy systems are stated at cost less accumulated depreciation.

Depreciation and amortization is calculated using the straight-line method over the estimated useful lives of the respective assets, as follows:

Solar energy systems in service	30 to 35 years
Initial direct costs related to customer solar energy system lease acquisition costs	Lease term (up to 25 years)

Solar energy systems pending interconnection will be depreciated as solar energy systems in service when they have been interconnected and placed in-service. Solar energy systems under construction represents systems that are under installation, which will be depreciated as solar energy systems in service when they are completed, interconnected and placed in service. Initial direct costs related to customer solar energy system agreement acquisition costs are capitalized and amortized over the term of the related customer agreements.

Property, Plant and Equipment, net

Property, plant and equipment, net, including leasehold improvements, are recognized at cost less accumulated depreciation. Depreciation is generally computed using the straight-line method over the estimated useful lives of the respective assets, as follows:

Machinery, equipment, vehicles and office furniture	2 to 12 years
Building and building improvements	15 to 30 years
Computer equipment and software	3 to 10 years

Leasehold improvements are depreciated on a straight-line basis over the shorter of their estimated useful lives or the terms of the related leases.

Upon the retirement or sale of our property, plant and equipment, the cost and associated accumulated depreciation are removed from the consolidated balance sheet, and the resulting gain or loss is reflected on the consolidated statement of operations. Maintenance and repair expenditures are expensed as incurred while major improvements that increase the functionality, output or expected life of an asset are capitalized and depreciated ratably over the identified useful life.

Interest expense on outstanding debt is capitalized during the period of significant capital asset construction. Capitalized interest on construction-in-progress is included within property, plant and equipment and is amortized over the life of the related assets.

Prior to the adoption of the new lease standard, we were deemed to be the owner, for accounting purposes, during the construction phase of certain long-lived assets under build-to-suit lease arrangements because of our involvement with the construction, our exposure to any potential cost overruns or our other commitments under the arrangements. In accordance with ASC 840, we recognized build-to-suit lease assets under construction and corresponding build-to-suit lease liabilities on the consolidated balance sheet. Once construction was completed, if a lease met certain "sale-leaseback" criteria, we removed the asset and liability and accounted for the lease as an operating lease. Otherwise, the lease was accounted for as a capital lease. As a result of the adoption of the new lease standard on January 1, 2019, we have de-recognized all build-to-suit lease assets and have reassessed these leases to be operating lease right-of-use assets within the consolidated balance sheet as of December 31, 2019 (refer to *Leases* section above for details).

Long-Lived Assets Including Acquired Intangible Assets

We review our property, plant and equipment, long-term prepayments and intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset (or asset group) may not be recoverable. We measure recoverability by comparing the carrying amount to the future undiscounted cash flows that the asset is expected to generate. If the asset is not recoverable, its carrying amount would be adjusted-down to its fair value. For the years ended December 31, 2019 and 2018, we have recognized certain impairments of our long-lived assets (refer to Note 4, *Goodwill and Intangible Assets* and Note 22, *Restructuring and Other*, for further details). For the year ended December 31, 2017, we have recognized no material impairments of our long-lived assets.

Intangible assets with definite lives are amortized on a straight-line basis over their estimated useful lives, which range from one to thirty years.

Goodwill

We assess goodwill for impairment annually in the fourth quarter, or more frequently if events or changes in circumstances indicate that it might be impaired, by comparing its carrying value to the reporting unit's fair value. For the years ended December 31, 2019, 2018, and 2017, we had not recognized any impairment of goodwill.

Capitalization of Software Costs

For costs incurred in development of internal use software, we capitalize costs incurred during the application development stage. Costs related to preliminary project activities and post-implementation activities are expensed as incurred. Internal use software is amortized on a straight-line basis over its estimated useful life of three to ten years. We evaluate the useful lives of these assets on an annual basis, and we test for impairment whenever events or changes in circumstances occur that could impact the recoverability of these assets.

Foreign Currency

We determine the functional and reporting currency of each of our international subsidiaries and their operating divisions based on the primary currency in which they operate. In cases where the functional currency is not the U.S. dollar, we recognize a cumulative translation adjustment created by the different rates we apply to accumulated deficits, including current period income or loss and the balance sheet. For each subsidiary, we apply the monthly average functional exchange rate to its monthly income or loss and the month-end functional currency rate to translate the balance sheet.

Foreign currency transaction gains and losses are a result of the effect of exchange rate changes on transactions denominated in currencies other than the functional currency. Transaction gains and losses are recognized in other income (expense), net, in the consolidated statements of operations. For the years ended December 31, 2019, 2018 and 2017, we recorded foreign currency transaction gains of \$48 million, gains of \$2 million and losses of \$52 million, respectively.

Warranties

We provide a manufacturer's warranty on all new and used vehicles and production powertrain components and systems we sell. In addition, we also provide a warranty on the installation and components of the energy generation and storage systems we sell for periods typically between 10 to 25 years. We accrue a warranty reserve for the products sold by us, which includes our best estimate of the projected costs to repair or replace items under warranties and recalls when identified. These estimates are based on actual claims incurred to date and an estimate of the nature, frequency and costs of future claims. These estimates are inherently uncertain given our relatively short history of sales, and changes to our historical or projected warranty experience may cause material changes to the warranty reserve in the future. The warranty reserve does not include projected warranty costs associated with our vehicles subject to lease accounting and our solar energy systems under lease contracts or PPAs, as the costs to repair these warranty claims are expensed as incurred. The portion of the warranty reserve expected to be incurred within the next 12 months is included within accrued liabilities and other, while the remaining balance is included within other long-term liabilities on the consolidated balance sheets. Warranty expense is recorded as a component of cost of revenues in the consolidated statements of operations. Due to the magnitude of our automotive business, accrued warranty balance as of December 31, 2019 was primarily related to our automotive segment. Accrued warranty activity consisted of the following (in millions):

	Year Ended December 31,		
	2019	2018	2017
Accrued warranty—beginning of period	\$ 748	\$ 402	\$ 267
Assumed warranty liability from acquisition	—	—	5
Warranty costs incurred	(250)	(209)	(123)
Net changes in liability for pre-existing warranties, including expirations and foreign exchange impact	36	(26)	4
Additional warranty accrued from adoption of the new revenue standard	—	37	—
Provision for warranty	555	544	249
Accrued warranty—end of period	\$ 1,089	\$ 748	\$ 402

For the years ended December 31, 2019 and 2018, and 2017, warranty costs incurred for vehicles accounted for as operating leases were \$20 million, \$22 million and \$36 million, respectively.

Solar Renewable Energy Credits

We account for solar renewable energy credits ("SRECs") when they are purchased by us or sold to third-parties. For SRECs generated by solar energy systems owned by us and minted by government agencies, we do not recognize any specifically identifiable costs as there are no specific incremental costs incurred to generate the SRECs. We recognize revenue within the energy generation and storage segment from the sale of an SREC when the SREC is transferred to the buyer, and the cost of the SREC, if any, is then recorded to energy generation and storage cost of revenue.

Deferred Investment Tax Credit Revenue

We have solar energy systems that are eligible for ITCs that accrue to eligible property under the Internal Revenue Code ("IRC"). Under Section 50(d)(5) of the IRC and the related regulations, a lessor of qualifying property may elect to treat the lessee as the owner of such property for the purposes of claiming the ITCs associated with such property. These regulations enable the ITCs to be separated from the ownership of the property and allow the transfer of the ITCs. Under our lease pass-through fund arrangements, we can make a tax election to pass-through the ITCs to the investors, who are the legal lessee of the property. Therefore, we are able to monetize these ITCs to the investors who can utilize them in return for cash payments. We consider the monetization of ITCs to constitute one of the key elements of realizing the value associated with solar energy systems. Consequently, we consider the proceeds from the monetization of ITCs to be a component of revenue generated from solar energy systems.

Under the new revenue standard, we recognize revenue upon the delivery of ITCs to investors under our lease pass-through fund arrangements as this is the point in time that control of ITCs has transferred.

We indemnify the investors for any recapture of ITCs due to our non-compliance. We have concluded that the likelihood of a recapture event is remote, and consequently, we have not recognized a liability for this indemnification on the consolidated balance sheets.

Nevada Tax Incentives

We had entered into agreements with the State of Nevada and Storey County in Nevada that provide abatements for sales, use, real property, personal property and employer excise taxes, discounts to the base tariff energy rates and transferable tax credits. These incentives are available for the applicable periods beginning on October 17, 2014 and ending on either June 30, 2024 or June 30, 2034 (depending on the incentive). Under these agreements, we were eligible for a maximum of \$195 million of transferable tax credits, subject to capital investments by us and our partners for Gigafactory Nevada of at least \$3.50 billion, which we exceeded during 2017, and specified hiring targets for Gigafactory Nevada, which we exceeded during 2018. We recorded these credits as earned when we had evidence there was a market for their sale. Credits were applied as a cost offset to either employee expense or to capital assets, depending on the source of the credits. Credits earned from employee hires or capital spending by our partners at Gigafactory Nevada were recorded as a reduction to operating expenses. As of December 31, 2019 and 2018, we had earned the maximum of \$195 million of transferable tax credits under these agreements.

Recent Accounting Pronouncements

Recently issued accounting pronouncements not yet adopted

In June 2016, the FASB issued ASU No. 2016-13, Measurement of Credit Losses on Financial Instruments, to require financial assets carried at amortized cost to be presented at the net amount expected to be collected based on historical experience, current conditions and forecasts. Subsequently, the FASB issued ASU No. 2018-19, Codification Improvements to Topic 326, to clarify that receivables arising from operating leases are within the scope of lease accounting standards. Further, the FASB issued ASU No. 2019-04, ASU No. 2019-05, ASU 2019-10 and ASU 2019-11 to provide additional guidance on the credit losses standard. The ASUs are effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted. Adoption of the ASUs is on a modified retrospective basis. We plan to adopt the ASUs on January 1, 2020. The ASUs are currently not expected to have a material impact on our consolidated financial statements.

In January 2017, the FASB issued ASU No. 2017-04, Simplifying the Test for Goodwill Impairment, to simplify the test for goodwill impairment by removing Step 2. An entity will, therefore, perform the goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount and recognizing an impairment charge for the amount by which the carrying amount exceeds the fair value, not to exceed the total amount of goodwill allocated to the reporting unit. An entity still has the option to perform a qualitative assessment to determine if the quantitative impairment test is necessary. The ASU is effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted. Adoption of the ASU is prospective. We plan to adopt the ASU prospectively on January 1, 2020. The ASU is currently not expected to have a material impact on our consolidated financial statements.

In August 2018, the FASB issued ASU No. 2018-15, Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that Is a Service Contract. The ASU aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The ASU is effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted. Adoption of the ASU is either retrospective or prospective. We plan to adopt the ASU prospectively on January 1, 2020. The ASU is currently not expected to have a material impact on our consolidated financial statements.

In December 2019, the FASB issued ASU No. 2019-12, *Simplifying the Accounting for Income Taxes*, as part of its initiative to reduce complexity in accounting standards. The amendments in the ASU are effective for fiscal years beginning after December 15, 2020, including interim periods therein. Early adoption of the standard is permitted, including adoption in interim or annual periods for which financial statements have not yet been issued. We have not early adopted this ASU for 2019. The ASU is currently not expected to have a material impact on our consolidated financial statements.

Recently adopted accounting pronouncements

In February 2016, the FASB issued ASU No. 2016-02, *Leases*, to require lessees to recognize all leases, with limited exceptions, on the balance sheet, while recognition on the statement of operations will remain similar to legacy lease accounting, ASC 840. The ASU also eliminates real estate-specific provisions and modifies certain aspects of lessor accounting. Subsequently, the FASB issued ASU No. 2018-10, *Codification Improvements to Topic 842*, ASU No. 2018-11, *Targeted Improvements*, ASU No. 2018-20, *Narrow-Scope Improvements for Lessors*, and ASU 2019-01, *Codification Improvements*, to clarify and amend the guidance in ASU No. 2016-02. We adopted the ASUs on January 1, 2019 on a modified retrospective basis through a cumulative adjustment to our beginning accumulated deficit balance. Prior comparative periods have not been recast under this method, and we adopted all available practical expedients, as applicable. Further, solar leases that commence on or after January 1, 2019, where we are the lessor and which were accounted for as leases under ASC 840, will no longer meet the definition of a lease. Instead, solar leases commencing on or after January 1, 2019 will be accounted for under the new revenue standard. In addition to recognizing operating leases that were previously not recognized on the consolidated balance sheet, our build-to-suit leases were also de-recognized with a net decrease of approximately \$97 million to our beginning accumulated deficit after income tax effects, as our build-to-suit leases no longer qualify for build-to-suit accounting and are instead recognized as operating leases. Upon adoption, our consolidated balance sheet include an overall reduction in assets of \$473 million and a reduction in liabilities of \$570 million. The adoption of the ASUs did not have a material impact on the consolidated statement of operations or the consolidated statement of cash flows.

In August 2017, the FASB issued ASU No. 2017-12, *Targeted Improvements to Accounting for Hedging Activities*, to simplify the application of current hedge accounting guidance. The ASU expands and refines hedge accounting for both non-financial and financial risk components and aligns the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements. We adopted the ASU prospectively on January 1, 2019, and the ASU did not have a material impact on the consolidated financial statements.

In January 2018, the FASB issued ASU No. 2018-01, *Land Easement Practical Expedient Transition to Topic 842*, to permit an entity to elect a practical expedient to not re-evaluate land easements that existed or expired before the entity's adoption of ASU No. 2016-02, *Leases*, and that were not accounted for as leases. The ASU did not have a material impact on the consolidated financial statements.

Note 3 – Business Combinations

Maxwell Acquisition

On May 16, 2019 (the "Acquisition Date"), we completed our strategic acquisition of Maxwell Technologies, Inc. ("Maxwell"), an energy storage and power delivery products company, for its complementary technology and workforce. Pursuant to the related Agreement and Plan of Merger (the "Merger Agreement"), each issued and outstanding share of Maxwell common stock was converted into 0.0193 (the "Exchange Ratio") shares of our common stock. In addition, Maxwell's stock option awards and restricted stock unit awards were assumed by us and converted into corresponding equity awards in respect of our common stock based on the Exchange Ratio, with the awards retaining the same vesting and other terms and conditions as in effect immediately prior to the acquisition.

Fair Value of Purchase Consideration

The Acquisition Date fair value of the purchase consideration was \$207 million (902,968 shares issued at \$229.49 per share, the opening price of our common stock on the Acquisition Date).

Fair Value of Assets Acquired and Liabilities Assumed

We accounted for the acquisition using the purchase method of accounting for business combinations under ASC 805, *Business Combinations*. The total purchase price is allocated to the tangible and identifiable intangible assets acquired and liabilities based on their estimated fair values as of the Acquisition Date.

Fair value estimates are based on a complex series of judgments about future events and uncertainties and rely heavily on estimates and assumptions. The judgments used to determine the estimated fair value assigned to each class of assets acquired and liabilities assumed, as well as asset lives and the expected future cash flows and related discount rates, can materially impact our consolidated financial statements. Significant inputs used for the model included the amount of cash flows, the expected period of the cash flows and the discount rates. In 2019, we finalized our estimate of the Acquisition Date fair values of the assets acquired and the liabilities assumed and there were no changes to the fair values of the assets acquired and the liabilities assumed.

The allocation of the purchase price is based on management's estimate of the Acquisition Date fair values of the assets acquired and liabilities assumed, as follows (in millions):

Assets acquired:	
Cash and cash equivalents	\$ 32
Accounts receivable	24
Inventory	32
Property, plant and equipment, net	27
Operating lease right-of-use assets	10
Intangible assets	105
Prepaid expenses and other assets, current and non-current	3
Total assets acquired	233
Liabilities and equity assumed:	
Accounts payable	(10)
Accrued liabilities and other	(28)
Debt and finance leases, current and non-current	(44)
Deferred revenue, current	(1)
Other long-term liabilities	(14)
Additional paid-in capital	(8)
Total liabilities and equity assumed	(105)
Net assets acquired	128
Goodwill	79
Total purchase price	\$ 207

Goodwill represented the excess of the purchase price over the fair value of the net assets acquired and was primarily attributable to the expected synergies from integrating Maxwell's technology into our automotive segment as well as the acquired talent. Goodwill is not deductible for U.S. income tax purposes and is not amortized.

Identifiable Intangible Assets Acquired

The determination of the fair value of identified intangible assets and their respective useful lives are as follows (in millions, except for estimated useful life):

	Fair Value	Useful Life (in years)
Developed technology	\$ 102	9
Customer relations	2	9
Trade name	1	10
Total intangible assets	<u>\$ 105</u>	

Maxwell's results of operations since the Acquisition Date have been included within the automotive segment. Standalone and pro forma results of operations have not been presented because they were not material to the consolidated financial statements.

Other Acquisitions

During the year ended December 31, 2019, we completed various other acquisitions generally for the related technology and workforce. Total consideration for these acquisitions was \$96 million, of which \$80 million was paid in cash. In aggregate, \$36 million was attributed to intangible assets, \$51 million was attributed to goodwill within the automotive segment, and \$9 million was attributed to net assets assumed. Goodwill is not deductible for U.S. income tax purposes. The identifiable intangible assets were related to purchased technology, with estimated useful lives of one to nine years.

Standalone and pro forma results of operations have not been presented because they were not material to the consolidated financial statements, either individually or in aggregate.

Note 4 – Goodwill and Intangible Assets

Goodwill increased \$130 million from \$68 million as of December 31, 2018 to \$198 million as of December 31, 2019 primarily due to completed business combinations during the year ended December 31, 2019 (see Note 3, *Business Combinations*). There were no accumulated impairment losses as of December 31, 2019 and 2018.

Information regarding our intangible assets including assets recognized from our acquisitions was as follows (in millions):

	December 31, 2019				December 31, 2018			
	Gross Carrying Amount	Accumulated Amortization	Other	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Other	Net Carrying Amount
Finite-lived intangible assets:								
Developed technology	\$ 291	\$ (72)	\$ 1	\$ 220	\$ 152	\$ (40)	\$ 1	\$ 113
Trade names	3	(1)	1	3	45	(44)	—	1
Favorable contracts and leases, net	113	(24)	—	89	113	(17)	—	96
Other	38	(16)	—	22	36	(12)	1	25
Total finite-lived intangible assets	445	(113)	2	334	346	(113)	2	235
Indefinite-lived intangible assets:								
GigaFactory Nevada water rights	5	—	—	5	—	—	—	—
In-process research and development ("IPR&D")	60	—	(60)	—	60	—	(13)	47
Total indefinite-lived intangible assets	65	—	(60)	5	60	—	(13)	47
Total intangible assets	\$ 510	\$ (113)	\$ (58)	\$ 339	\$ 406	\$ (113)	\$ (11)	\$ 282

During 2019, the Company determined to abandon further development efforts on the IPR&D and therefore impaired the remaining \$47 million in restructuring and other expenses in the consolidated statement of operations. Amortization expense during the years ended December 31, 2019, 2018 and 2017 was \$44 million, \$66 million and \$40 million, respectively.

Total future amortization expense for finite-lived intangible assets was estimated as follows (in millions):

2020	\$	50
2021		49
2022		48
2023		42
2024		27
Thereafter		118
Total	\$	<u>334</u>

Note 5 – Fair Value of Financial Instruments

ASC 820, *Fair Value Measurements*, states that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or a liability. The three-tiered fair value hierarchy, which prioritizes which inputs should be used in measuring fair value, is comprised of: (Level I) observable inputs such as quoted prices in active markets; (Level II) inputs other than quoted prices in active markets that are observable either directly or indirectly and (Level III) unobservable inputs for which there is little or no market data. The fair value hierarchy requires the use of observable market data when available in determining fair value. Our assets and liabilities that were measured at fair value on a recurring basis were as follows (in millions):

	December 31, 2019				December 31, 2018			
	Fair Value	Level I	Level II	Level III	Fair Value	Level I	Level II	Level III
Money market funds (cash and cash equivalents & restricted cash)	\$ 1,632	\$ 1,632	\$ —	\$ —	\$ 1,813	\$ 1,813	\$ —	\$ —
Interest rate swap asset	1	—	1	—	12	—	12	—
Interest rate swap liability	(27)	—	(27)	—	(1)	—	(1)	—
Total	<u>\$ 1,606</u>	<u>\$ 1,632</u>	<u>\$ (26)</u>	<u>\$ —</u>	<u>\$ 1,824</u>	<u>\$ 1,813</u>	<u>\$ 11</u>	<u>\$ —</u>

All of our money market funds were classified within Level I of the fair value hierarchy because they were valued using quoted prices in active markets. Our interest rate swaps were classified within Level II of the fair value hierarchy because they were valued using alternative pricing sources or models that utilized market observable inputs, including current and forward interest rates. During the year ended December 31, 2019, there were no transfers between the levels of the fair value hierarchy.

Interest Rate Swaps

We enter into fixed-for-floating interest rate swap agreements to swap variable interest payments on certain debt for fixed interest payments, as required by certain of our lenders. We do not designate our interest rate swaps as hedging instruments. Accordingly, our interest rate swaps are recorded at fair value on the consolidated balance sheets within other assets or other long-term liabilities, with any changes in their fair values recognized as other income (expense), net, in the consolidated statements of operations and with any cash flows recognized as investing activities in the consolidated statements of cash flows. Our interest rate swaps outstanding were as follows (in millions):

	December 31, 2019			December 31, 2018		
	Aggregate Notional Amount	Gross Asset at Fair Value	Gross Liability at Fair Value	Aggregate Notional Amount	Gross Asset at Fair Value	Gross Liability at Fair Value
Interest rate swaps	\$ 821	\$ 1	\$ 27	\$ 800	\$ 12	\$ 1

Our interest rate swaps activity was as follows (in millions):

	Year Ended December 31,					
	2019		2018		2017	
Gross gains	\$	11	\$	22	\$	7
Gross losses	\$	51	\$	12	\$	13

Disclosure of Fair Values

Our financial instruments that are not re-measured at fair value include accounts receivable, MyPower customer notes receivable, rebates receivable, accounts payable, accrued liabilities, customer deposits, participation interest and debt. The carrying values of these financial instruments other than our 1.25% Convertible Senior Notes due in 2021, 2.375% Convertible Senior Notes due in 2022 and 2.00% Convertible Senior Notes due in 2024 and our subsidiary's Zero-Coupon Convertible Senior Notes due in 2020 (collectively referred to as "Convertible Senior Notes" below), 5.30% Senior Notes due in 2025, solar asset-backed notes and solar loan-backed notes approximate their fair values.

We estimate the fair value of the Convertible Senior Notes and the 5.30% Senior Notes due in 2025 using commonly accepted valuation methodologies and market-based risk measurements that are indirectly observable, such as credit risk (Level II). In addition, we estimate the fair values of our solar asset-backed notes and solar loan-backed notes based on rates currently offered for instruments with similar maturities and terms (Level III). The following table presents the estimated fair values and the carrying values (in millions):

	December 31, 2019		December 31, 2018	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Convertible Senior Notes	\$ 3,686	\$ 6,067	\$ 3,661	\$ 4,347
5.30% Senior Notes due in 2025	\$ 1,782	\$ 1,748	\$ 1,779	\$ 1,575
Solar asset-backed notes	\$ 1,155	\$ 1,211	\$ 1,183	\$ 1,207
Solar loan-backed notes	\$ 175	\$ 189	\$ 203	\$ 212

Note 6 – Inventory

Our inventory consisted of the following (in millions):

	December 31, 2019	December 31, 2018
Raw materials	\$ 1,428	\$ 932
Work in process	362	297
Finished goods (1)	1,356	1,581
Service parts	406	303
Total	\$ 3,552	\$ 3,113

- (1) Finished goods inventory includes vehicles in transit to fulfill customer orders, new vehicles available for sale, used vehicles and energy storage products.

For solar energy systems, we commence transferring component parts from inventory to construction in progress, a component of solar energy systems, once a lease or PPA contract with a customer has been executed and installation has been initiated. Additional costs incurred on the leased solar energy systems, including labor and overhead, are recorded within construction in progress.

We write-down inventory for any excess or obsolete inventories or when we believe that the net realizable value of inventories is less than the carrying value. During the years ended December 31, 2019, 2018 and 2017, we recorded write-downs of \$138 million, \$78 million and \$124 million, respectively, in cost of revenues.

Note 7 – Solar Energy Systems, Net

Solar energy systems, net, consisted of the following (in millions):

	December 31, 2019	December 31, 2018
Solar energy systems in service	\$ 6,682	\$ 6,431
Initial direct costs related to customer solar energy system lease acquisition costs	102	99
	6,784	6,530
Less: accumulated depreciation and amortization (1)	(723)	(496)
	6,061	6,034
Solar energy systems under construction	18	68
Solar energy systems pending interconnection	59	169
Solar energy systems, net (2)	\$ 6,138	\$ 6,271

- (1) Depreciation and amortization expense during the years ended December 31, 2019, 2018 and 2017 was \$227 million, \$276 million, and \$213 million, respectively.
(2) As of December 31, 2019 and 2018, solar energy systems, net, included \$36 million of gross finance leased assets with accumulated depreciation and amortization of \$6 million and \$4 million, respectively.

Note 8 – Property, Plant and Equipment, Net

Our property, plant and equipment, net, consisted of the following (in millions):

	December 31, 2019	December 31, 2018
Machinery, equipment, vehicles and office furniture	\$ 7,167	\$ 6,329
Tooling	1,493	1,398
Leasehold improvements	1,087	961
Land and buildings	3,024	4,047
Computer equipment, hardware and software	595	487
Construction in progress	764	807
	14,130	14,029
Less: Accumulated depreciation	(3,734)	(2,699)
Total	\$ 10,396	\$ 11,330

As of December 31, 2018, the table above included \$1.69 billion of gross build-to-suit lease assets. As a result of the adoption of the new lease standard on January 1, 2019, we have de-recognized all build-to-suit lease assets and have reassessed these leases to be operating lease right-of-use assets within the consolidated balance sheet as of December 31, 2019 (see Note 2, *Summary of Significant Accounting Policies*).

Construction in progress is primarily comprised of tooling and equipment related to the manufacturing of our products and Gigafactory Shanghai construction. Completed assets are transferred to their respective asset classes, and depreciation begins when an asset is ready for its intended use. Interest on outstanding debt is capitalized during periods of significant capital asset construction and amortized over the useful lives of the related assets. During the years ended December 31, 2019 and 2018, we capitalized \$31 million and \$55 million, respectively, of interest.

Depreciation expense during the years ended December 31, 2019, 2018 and 2017 was \$1.37 billion, \$1.11 billion and \$769 million, respectively. Gross property plant and equipment under finance leases as of December 31, 2019 and 2018 was \$2.08 billion and \$1.52 billion, respectively. Accumulated depreciation on property, plant and equipment under finance leases as of these dates was \$483 million and \$232 million, respectively.

Panasonic has partnered with us on Gigafactory Nevada with investments in the production equipment that it uses to manufacture and supply us with battery cells. Under our arrangement with Panasonic, we plan to purchase the full output from their production equipment at negotiated prices. As the terms of the arrangement convey a finance lease under ASC 842, *Leases*, we account for their production equipment as leased assets when production commences. This results in us recording the cost of their production equipment within property, plant and equipment, net, on the consolidated balance sheets with a corresponding liability recorded to debt and finance leases. As of December 31, 2019 and 2018, we had cumulatively capitalized costs of \$1.73 billion and \$1.24 billion, respectively, on the consolidated balance sheets in relation to the production equipment under our Panasonic arrangement. We had cumulatively capitalized total costs for Gigafactory Nevada, including costs under our Panasonic arrangement, of \$5.27 billion and \$4.62 billion as of December 31, 2019 and 2018, respectively.

In 2019, the Shanghai government agreed to provide \$85 million of certain incentives in connection with us making certain manufacturing equipment investments at Gigafactory Shanghai, of which \$46 million was received in cash and the remaining \$39 million was in the form of assets and services contributed by the government. These incentives were taken as a reduction to property, plant and equipment, net, on the consolidated balance sheet.

Note 9 – Accrued Liabilities and Other

As of December 31, 2019 and 2018, accrued liabilities and other current liabilities consisted of the following (in millions):

	December 31, 2019	December 31, 2018
Accrued purchases (1)	\$ 638	\$ 394
Payroll and related costs	466	449
Taxes payable (2)	611	348
Accrued interest	86	78
Financing obligation, current portion	57	62
Accrued warranty, current portion	344	201
Sales return reserve, current portion	272	108
Build-to-suit lease liability, current portion	—	82
Operating lease right-of-use liabilities, current portion	228	—
Other current liabilities	203	372
Total	<u>\$ 2,905</u>	<u>\$ 2,094</u>

- (1) Accrued purchases primarily reflects receipts of goods and services that we had not been invoiced yet. As we are invoiced for these goods and services, this balance will reduce and accounts payable will increase.
- (2) Taxes payable includes value added tax, sales tax, property tax, use tax and income tax payables.

Due to price adjustments we made to our vehicle offerings during 2019, we increased our sales return reserve significantly on vehicles previously sold under our buyback options program. See Note 2, *Summary of Significant Accounting Policies* for details.

As of December 31, 2018, the table above included \$82 million of current build-to-suit lease liabilities. As a result of the adoption of the new lease standard on January 1, 2019, we have de-recognized all build-to-suit lease liabilities and have reassessed these leases to be operating lease right-of-use liabilities as of December 31, 2019.

Note 10 – Other Long-Term Liabilities

As of December 31, 2019 and 2018, other long-term liabilities consisted of the following (in millions):

	December 31, 2019	December 31, 2018
Accrued warranty reserve	\$ 745	\$ 547
Build-to-suit lease liability	—	1,662
Operating lease right-of-use liabilities	956	—
Deferred rent expense	—	59
Financing obligation	37	50
Sales return reserve	545	84
Other noncurrent liabilities	372	308
Total other long-term liabilities	<u>\$ 2,655</u>	<u>\$ 2,710</u>

As of December 31, 2018, the table above included \$1.66 billion of non-current build-to-suit lease liabilities. As a result of the adoption of the new lease standard on January 1, 2019, we have de-recognized all build-to-suit lease liabilities and have reassessed these leases to be operating lease right-of-use liabilities as of December 31, 2019.

Due to price adjustments we made to our vehicle offerings during 2019, we increased our sales return reserve significantly on vehicles previously sold under our buyback options program. Refer to Note 2, *Summary of Significant Accounting Policies*, for details on these transactions.

Note 11 – Customer Deposits

Customer deposits primarily consisted of cash payments from customers at the time they place an order or reservation for a vehicle or an energy product and any additional payments up to the point of delivery or the completion of installation, including the fair values of any customer trade-in vehicles that are applicable toward a new vehicle purchase. Customer deposits also include prepayments on contracts that can be cancelled without significant penalties, such as vehicle maintenance plans. Customer deposit amounts and timing vary depending on the vehicle model, the energy product and the country of delivery. In the case of a vehicle, customer deposits are fully refundable. In the case of an energy generation or storage product, customer deposits are fully refundable prior to the entry into a purchase agreement or in certain cases for a limited time thereafter (in accordance with applicable laws). Customer deposits are included in current liabilities until refunded or until they are applied towards the customer's purchase balance. As of December 31, 2019 and December 31, 2018, we held \$726 million and \$793 million, respectively, in customer deposits.

Note 12 –Debt

The following is a summary of our debt as of December 31, 2019 (in millions):

	Unpaid Principal Balance	Net Carrying Value		Unused Committed Amount (1)	Contractual Interest Rates	Contractual Maturity Date
		Current	Long-Term			
Recourse debt:						
1.25%Convertible Senior Notes due in 2021 ("2021 Notes")	\$ 1,380	\$ —	\$ 1,304	\$ —	1.25%	March 2021
2.375%Convertible Senior Notes due in 2022 ("2022 Notes")	978	—	902	—	2.375%	March 2022
2.00%Convertible Senior Notes due in 2024 ("2024 Notes")	1,840	—	1,383	—	2.00%	May 2024
5.30%Senior Notes due in 2025 ("2025 Notes")	1,800	—	1,782	—	5.30%	August 2025
Credit Agreement	1,727	141	1,586	499	2.7%-4.8%	June 2020-July 2023
Zero-Coupon Convertible Senior Notes due in 2020	103	97	—	—	0.0%	December 2020
Solar Bonds and other Loans	70	15	53	—	3.6%-5.8%	March 2020-January 2031
Total recourse debt	7,898	253	7,010	499		
Non-recourse debt:						
Automotive Asset-backed Notes	1,577	573	997	—	2.0%-7.9%	February 2020- May 2023
Solar Asset-backed Notes	1,183	32	1,123	—	4.0%-7.7%	September 2024-February 2048
China Loan Agreements	741	444	297	1,542	3.7%-4.0%	September 2020-December 2024
Cash Equity Debt	454	10	430	—	5.3%-5.8%	July 2033-January 2035
Solar Loan-backed Notes	182	11	164	—	4.8%-7.5%	September 2048-September 2049
Warehouse Agreements	167	21	146	933	3.1%-3.6%	September 2021
Solar TermLoans	161	8	152	—	5.4%	January 2021
Canada Credit Facility	40	24	16	—	4.2%-5.9%	November 2022
Solar Renewable Energy Credit and other Loans	89	23	67	6	4.5%-7.4%	March 2020-June 2022
Total non-recourse debt	4,594	1,146	3,392	2,481		
Total debt	\$ 12,492	\$ 1,399	\$ 10,402	\$ 2,980		

The following is a summary of our debt as of December 31, 2018 (in millions):

	Unpaid Principal Balance	Net Carrying Value		Unused Committed Amount (1)	Contractual Interest Rates	Contractual Maturity Date
		Current	Long-Term			
Recourse debt:						
0.25% Convertible Senior Notes due in 2019 ("2019 Notes")	\$ 920	\$ 913	\$ —	\$ —	0.25%	March 2019
2021 Notes	1,380	—	1,244	—	1.25%	March 2021
2022 Notes	978	—	871	—	2.375%	March 2022
2025 Notes	1,800	—	1,779	—	5.30%	August 2025
Credit Agreement	1,540	—	1,540	231	1% plus LIBOR	June 2020
1.625% Convertible Senior Notes due in 2019	566	541	—	—	1.625%	November 2019
Zero-Coupon Convertible Senior Notes due in 2020	103	—	92	—	0.0%	December 2020
Vehicle, Solar Bonds and other Loans	101	1	100	—	1.8%–7.6%	January 2019–January 2031
Total recourse debt	7,388	1,455	5,626	231		
Non-recourse debt:						
Solar Asset-backed Notes	1,214	28	1,155	—	4.0%–7.7%	September 2024–February 2048
Automotive Asset-backed Notes	1,178	468	704	—	2.3%–7.9%	December 2019–June 2022
Cash Equity Debt	467	11	442	—	5.3%–5.8%	July 2033–January 2035
Solar Term Loans	350	188	162	—	6.0%–6.1%	January 2019–January 2021
Solar Loan-backed Notes	210	10	193	—	4.8%–7.5%	September 2048–September 2049
Warehouse Agreements	92	14	78	1,008	3.9%–4.2%	September 2020
Canada Credit Facility	73	32	41	—	3.6%–5.9%	November 2022
Solar Renewable Energy Credit and other Loans	27	16	10	18	5.1%–7.9%	December 2019–July 2021
Total non-recourse debt	3,611	767	2,785	1,026		
Total debt	<u>\$ 10,999</u>	<u>\$ 2,222</u>	<u>\$ 8,411</u>	<u>\$ 1,257</u>		

- (1) Unused committed amounts under some of our credit facilities and financing funds are subject to satisfying specified conditions prior to draw-down (such as pledging to our lenders sufficient amounts of qualified receivables, inventories, leased vehicles and our interests in those leases, solar energy systems and the associated customer contracts, our interests in financing funds or various other assets). Upon draw-down of any unused committed amounts, there are no restrictions on use of available funds for general corporate purposes.

Recourse debt refers to debt that is recourse to our general assets. Non-recourse debt refers to debt that is recourse to only assets of our subsidiaries. The differences between the unpaid principal balances and the net carrying values are due to convertible senior note conversion features, debt discounts or deferred financing costs. As of December 31, 2019, we were in material compliance with all financial debt covenants, which include minimum liquidity and expense-coverage balances and ratios.

2019 Notes, 2021 Notes, Bond Hedges and Warrant Transactions

In March 2014, we issued \$800 million in aggregate principal amount of 0.25% Convertible Senior Notes due in March 2019 and \$1.20 billion in aggregate principal amount of 1.25% Convertible Senior Notes due in March 2021 in a public offering. In April 2014, we issued an additional \$120 million in aggregate principal amount of the 2019 Notes and \$180 million in aggregate principal amount of the 2021 Notes, pursuant to the exercise in full of the overallotment options by the underwriters. The total net proceeds from the issuances, after deducting transaction costs, were \$906 million for the 2019 Notes and \$1.36 billion for the 2021 Notes.

Each \$1,000 of principal of these notes is initially convertible into 2.7788 shares of our common stock, which is equivalent to an initial conversion price of \$359.87 per share, subject to adjustment upon the occurrence of specified events. Holders of these notes had the option to convert on or after December 1, 2018 for the 2019 Notes and may elect to convert on or after December 1, 2020 for the 2021 Notes. The settlement of such an election to convert the 2019 Notes was in cash and/or shares of our common stock, which we settled in cash on the maturity date. The settlement of such an election to convert the 2021 Notes would be in cash for the principal amount and, if applicable, cash and/or shares of our common stock for any conversion premium at our election. Further, holders of these notes may convert, at their option, prior to the respective dates above only under the following circumstances: (1) during a quarter in which the closing price of our common stock for at least 20 trading days (whether or not consecutive) during the last 30 consecutive trading days immediately preceding the quarter is greater than or equal to 130% of the conversion price; (2) during the five-business day period following any five-consecutive trading day period in which the trading price of these notes is less than 98% of the product of the closing price of our common stock and the applicable conversion rate for each day during such five-consecutive trading day period, or (3) if we make specified distributions to holders of our common stock or if specified corporate transactions occur. Upon such a conversion of the 2019 Notes, we would pay or deliver (as applicable) cash, shares of our common stock or a combination thereof, at our election. Upon such a conversion of the 2021 Notes, we would pay cash for the principal amount and, if applicable, deliver shares of our common stock (subject to our right to deliver cash in lieu of all or a portion of such shares of our common stock) based on a daily conversion value. If a fundamental change occurs prior to the applicable maturity date, holders of these notes may require us to repurchase all or a portion of their notes for cash at a repurchase price equal to 100% of the principal amount plus any accrued and unpaid interest. In addition, if specific corporate events occur prior to the applicable maturity date, we would increase the conversion rate for a holder who elects to convert their notes in connection with such an event in certain circumstances. As of December 31, 2019, none of the conditions permitting the holders of 2021 to early convert had been met. Therefore, the 2021 Notes are classified as long-term.

In accordance with GAAP relating to embedded conversion features, we initially valued and bifurcated the conversion features associated with these notes. We recorded to stockholders' equity \$188 million for the 2019 Notes' conversion feature and \$369 million for the 2021 Notes' conversion feature. The resulting debt discounts are being amortized to interest expense at an effective interest rate of 4.89% and 5.96%, respectively.

In connection with the offering of these notes in March and April 2014, we entered into convertible note hedge transactions whereby we had the option to purchase 2.6 million shares of our common stock for the 2019 Notes and have the option to purchase initially (subject to adjustment for certain specified events) 3.8 million shares of our common stock for the 2021 Notes at a price of \$359.87 per share. The total cost of the convertible note hedge transactions was \$604 million. In addition, we sold warrants whereby the holders of the warrants had the option to purchase 2.6 million shares of our common stock at a price of \$512.66 per share for the 2019 Notes and have the option to purchase initially (subject to adjustment for certain specified events) 3.8 million shares of our common stock at a price of \$560.64 per share for the 2021 Notes. We received \$389 million in total cash proceeds from the sales of these warrants. Taken together, the purchases of the convertible note hedges and the sales of the warrants are intended to reduce potential dilution and/or cash payments from the conversion of these notes and to effectively increase the overall conversion price from \$359.87 to \$512.66 per share for the 2019 Notes and from \$359.87 to \$560.64 per share for the 2021 Notes. As these transactions meet certain accounting criteria, the convertible note hedges and warrants are recorded in stockholders' equity and are not accounted for as derivatives. The net cost incurred in connection with the convertible note hedge and warrant transactions was recorded as a reduction to additional paid-in capital on the consolidated balance sheet.

During the first quarter of 2019, we repaid the \$920 million in aggregate principal amount of the 2019 Notes. As of December 31, 2019, the convertible note hedges and warrants associated with the 2019 Notes have expired.

As of December 31, 2019, the if-converted value of the 2021 Notes exceeds the outstanding principal amount by \$224 million.

2022 Notes, Bond Hedges and Warrant Transactions

In March 2017, we issued \$978 million in aggregate principal amount of 2.375% Convertible Senior Notes due in March 2022 in a public offering. The net proceeds from the issuance, after deducting transaction costs, were \$966 million.

Each \$1,000 of principal of the 2022 Notes is initially convertible into 3.0534 shares of our common stock, which is equivalent to an initial conversion price of \$327.50 per share, subject to adjustment upon the occurrence of specified events. Holders of the 2022 Notes may convert, at their option, on or after December 15, 2021. Further, holders of the 2022 Notes may convert, at their option, prior to December 15, 2021 only under the following circumstances: (1) during any quarter beginning after June 30, 2017, if the closing price of our common stock for at least 20 trading days (whether or not consecutive) during the last 30 consecutive trading days immediately preceding the quarter is greater than or equal to 130% of the conversion price; (2) during the five-business day period following any five-consecutive trading day period in which the trading price of the 2022 Notes is less than 98% of the product of the closing price of our common stock and the applicable conversion rate for each day during such five-consecutive trading day period or (3) if we make specified distributions to holders of our common stock or if specified corporate transactions occur. Upon a conversion, we would pay cash for the principal amount and, if applicable, deliver shares of our common stock (subject to our right to deliver cash in lieu of all or a portion of such shares of our common stock) based on a daily conversion value. If a fundamental change occurs prior to the maturity date, holders of the 2022 Notes may require us to repurchase all or a portion of their 2022 Notes for cash at a repurchase price equal to 100% of the principal amount plus any accrued and unpaid interest. In addition, if specific corporate events occur prior to the maturity date, we would increase the conversion rate for a holder who elects to convert its 2022 Notes in connection with such an event in certain circumstances. As of December 31, 2019, none of the conditions permitting the holders of the 2022 Notes to early convert had been met. Therefore, the 2022 Notes are classified as long-term.

In accordance with GAAP relating to embedded conversion features, we initially valued and bifurcated the conversion feature associated with the 2022 Notes. We recorded to stockholders' equity \$146 million for the conversion feature. The resulting debt discount is being amortized to interest expense at an effective interest rate of 6.00%.

In connection with the offering of the 2022 Notes, we entered into convertible note hedge transactions whereby we have the option to purchase initially (subject to adjustment for certain specified events) 3.0 million shares of our common stock at a price of \$327.50 per share. The cost of the convertible note hedge transactions was \$204 million. In addition, we sold warrants whereby the holders of the warrants have the option to purchase initially (subject to adjustment for certain specified events) 3.0 million shares of our common stock at a price of \$655.00 per share. We received \$53 million in cash proceeds from the sale of these warrants. Taken together, the purchase of the convertible note hedges and the sale of the warrants are intended to reduce potential dilution from the conversion of the 2022 Notes and to effectively increase the overall conversion price from \$327.50 to \$655.00 per share. As these transactions meet certain accounting criteria, the convertible note hedges and warrants are recorded in stockholders' equity and are not accounted for as derivatives. The net cost incurred in connection with the convertible note hedge and warrant transactions was recorded as a reduction to additional paid-in capital on the consolidated balance sheet.

As of December 31, 2019, the if-converted value of the notes exceeds the outstanding principal amount by \$271 million.

2024 Notes, Bond Hedges and Warrant Transactions

In May 2019, we issued \$1.84 billion in aggregate principal amount of 2.00% Convertible Senior Notes due in May 2024 in a public offering. The net proceeds from the issuance, after deducting transaction costs, were \$1.82 billion.

Each \$1,000 of principal of the 2024 Notes is initially convertible into 3.2276 shares of our common stock, which is equivalent to an initial conversion price of \$309.83 per share, subject to adjustment upon the occurrence of specified events. Holders of the 2024 Notes may convert, at their option, on or after February 15, 2024. Further, holders of the 2024 Notes may convert, at their option, prior to February 15, 2024 only under the following circumstances: (1) during any calendar quarter commencing after September 30, 2019 (and only during such calendar quarter), if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each trading day; (2) during the five-business day period after any five-consecutive trading day period in which the trading price per \$1,000 principal amount of the 2024 Notes for each trading day of such period is less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day, or (3) if specified corporate events occur. Upon conversion, the 2024 Notes will be settled in cash, shares of our common stock or a combination thereof, at our election. If a fundamental change occurs prior to the maturity date, holders of the 2024 Notes may require us to repurchase all or a portion of their 2024 Notes for cash at a repurchase price equal to 100% of the principal amount plus any accrued and unpaid interest. In addition, if specific corporate events occur prior to the maturity date, we would increase the conversion rate for a holder who elects to convert its 2024 Notes in connection with such an event in certain circumstances. As of December 31, 2019, none of the conditions permitting the holders of the 2024 Notes to early convert had been met. Therefore, the 2024 Notes are classified as long-term.

In accordance with GAAP relating to embedded conversion features, we initially valued and bifurcated the conversion feature associated with the 2024 Notes. We recorded to stockholders' equity \$491 million for the conversion feature. The resulting debt discount is being amortized to interest expense at an effective interest rate of 8.68%.

In connection with the offering of the 2024 Notes, we entered into convertible note hedge transactions whereby we have the option to purchase initially (subject to adjustment for certain specified events) 5.9 million shares of our common stock at a price of \$309.83 per share. The cost of the convertible note hedge transactions was \$476 million. In addition, we sold warrants whereby the holders of the warrants have the option to purchase initially (subject to adjustment for certain specified events) 5.9 million shares of our common stock at a price of \$607.50 per share. We received \$174 million in cash proceeds from the sale of these warrants. Taken together, the purchase of the convertible note hedges and the sale of the warrants are intended to reduce potential dilution from the conversion of the 2024 Notes and to effectively increase the overall conversion price from \$309.83 to \$607.50 per share. As these transactions meet certain accounting criteria, the convertible note hedges and warrants are recorded in stockholders' equity and are not accounted for as derivatives. The net cost incurred in connection with the convertible note hedge and warrant transactions was recorded as a reduction to additional paid-in capital on the consolidated balance sheet.

As of December 31, 2019, the if-converted value of the notes exceeds the outstanding principal amount by \$644 million.

2025 Notes

In August 2017, we issued \$1.80 billion in aggregate principal amount of unsecured 5.30% Senior Notes due in August 2025 pursuant to Rule 144A and Regulation S under the Securities Act. The net proceeds from the issuance, after deducting transaction costs, were \$1.77 billion.

Credit Agreement

In June 2015, we entered into a senior asset-based revolving credit agreement (as amended from time to time, the "Credit Agreement") with a syndicate of banks. Borrowed funds bear interest, at our option, at an annual rate of (a) 1% plus LIBOR or (b) the highest of (i) the federal funds rate plus 0.50%, (ii) the lenders' "prime rate" or (iii) 1% plus LIBOR. The fee for undrawn amounts is 0.25% per annum. The Credit Agreement is secured by certain of our accounts receivable, inventory and equipment. Availability under the Credit Agreement is based on the value of such assets, as reduced by certain reserves.

In March 2019, we amended and restated the Credit Agreement to increase the total lender commitments by \$500 million to \$2.425 billion and extend the term of substantially all of the total commitments to July 2023.

1.625% Convertible Senior Notes due in 2019

In 2014, SolarCity issued \$566 million in aggregate principal amount of 1.625% Convertible Senior Notes due on November 1, 2019 in a private placement.

Each \$1,000 of principal of the convertible senior notes was convertible into 1.3169 shares of our common stock, which is equivalent to a conversion price of \$759.36 per share (subject to adjustment upon the occurrence of specified events related to dividends, tender offers or exchange offers). The maximum conversion rate was capped at 1.7449 shares for each \$1,000 of principal of the convertible senior notes, which is equivalent to a minimum conversion price of \$573.10 per share. The convertible senior notes did not have a cash conversion option and the convertible senior note holders could require us to repurchase their convertible senior notes for cash only under certain defined fundamental changes.

In November 2019, we fully repaid \$566 million in aggregate principal amount of the Notes.

Zero-Coupon Convertible Senior Notes due in 2020

In December 2015, SolarCity issued \$113 million in aggregate principal amount of Zero-Coupon Convertible Senior Notes due on December 1, 2020 in a private placement. \$13 million of the convertible senior notes were issued to related parties (see Note 20, *Related Party Transactions*).

Each \$1,000 of principal of the convertible senior notes is now convertible into 3.3333 shares of our common stock, which is equivalent to a conversion price of \$300.00 per share (subject to adjustment upon the occurrence of specified events related to dividends, tender offers or exchange offers). The maximum conversion rate is capped at 4.2308 shares for each \$1,000 of principal of the convertible senior notes, which is equivalent to a minimum conversion price of \$236.36 per share. The convertible senior notes do not have a cash conversion option. The convertible senior note holders may require us to repurchase their convertible senior notes for cash only under certain defined fundamental changes. On or after June 30, 2017, the convertible senior notes are redeemable by us in the event that the closing price of our common stock exceeds 200% of the conversion price for 45 consecutive trading days ending within three trading days of such redemption notice at a redemption price equal to 100% of the principal amount plus any accrued and unpaid interest.

As of December 31, 2019, the if-converted value of the notes exceeds the outstanding principal amount by \$41 million.

Solar Bonds and other Loans

Solar Bonds are senior unsecured obligations that are structurally subordinate to the indebtedness and other liabilities of our subsidiaries. Solar Bonds were issued under multiple series with various terms and interest rates. Additionally, we have assumed the 5.50% Convertible Senior Notes due in 2022 issued by Maxwell, which are convertible into shares of our common stock as a result of our acquisition of Maxwell.

Automotive Asset-backed Notes

From time to time, we transfer receivables or beneficial interests related to certain leased vehicles into SPEs and issue Automotive Asset-backed Notes, backed by these automotive assets to investors. The SPEs are consolidated in the financial statements. The cash flows generated by these automotive assets are used to service the principal and interest payments on the Automotive Asset-backed Notes and satisfy the SPEs' expenses, and any remaining cash is distributed to the owners of the SPEs. We recognize revenue earned from the associated customer lease contracts in accordance with our revenue recognition policy. The SPEs' assets and cash flows are not available to our other creditors, and the creditors of the SPEs, including the Automotive Asset-backed Note holders, have no recourse to our other assets. A third-party contracted with us to provide administrative and collection services for these automotive assets.

In November 2019, we issued \$861 million in aggregate principal amount of Automotive Asset-backed Notes. The proceeds from the issuance, net of discounts and fees, were \$857 million.

Solar Asset-backed Notes

From time to time, our subsidiaries pool and transfer either qualifying solar energy systems and the associated customer contracts or our interests in certain financing funds into Special Purpose Entities (“SPEs”) and issue Solar Asset-backed Notes backed by these solar assets or interests to investors. The SPEs are wholly owned by us and are consolidated in the financial statements. The cash flows generated by these solar assets or distributed by the underlying financing funds to certain SPEs are used to service the principal and interest payments on the Solar Asset-backed Notes and satisfy the SPEs’ expenses, and any remaining cash is distributed to us. We recognize revenue earned from the associated customer contracts in accordance with our revenue recognition policy. The SPEs’ assets and cash flows are not available to our other creditors, and the creditors of the SPEs, including the Solar Asset-backed Note holders, have no recourse to our other assets. We contracted with the SPEs to provide operations & maintenance and administrative services for the solar energy systems. As of December 31, 2019, solar assets pledged as collateral for Solar Asset-backed Notes had a carrying value of \$690 million and are included within solar energy systems, net, on the consolidated balance sheets.

China Loan Agreements

In March 2019, one of our subsidiaries entered into a loan agreement with a syndicate of lenders in China for a bridge loan to be used for expenditures related to the construction of and production at our Gigafactory Shanghai. The loan agreement was terminated in December 2019.

In September 2019, one of our subsidiaries entered into a loan agreement with a lender in China for an unsecured 12-month revolving facility of up to RMB 5.0 billion (or the equivalent drawn in U.S. dollars), to finance vehicles in-transit to China. Borrowed funds bear interest at an annual rate no greater than 90% of the one-year rate published by the People’s Bank of China. The loan facility is non-recourse to our assets.

In December 2019, one of our subsidiaries entered into loan agreements with a syndicate of lenders in China for: (i) a secured term loan facility of up to RMB 9.0 billion or the equivalent amount drawn in U.S. dollars (the “Fixed Asset Facility”) and (ii) an unsecured revolving loan facility of up to RMB 2.25 billion or the equivalent amount drawn in U.S. dollars (the “Working Capital Facility”), in each case to be used in connection with our construction of and production at our Gigafactory Shanghai. Outstanding borrowings pursuant to the Fixed Asset Facility accrue interest at a rate equal to: (i) for RMB-denominated loans, the market quoted interest rate published by the People’s Bank of China minus 0.7625%, and (ii) for U.S. dollar-denominated loans, the sum of one-year LIBOR plus 1.3%. Outstanding borrowings pursuant to the Working Capital Facility accrue interest at a rate equal to: (i) for RMB-denominated loans, the market quoted interest rate published by the People’s Bank of China minus 0.4525%, and (ii) for U.S. dollar-denominated loans, the sum of one-year LIBOR plus 0.8%. The Fixed Asset Facility is secured by the land and buildings at Gigafactory Shanghai and both facilities are non-recourse to our other assets.

Cash Equity Debt

In connection with the cash equity financing deals closed in 2016, our subsidiaries issued \$502 million in aggregate principal amount of debt that bears interest at fixed rates. This debt is secured by, among other things, our interests in certain financing funds and is non-recourse to our other assets.

Solar Loan-backed Notes

In January 2016 and January 2017, our subsidiaries pooled and transferred certain MyPower customer notes receivable into two SPEs and issued \$330 million in aggregate principal amount of Solar Loan-backed Notes, backed by these notes receivable to investors. Accordingly, we did not recognize a gain or loss on the transfer of these notes receivable. The SPEs are wholly owned by us and are consolidated in the financial statements. The payments received by the SPEs from these notes receivable are used to service the semi-annual principal and interest payments on the Solar Loan-backed Notes and satisfy the SPEs’ expenses, and any remaining cash is distributed to us. The SPEs’ assets and cash flows are not available to our other creditors, and the creditors of the SPEs, including the Solar Loan-backed Note holders, have no recourse to our other assets.

Warehouse Agreements

In August 2016, our subsidiaries entered into a loan and security agreement (the “2016 Warehouse Agreement”) for borrowings secured by the future cash flows arising from certain leases and the associated leased vehicles. On August 17, 2017, the 2016 Warehouse Agreement was amended to modify the interest rates and extend the availability period and the maturity date, and our subsidiaries entered into another loan and security agreement (the “2017 Warehouse Agreement”) with substantially the same terms as and that shares the same committed amount with the 2016 Warehouse Agreement. On August 16, 2018, the 2016 Warehouse Agreement and 2017 Warehouse Agreement were amended to extend the availability period from August 17, 2018 to August 16, 2019 and extend the maturity date from September 2019 to September 2020. On December 28, 2018, our subsidiaries terminated the 2017 Warehouse Agreement after having fully repaid all obligations thereunder, and entered into a third loan and security agreement with substantially the same terms as and that shares the same committed amount with the 2016 Warehouse Agreement. We refer to these agreements together as the “Warehouse Agreements.” Amounts drawn under the Warehouse Agreements generally bear interest at a fixed margin above (i) LIBOR or (ii) the commercial paper rate. The Warehouse Agreements are non-recourse to our other assets.

Pursuant to the Warehouse Agreements, an undivided beneficial interest in the future cash flows arising from certain leases and the related leased vehicles has been sold for legal purposes but continues to be reported in the consolidated financial statements. The interest in the future cash flows arising from these leases and the related vehicles is not available to pay the claims of our creditors other than pursuant to obligations to the lenders under the Warehouse Agreements. Any excess cash flows not required to pay obligations under the Warehouse Agreements are available for distributions.

In August 2019, our subsidiaries amended the Warehouse Agreements to extend the availability period from August 16, 2019 to August 14, 2020 and extend the maturity date from September 2020 to September 2021.

In November 2019, we repaid \$723 million of the principal outstanding under the Warehouse Agreements.

Solar Term Loans

Our subsidiaries have entered into agreements for term loans with various financial institutions. The term loans are secured by substantially all of the assets of the subsidiaries, including its interests in certain financing funds, and are non-recourse to our other assets.

During the fourth quarter of 2019, we fully repaid the \$159 million in aggregate principal of one term loan.

Canada Credit Facility

In December 2016, one of our subsidiaries entered into a credit agreement (the “Canada Credit Facility”) with a bank for borrowings secured by our interests in certain vehicle leases. In December 2017 and December 2018, the Canada Credit Facility was amended to add our interests in additional vehicle leases as collateral, allowing us to draw additional funds. Amounts drawn under the Canada Credit Facility bear interest at fixed rates. The Canada Credit Facility is non-recourse to our other assets.

Solar Renewable Energy Credit and other Loans

We have entered into various solar renewable energy credit and other loan agreements with various financial institutions, including a solar revolving credit facility. The solar renewable energy credit loan facility is secured by substantially all of the assets of one of our wholly owned subsidiaries, including its rights under forward contracts to sell SRECs, and is non-recourse to our other assets. The solar revolving credit facility is secured by certain assets of the subsidiary and is non-recourse to our other assets.

Interest Expense

The following table presents the interest expense related to the contractual interest coupon, the amortization of debt issuance costs and the amortization of debt discounts on our convertible senior notes with cash conversion features, which include the 1.50% Convertible Senior Notes due in 2018, the 2019 Notes, the 2021 Notes, the 2022 Notes and the 2024 Notes (in millions):

	Year Ended December 31,		
	2019	2018	2017
Contractual interest coupon	\$ 65	\$ 43	\$ 39
Amortization of debt issuance costs	7	7	7
Amortization of debt discounts	148	123	114
Total	<u>\$ 220</u>	<u>\$ 173</u>	<u>\$ 160</u>

Pledged Assets

As of December 31, 2019 and 2018, we had pledged or restricted \$5.72 billion and \$5.23 billion of our assets (consisted principally of restricted cash, receivables, inventory, SRECs, solar energy systems, operating lease vehicles, land use rights, property and equipment, and equity interests in certain SPEs) as collateral for our outstanding debt.

Schedule of Principal Maturities of Debt

The future scheduled principal maturities of debt as of December 31, 2019 were as follows (in millions):

	Recourse debt	Non-recourse debt	Total
2020	\$ 259	\$ 1,155	\$ 1,414
2021	1,382	909	2,291
2022	1,024	1,013	2,037
2023	1,586	199	1,785
2024	1,840	558	2,398
Thereafter	1,807	760	2,567
Total	<u>\$ 7,898</u>	<u>\$ 4,594</u>	<u>\$ 12,492</u>

Note 13 – Leases

We have entered into various non-cancellable operating and finance lease agreements for certain of our offices, manufacturing and warehouse facilities, retail and service locations, equipment, vehicles, and solar energy systems, worldwide. We determine if an arrangement is a lease, or contains a lease, at inception and record the leases in our financial statements upon lease commencement, which is the date when the underlying asset is made available for use by the lessor.

Our leases, where we are the lessee, often include options to extend the lease term for up to 10 years. Some of our leases also include options to terminate the lease prior to the end of the agreed upon lease term. For purposes of calculating lease liabilities, lease terms include options to extend or terminate the lease when it is reasonably certain that we will exercise such options.

Lease expense for operating lease payments is recognized on a straight-line basis over the lease term. Certain operating leases provide for annual increases to lease payments based on an index or rate. We calculate the present value of future lease payments based on the index or rate at the lease commencement date for new leases commencing after January 1, 2019. For historical leases, we used the index or rate as of the adoption date. Differences between the calculated lease payment and actual payment are expensed as incurred. Lease expense for finance lease payments is recognized as amortization expense of the finance lease ROU asset and interest expense on the finance lease liability over the lease term.

The balances for the operating and finance leases where we are the lessee are presented as follows (in millions) within our consolidated balance sheet:

	December 31, 2019
Operating leases:	
Operating lease right-of-use assets	\$ 1,218
Accrued liabilities and other	\$ 228
Other long-term liabilities	956
Total operating lease liabilities	<u>\$ 1,184</u>
Finance leases:	
Solar energy systems, net	\$ 30
Property, plant and equipment, net	1,600
Total finance lease assets	<u>\$ 1,630</u>
Current portion of long-term debt and finance leases	\$ 386
Long-term debt and finance leases, net of current portion	1,232
Total finance lease liabilities	<u>\$ 1,618</u>

The components of lease expense are as follows (in millions) within our consolidated statements of operations:

	Year Ended December 31, 2019
Operating lease expense:	
Operating lease expense (1)	\$ 426
Finance lease expense:	
Amortization of leased assets	\$ 299
Interest on lease liabilities	104
Total finance lease expense	<u>\$ 403</u>
Total lease expense	<u>\$ 829</u>

(1) Includes short-term leases and variable lease costs, which are immaterial.

Other information related to leases where we are the lessee is as follows:

	December 31, 2019
Weighted-average remaining lease term:	
Operating leases	6.2 years
Finance leases	3.9 years
Weighted-average discount rate:	
Operating leases	6.5%
Finance leases	6.5%

Because most of our leases do not provide an implicit rate of return, we used our incremental borrowing rate based on the information available at lease commencement date in determining the present value of lease payments.

Supplemental cash flow information related to leases where we are the lessee is as follows (in millions):

	Year Ended December 31, 2019	
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash outflows from operating leases	\$	396
Operating cash outflows from finance leases (interest payments)	\$	104
Financing cash outflows from finance leases	\$	321
Leased assets obtained in exchange for finance lease liabilities	\$	616
Leased assets obtained in exchange for operating lease liabilities	\$	202

As of December 31, 2019, the maturities of our operating and finance lease liabilities (excluding short-term leases) are as follows (in millions):

	Operating Leases		Finance Leases	
2020	\$	296	\$	474
2021		262		478
2022		210		600
2023		174		224
2024		146		5
Thereafter		372		13
Total minimum lease payments		1,460		1,794
Less: Interest		276		176
Present value of lease obligations		1,184		1,618
Less: Current portion		228		386
Long-term portion of lease obligations	\$	956	\$	1,232

Under legacy lease accounting (ASC 840), future minimum lease payments under non-cancellable leases as of December 31, 2018 are as follows (in millions):

	Operating Leases		Finance Leases	
2019	\$	276	\$	417
2020		257		503
2021		230		506
2022		183		24
2023		158		5
Thereafter		524		6
Total minimum lease payments	\$	1,628		1,461
Less: Interest				122
Present value of lease obligations				1,339
Less: Current portion				346
Long-term portion of lease obligations			\$	993

Non-cancellable Operating Lease Receivables

Under the new lease standard, we are the lessor of certain vehicle arrangements as described in Note 2, *Summary of Significant Accounting Policies*. Following the adoption of the new lease standard, solar energy system leases and PPAs that commenced after January 1, 2019, where we are the lessor and were previously accounted for as leases, no longer meet the definition of a lease and are therefore not included in the table as of December 31, 2019 (refer to Note 2, *Summary of Significant Accounting Policies*). As of December 31, 2019, maturities of our operating lease receivables from customers for each of the next five years and thereafter were as follows (in millions):

2020	\$	644
2021		494
2022		317
2023		190
2024		191
Thereafter		2,294
Total	\$	4,130

Under legacy lease accounting (ASC 840), future minimum lease payments to be received from customers under non-cancellable leases as of December 31, 2018 are as follows (in millions):

2019	\$	502
2020		418
2021		271
2022		187
2023		189
Thereafter		2,469
Total	\$	4,036

The above tables do not include vehicle sales to customers or leasing partners with a resale value guarantee as the cash payments were received upfront. For our solar PPA arrangements, customers are charged solely based on actual power produced by the installed solar energy system at a predefined rate per kilowatt-hour of power produced. The future payments from such arrangements are not included in the above table as they are a function of the power generated by the related solar energy systems in the future.

Note 14 – Equity Incentive Plans

In June 2019, we adopted the 2019 Equity Incentive Plan (the “2019 Plan”), and simultaneously terminated the 2010 Equity Incentive Plan (the “2010 Plan”). No new awards have been granted under the 2010 Plan following the adoption of the 2019 Plan, but such termination did not affect outstanding awards under the 2010 Plan. The 2019 Plan has similar terms as the 2010 Plan and provides for the granting of stock options, restricted stock, RSUs, stock appreciation rights, performance units and performance shares to our employees, directors and consultants. Stock options granted under the 2019 Plan may be either incentive stock options or nonstatutory stock options. Incentive stock options may only be granted to our employees. Nonstatutory stock options may be granted to our employees, directors and consultants. Generally, our stock options and RSUs vest over four years and our stock options are exercisable over a maximum period of 10 years from their grant dates. Vesting typically terminates when the employment or consulting relationship ends.

As of December 31, 2019, 11 million shares were reserved and available for issuance under the 2019 Plan.

The following table summarizes our stock option and RSU activity:

	Stock Options				RSUs	
	Number of Options (in thousands)	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (in billions)	Number of RSUs (in thousands)	Weighted-Average Grant Date Fair Value
Balance, December 31, 2018	31,208	\$ 273.40			4,659	\$ 294.63
Granted	1,473	\$ 265.26			3,752	\$ 282.74
Exercised or released	(1,441)	\$ 106.68			(1,949)	\$ 277.13
Cancelled	(1,245)	\$ 310.57			(1,656)	\$ 295.05
Balance, December 31, 2019	29,995	\$ 279.49	6.89	\$ 4.17	4,806	\$ 291.06
Vested and expected to vest, December 31, 2019	15,860	\$ 228.29	6.05	\$ 3.02	4,804	\$ 291.05
Exercisable and vested, December 31, 2019	7,025	\$ 94.07	3.39	\$ 2.28		

The weighted-average grant date fair value of RSUs in the years ended December 31, 2019, 2018, and 2017 was \$282.74, \$316.46 and \$308.71, respectively. The aggregate release date fair value of RSUs in the years ended December 31, 2019, 2018 and 2017 was \$502 million, \$546 million and \$491 million, respectively.

The aggregate intrinsic value of options exercised in the years ended December 31, 2019, 2018, and 2017 was \$237 million, \$293 million and \$544 million, respectively.

Fair Value Assumptions

We use the fair value method in recognizing stock-based compensation expense. Under the fair value method, we estimate the fair value of each stock option award with service or service and performance conditions and the ESPP on the grant date generally using the Black-Scholes option pricing model and the weighted-average assumptions in the following table:

	Year Ended December 31,		
	2019	2018	2017
Risk-free interest rate:			
Stock options	2.4%	2.5%	1.8%
ESPP	2.2%	2.0%	1.1%
Expected term (in years):			
Stock options	4.5	4.7	5.1
ESPP	0.5	0.5	0.5
Expected volatility:			
Stock options	48%	42%	42%
ESPP	53%	43%	35%
Dividend yield:			
Stock options	0.0%	0.0%	0.0%
ESPP	0.0%	0.0%	0.0%
Grant date fair value per share:			
Stock options	\$ 111.59	\$ 121.92	\$ 122.25
ESPP	\$ 78.25	\$ 84.37	\$ 75.05

The fair value of RSUs with service or service and performance conditions is measured on the grant date based on the closing fair market value of our common stock. The risk-free interest rate is based on the U.S. Treasury yield for zero-coupon U.S. Treasury notes with maturities approximating each grant's expected life. Prior to the fourth quarter of 2017, given our then limited history with employee grants, we used the "simplified" method in estimating the expected term of our employee grants; the simplified method utilizes the average of the time-to-vesting and the contractual life of the employee grant. Beginning with the fourth quarter of 2017, we use our historical data in estimating the expected term of our employee grants. The expected volatility is based on the average of the implied volatility of publicly traded options for our common stock and the historical volatility of our common stock.

2018 CEO Performance Award

In March 2018, our stockholders approved the Board of Directors' grant of 20,264,042 stock option awards to our CEO (the "2018 CEO Performance Award"). The 2018 CEO Performance Award consists of 12 vesting tranches with a vesting schedule based entirely on the attainment of both operational milestones (performance conditions) and market conditions, assuming continued employment either as the CEO or as both Executive Chairman and Chief Product Officer and service through each vesting date. Each of the 12 vesting tranches of the 2018 CEO Performance Award will vest upon certification by the Board of Directors that both (i) the market capitalization milestone for such tranche, which begins at \$100 billion for the first tranche and increases by increments of \$50 billion thereafter, and (ii) any one of the following eight operational milestones focused on revenue or eight operational milestones focused on Adjusted EBITDA have been met for the previous four consecutive fiscal quarters on an annualized basis. Adjusted EBITDA is defined as net income (loss) attributable to common stockholders before interest expense, provision (benefit) for income taxes, depreciation and amortization and stock-based compensation.

Total Annualized Revenue (in billions)	Annualized Adjusted EBITDA (in billions)
\$20.0	\$1.5
\$35.0	\$3.0
\$55.0	\$4.5
\$75.0	\$6.0
\$100.0	\$8.0
\$125.0	\$10.0
\$150.0	\$12.0
\$ 175.0	\$14.0

As of December 31, 2019, two operational milestones have been achieved: (i) \$20.0 billion total annualized revenue and (ii) \$1.5 billion annualized adjusted EBITDA, each subject to the formal certification by our Board of Directors, while no market capitalization milestones have been achieved. Consequently, no shares subject to the 2018 CEO Performance Award have vested as of the date of this filing.

As of December 31, 2019, the following operational milestones were considered probable of achievement:

- Adjusted EBITDA of \$3.0 billion
- Total revenue of \$35.0 billion

Stock-based compensation expense associated with each tranche under the 2018 CEO Performance Award is recognized over the longer of (i) the expected achievement period for the operational milestone for such tranche and (ii) the expected achievement period for the related market capitalization milestone determined on the grant date, beginning at the point in time when the relevant operational milestone is considered probable of being met. If such operational milestone becomes probable any time after the grant date, we will recognize a cumulative catch-up expense from the grant date to that point in time. If the related market capitalization milestone is achieved earlier than its expected achievement period and the achievement of the related operational milestone, then the stock-based compensation expense will be recognized over the expected achievement period for the operational milestone, which may accelerate the rate at which such expense is recognized.

The market capitalization milestone period and the valuation of each tranche are determined using a Monte Carlo simulation and is used as the basis for determining the expected achievement period. The probability of meeting an operational milestone is based on a subjective assessment of our future financial projections. No tranches of the 2018 CEO Performance Award will vest unless a market capitalization and a matching operational milestone are both achieved. The first tranche of the 2018 CEO Performance Award will not vest unless our market capitalization were to approximately double from the initial level at the time the award was approved, based on both a six calendar month trailing average and a 30 calendar day trailing average (counting only trading days). Upon vesting of a tranche, all unamortized expense for the tranche will be recognized immediately. Additionally, stock-based compensation represents a non-cash expense and is recorded as a selling, general, and administrative operating expense in our consolidated statement of operations.

As of December 31, 2019, we had \$527 million of total unrecognized stock-based compensation expense for the operational milestones that were considered probable of achievement, which will be recognized over a weighted-average period of 2.72 years. As of December 31, 2019, we had unrecognized stock-based compensation expense of \$1.29 billion for the operational milestones that were considered not probable of achievement. For the year ended December 31, 2019, we recorded stock-based compensation expense of \$296 million related to the 2018 CEO Performance Award. From March 21, 2018, when the grant was approved by our stockholders, through December 31, 2018, we recorded stock-based compensation expense of \$175 million related to this award. The increase in stock-based compensation expense was primarily related to a \$72 million cumulative catch-up expense for the service provided from the grant date when an additional operational milestone was considered probable of being met in the fourth quarter of 2019 and a shorter expense period in the prior year.

2014 Performance-Based Stock Option Awards

In 2014, to create incentives for continued long-term success beyond the Model S program and to closely align executive pay with our stockholders' interests in the achievement of significant milestones by us, the Compensation Committee of our Board of Directors granted stock option awards to certain employees (excluding our CEO) to purchase an aggregate of 1,073,000 shares of our common stock. Each award consisted of the following four vesting tranches with the vesting schedule based entirely on the attainment of the future performance milestones, assuming continued employment and service through each vesting date:

- 1/4th of each award vests upon completion of the first Model X production vehicle;
- 1/4th of each award vests upon achieving aggregate production of 100,000 vehicles in a trailing 12-month period;
- 1/4th of each award vests upon completion of the first Model 3 production vehicle; and
- 1/4th of each award vests upon achieving an annualized gross margin of greater than 30% for any three-year period.

As of December 31, 2019, the following performance milestones had been achieved:

- Completion of the first Model X production vehicle;
- Completion of the first Model 3 production vehicle; and
- Aggregate production of 100,000 vehicles in a trailing 12-month period.

We begin recognizing stock-based compensation expense as each performance milestone becomes probable of achievement. As of December 31, 2019, we had unrecognized stock-based compensation expense of \$5 million for the performance milestone that was considered not probable of achievement. For the years ended December 31, 2019 and 2018, we did not record any additional stock-based compensation related to these awards. For the year ended December 2017, we recorded stock-based compensation expense of \$7 million related to these awards.

2012 CEO Performance Award

In August 2012, our Board of Directors granted 5,274,901 stock option awards to our CEO (the “2012 CEO Performance Award”). The 2012 CEO Performance Award consists of 10 vesting tranches with a vesting schedule based entirely on the attainment of both performance conditions and market conditions, assuming continued employment and service through each vesting date. Each vesting tranche requires a combination of a pre-determined performance milestone and an incremental increase in our market capitalization of \$4.00 billion, as compared to our initial market capitalization of \$3.20 billion at the time of grant. As of December 31, 2019, the market capitalization conditions for all of the vesting tranches and the following performance milestones had been achieved:

- Successful completion of the Model X alpha prototype;
- Successful completion of the Model X beta prototype;
- Completion of the first Model X production vehicle;
- Aggregate production of 100,000 vehicles;
- Successful completion of the Model 3 alpha prototype;
- Successful completion of the Model 3 beta prototype;
- Completion of the first Model 3 production vehicle;
- Aggregate production of 200,000 vehicles; and
- Aggregate production of 300,000 vehicles.

We begin recognizing stock-based compensation expense as each milestone becomes probable of achievement. As of December 31, 2019, we had unrecognized stock-based compensation expense of \$6 million for the performance milestone that was considered not probable of achievement. For the year ended December 31, 2019, we recorded no stock-based compensation expense related to the 2012 CEO Performance Award. For the year ended December 31, 2018, the stock-based compensation we recorded related to this award was immaterial. For the year ended December 31, 2017, we recorded stock-based compensation expense of \$5 million related to this award.

Our CEO earns a base salary that reflects the currently applicable minimum wage requirements under California law, and he is subject to income taxes based on such base salary. However, he has never accepted his salary. Commencing in May 2019 at our CEO’s request, we eliminated altogether the earning and accrual of his base salary.

Summary Stock-Based Compensation Information

The following table summarizes our stock-based compensation expense by line item in the consolidated statements of operations (in millions):

	Year Ended December 31,		
	2019	2018	2017
Cost of revenues	\$ 128	\$ 109	\$ 64
Research and development	285	261	218
Selling, general and administrative	482	375	185
Restructuring and other	3	4	—
Total	<u>\$ 898</u>	<u>\$ 749</u>	<u>\$ 467</u>

We realized no income tax benefit from stock option exercises in each of the periods presented due to cumulative losses and valuation allowances. As of December 31, 2019, we had \$1.57 billion of total unrecognized stock-based compensation expense related to non-performance awards, which will be recognized over a weighted-average period of 2.91 years.

ESPP

Our employees are eligible to purchase our common stock through payroll deductions of up to 15% of their eligible compensation, subject to any plan limitations. The purchase price would be 85% of the lower of the fair market value on the first and last trading days of each six-month offering period. During the years ended December 31, 2019, 2018 and 2017, we issued 0.5 million, 0.4 million and 0.4 million shares under the ESPP with an associated expense of \$40 million, \$109 million and \$71 million, respectively. There were 7 million shares available for issuance under the ESPP as of December 31, 2019.

Note 15 – Income Taxes

A provision for income taxes of \$110 million, \$58 million and \$32 million has been recognized for the years ended December 31, 2019, 2018 and 2017, respectively, related primarily to our subsidiaries located outside of the U.S. Our loss before provision for income taxes for the years ended December 31, 2019, 2018 and 2017 was as follows (in millions):

	Year Ended December 31,		
	2019	2018	2017
Domestic	\$ 287	\$ 412	\$ 993
Noncontrolling interest and redeemable noncontrolling interest	(87)	87	279
Foreign	465	506	937
Loss before income taxes	<u>\$ 665</u>	<u>\$ 1,005</u>	<u>\$ 2,209</u>

The components of the provision for income taxes for the years ended December 31, 2019, 2018 and 2017 consisted of the following (in millions):

	Year Ended December 31,		
	2019	2018	2017
Current:			
Federal	\$ —	\$ (1)	\$ (10)
State	5	3	2
Foreign	86	24	43
Total current	<u>91</u>	<u>26</u>	<u>35</u>
Deferred:			
Federal	(4)	—	—
State	—	—	—
Foreign	23	32	(3)
Total deferred	<u>19</u>	<u>32</u>	<u>(3)</u>
Total provision for income taxes	<u>\$ 110</u>	<u>\$ 58</u>	<u>\$ 32</u>

On December 22, 2017, the 2017 TaxCuts and Jobs Act (“Tax Act”) was enacted into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a federal corporate tax rate decrease from 35% to 21% for tax years beginning after December 31, 2017, the transition of U.S. international taxation from a worldwide tax system to a territorial system and a one-time transition tax on the mandatory deemed repatriation of foreign earnings. We were required to recognize the effect of the tax law changes in the period of enactment, such as re-measuring our U.S. deferred tax assets and liabilities as well as reassessing the net realizability of our deferred tax assets and liabilities. The Tax Act did not give rise to any material impact on the consolidated balance sheets and consolidated statements of operations due to our historical worldwide loss position and the full valuation allowance on our net U.S. deferred tax assets.

Deferred tax assets (liabilities) as of December 31, 2019 and 2018 consisted of the following (in millions):

	December 31, 2019	December 31, 2018
Deferred tax assets:		
Net operating loss carry-forwards	\$ 1,846	\$ 1,760
Research and development credits	486	377
Other tax credits	126	128
Deferred revenue	301	156
Inventory and warranty reserves	243	165
Stock-based compensation	102	102
Operating lease right-of-use liabilities	290	—
Accruals and others	16	28
Total deferred tax assets	3,410	2,716
Valuation allowance	(1,956)	(1,806)
Deferred tax assets, net of valuation allowance	1,454	910
Deferred tax liabilities:		
Depreciation and amortization	(1,185)	(861)
Investment in certain financing funds	(17)	(33)
Operating lease right-of-use assets	(263)	—
Other	(24)	(24)
Total deferred tax liabilities	(1,489)	(918)
Deferred tax liabilities, net of valuation allowance and deferred tax assets	\$ (35)	\$ (8)

As of December 31, 2019, we recorded a valuation allowance of \$1.96 billion for the portion of the deferred tax asset that we do not expect to be realized. The valuation allowance on our net deferred taxes increased by \$150 million, decreased by \$38 million, and increased by \$821 million during the years ended December 31, 2019, 2018 and 2017, respectively. The changes in valuation allowance are primarily due to additional U.S. deferred tax assets and liabilities incurred in the respective year. We have net \$151 million of deferred tax assets in foreign jurisdictions, which management believes are more-likely-than-not to be fully realized given the expectation of future earnings in these jurisdictions. We continue to monitor the realizability of the U.S. deferred tax assets taking into account multiple factors, including the results of operations and magnitude of excess tax deductions for stock-based compensation. We intend to continue maintaining a full valuation allowance on our U.S. deferred tax assets until there is sufficient evidence to support the reversal of all or some portion of these allowances. Release of all, or a portion, of the valuation allowance would result in the recognition of certain deferred tax assets and a decrease to income tax expense for the period the release is recorded.

The reconciliation of taxes at the federal statutory rate to our provision for income taxes for the years ended December 31, 2019, 2018 and 2017 was as follows (in millions):

	Year Ended December 31,		
	2019	2018	2017
Tax at statutory federal rate	\$ (139)	\$ (211)	\$ (773)
State tax, net of federal benefit	5	3	2
Nondeductible expenses	94	65	30
Excess tax benefits related to stock based compensation (1)	(7)	(44)	(1,013)
Foreign income rate differential	189	161	365
U.S. tax credits	(107)	(80)	(110)
Noncontrolling interests and redeemable noncontrolling interests adjustment	(29)	32	66
Effect of U.S. tax law change	—	—	723
Bargain in purchase gain	—	—	20
Convertible debt	(4)	—	—
Unrecognized tax benefits	17	1	3
Change in valuation allowance	91	131	719
Provision for income taxes	<u>\$ 110</u>	<u>\$ 58</u>	<u>\$ 32</u>

- (1) As of January 1, 2017, upon the adoption of ASU No. 2016-09, Improvements to Employee Share-based Payment Accounting, excess tax benefits from share-based award activity incurred from the prior and current years are reflected as a reduction of the provision for income taxes. The excess tax benefits result in an increase to our gross U.S. deferred tax assets that is offset by a corresponding increase to our valuation allowance.

As of December 31, 2019, we had \$7.51 billion of federal and \$6.16 billion of state net operating loss carry-forwards available to offset future taxable income, which will not begin to significantly expire until 2024 for federal and 2028 for state purposes. A portion of these losses were generated by SolarCity prior to our acquisition in 2016 and, therefore, are subject to change of control provisions, which limit the amount of acquired tax attributes that can be utilized in a given tax year. We do not expect these change of control limitations to significantly impact our ability to utilize these attributes.

As of December 31, 2019, we had research and development tax credits of \$320 million and \$284 million for federal and state income tax purposes, respectively. If not utilized, the federal research and development tax credits will expire in various amounts beginning in 2024. However, the state research and development tax credits can be carried forward indefinitely. In addition, we have other general business tax credits of \$125 million for federal income tax purposes, which will not begin to significantly expire until 2033.

No deferred tax liabilities for foreign withholding taxes have been recorded relating to the earnings of our foreign subsidiaries since all such earnings are intended to be indefinitely reinvested. The amount of the unrecognized deferred tax liability associated with these earnings is immaterial.

Federal and state laws can impose substantial restrictions on the utilization of net operating loss and tax credit carry-forwards in the event of an “ownership change,” as defined in Section 382 of the Internal Revenue Code. We have determined that no significant limitation would be placed on the utilization of our net operating loss and tax credit carry-forwards due to prior ownership changes.

Uncertain Tax Positions

The changes to our gross unrecognized tax benefits were as follows (in millions):

December 31, 2016	\$	204
Decreases in balances related to prior year tax positions		(31)
Increases in balances related to current year tax positions		84
Changes in balances related to effect of U.S. tax law change		(58)
December 31, 2017		199
Decreases in balances related to prior year tax positions		(6)
Increases in balances related to current year tax positions		60
December 31, 2018		253
Decreases in balances related to prior year tax positions		(39)
Increases in balances related to current year tax positions		59
December 31, 2019	\$	273

As of December 31, 2019, accrued interest and penalties related to unrecognized tax benefits are classified as income tax expense and were immaterial. Unrecognized tax benefits of \$247 million, if recognized, would not affect our effective tax rate since the tax benefits would increase a deferred tax asset that is currently fully offset by a full valuation allowance.

We file income tax returns in the U.S., California and various state and foreign jurisdictions. We are currently under examination by the IRS for the years 2015 and 2016. Additional tax years within the period 2004 to 2018 remain subject to examination for federal income tax purposes, and tax years 2004 to 2018 remain subject to examination for California income tax purposes. All net operating losses and tax credits generated to date are subject to adjustment for U.S. federal and California income tax purposes. Tax years 2008 to 2018 remain subject to examination in other U.S. state and foreign jurisdictions.

The potential outcome of the current examination could result in a change to unrecognized tax benefits within the next twelve months. However, we cannot reasonably estimate possible adjustments at this time.

The U.S. Tax Court issued a decision in *Altera Corp v. Commissioner* related to the treatment of stock-based compensation expense in a cost-sharing arrangement. On June 7, 2019, the Court reversed the Tax Court decision and upheld the validity of Treas. Reg. Section 1.482-7A(d)(2), requiring stock-based compensation costs be included in the costs shared under a cost sharing agreement. Given that the current active decision can still be appealed because Altera has the option to petition up to the Supreme Court, Tesla's position is to continue to include stock-based compensation in cost sharing allocation agreement. If and when the current tax court's decision is overturned, we will treat the amount previously shared as a pre-payment to future cost sharing agreement costs. Because we have a full valuation allowance in the U.S., any potential tax benefits would increase our U.S. deferred tax asset and would not have a material impact to our financials.

Note 16 – Commitments and Contingencies

Operating Lease Arrangement in Buffalo, New York

We have an operating lease through the Research Foundation for the State University of New York (the “SUNY Foundation”) for a manufacturing facility constructed on behalf of the SUNY Foundation and which was substantially completed in April 2018. We use this facility, referred to as Gigafactory New York, primarily for the development and production of our Solar Roof and other solar products and components, energy storage components, and Supercharger components, and for other lessor-approved functions. Under the lease and a related research and development agreement, on behalf of the SUNY Foundation, we have and will continue to install certain utilities and other improvements and acquire certain equipment designated by us to be used in the manufacturing facility. The SUNY Foundation covered (i) construction costs related to the manufacturing facility up to \$350 million, (ii) the acquisition and commissioning of the manufacturing equipment in an amount up to \$275 million and (iii) \$125 million for additional specified scope costs, in cases (i) and (ii) only, subject to the maximum funding allocation from the State of New York; and we were responsible for any construction or equipment costs in excess of such amounts. The SUNY Foundation owns the manufacturing facility and the manufacturing equipment purchased by the SUNY Foundation. Following completion of the manufacturing facility, we have commenced leasing of the manufacturing facility and the manufacturing equipment owned by the SUNY Foundation for an initial period of 10 years, with an option to renew, for \$2.00 per year plus utilities. Following the adoption of ASC 842, we no longer recognize the build-to-suit asset and related depreciation expense or the corresponding financing liability and related amortization for Gigafactory New York in our consolidated financial statements.

Under the terms of the operating lease arrangement, we are required to achieve specific operational milestones during the initial lease term, which include employing a certain number of employees at the manufacturing facility, within western New York and within the State of New York within specified periods following the completion of the manufacturing facility. We are also required to spend or incur \$5.00 billion in combined capital, operational expenses and other costs in the State of New York within 10 years following the achievement of full production. On an annual basis during the initial lease term, as measured on each anniversary of the commissioning of the manufacturing facility, if we fail to meet these specified investment and job creation requirements, then we would be obligated to pay a \$41 million “program payment” to the SUNY Foundation for each year that we fail to meet these requirements. Furthermore, if the arrangement is terminated due to a material breach by us, then additional amounts might become payable by us. As of December 31, 2019, we have met the targets as of the applicable measurement dates and anticipate meeting the remaining obligations through our operations at this facility and other operations within the State of New York.

Operating Lease Arrangement in Shanghai, China

We have an operating lease arrangement for an initial term of 50 years with the local government of Shanghai for land use rights where we are constructing Gigafactory Shanghai. Under the terms of the arrangement, we are required to spend RMB 14.08 billion in capital expenditures, and to generate RMB 2.23 billion of annual tax revenues starting at the end of 2023. If we are unwilling or unable to meet such target or obtain periodic project approvals, in accordance with the Chinese government’s standard terms for such arrangements, we would be required to revert the site to the local government and receive compensation for the remaining value of the land lease, buildings and fixtures. We believe the capital expenditure requirement and the tax revenue target will be attainable even if our actual vehicle production was far lower than the volumes we are forecasting.

Legal Proceedings

Securities Litigation Relating to the SolarCity Acquisition

Between September 1, 2016 and October 5, 2016, seven lawsuits were filed in the Delaware Court of Chancery by purported stockholders of Tesla challenging our acquisition of SolarCity. Following consolidation, the lawsuit names as defendants the members of Tesla's board of directors as then constituted and alleges, among other things, that board members breached their fiduciary duties in connection with the acquisition. The complaint asserts both derivative claims and direct claims on behalf of a purported class and seeks, among other relief, unspecified monetary damages, attorneys' fees, and costs. On January 27, 2017, defendants filed a motion to dismiss the operative complaint. Rather than respond to the defendants' motion, the plaintiffs filed an amended complaint. On March 17, 2017, defendants filed a motion to dismiss the amended complaint. On December 13, 2017, the Court heard oral argument on the motion. On March 28, 2018, the Court denied defendants' motion to dismiss. Defendants filed a request for interlocutory appeal, but the Delaware Supreme Court denied that request without ruling on the merits but electing not to hear an appeal at this early stage of the case. Defendants filed their answer on May 18, 2018, and mediations were held on June 10, 2019. Plaintiffs and defendants filed respective motions for summary judgment on August 25, 2019, and further mediations were held on October 3, 2019. The Court held a hearing on the motions for summary judgment on November 4, 2019. On January 22, 2020, all of the director defendants except Elon Musk reached a tentative settlement to resolve the lawsuit against them for an amount that would be paid entirely under the applicable insurance policy. The settlement does not involve an admission of any wrongdoing by any party. Tesla will receive such amount, which would be recognized as a gain in its financial statements, if the settlement is finally approved by the Court. On February 4, 2020, the Court issued a ruling that denied plaintiffs' previously-filed motion and granted in part and denied in part defendants' previously-filed motion. Fact and expert discovery is complete, and the case is set for trial in March 2020.

These plaintiffs and others filed parallel actions in the U.S. District Court for the District of Delaware on or about April 21, 2017. They include claims for violations of the federal securities laws and breach of fiduciary duties by Tesla's board of directors. Those actions have been consolidated and stayed pending the above-referenced Chancery Court litigation.

We believe that claims challenging the SolarCity acquisition are without merit and intend to defend against them vigorously. We are unable to estimate the possible loss or range of loss, if any, associated with these claims.

Securities Litigation Relating to Production of Model 3 Vehicles

On October 10, 2017, a purported stockholder class action was filed in the U.S. District Court for the Northern District of California against Tesla, two of its current officers, and a former officer. The complaint alleges violations of federal securities laws and seeks unspecified compensatory damages and other relief on behalf of a purported class of purchasers of Tesla securities from May 4, 2016 to October 6, 2017. The lawsuit claims that Tesla supposedly made materially false and misleading statements regarding the Company's preparedness to produce Model 3 vehicles. Plaintiffs filed an amended complaint on March 23, 2018, and defendants filed a motion to dismiss on May 25, 2018. The court granted defendants' motion to dismiss with leave to amend. Plaintiffs filed their amended complaint on September 28, 2018, and defendants filed a motion to dismiss the amended complaint on February 15, 2019. The hearing on the motion to dismiss was held on March 22, 2019, and on March 25, 2019, the Court ruled in favor of defendants and dismissed the complaint with prejudice. On April 8, 2019, plaintiffs filed a notice of appeal and on July 17, 2019 filed their opening brief. We filed our opposition on September 16, 2019. We continue to believe that the claims are without merit and intend to defend against this lawsuit vigorously. We are unable to estimate the possible loss or range of loss, if any, associated with this lawsuit.

On October 26, 2018, in a similar action, a purported stockholder class action was filed in the Superior Court of California in Santa Clara County against Tesla, Elon Musk and seven initial purchasers in an offering of debt securities by Tesla in August 2017. The complaint alleges misrepresentations made by Tesla regarding the number of Model 3 vehicles Tesla expected to produce by the end of 2017 in connection with such offering and seeks unspecified compensatory damages and other relief on behalf of a purported class of purchasers of Tesla securities in such offering. Tesla thereafter removed the case to federal court. On January 22, 2019, plaintiff abandoned its effort to proceed in state court, instead filing an amended complaint against Tesla, Elon Musk and seven initial purchasers in the debt offering before the same judge in the U.S. District Court for the Northern District of California who is hearing the above-referenced earlier filed federal case. On February 5, 2019, the Court stayed this new case pending a ruling on the motion to dismiss the complaint in such earlier filed federal case. After such earlier filed federal case was dismissed, defendants filed a motion on July 2, 2019 to dismiss this case as well. This case is now stayed pending a ruling from the appellate court on such earlier filed federal case with an agreement that if defendants prevail on appeal in such case, this case will be dismissed. We believe that the claims are without merit and intend to defend against this lawsuit vigorously. We are unable to estimate the possible loss or range of loss, if any, associated with this lawsuit.

Litigation Relating to 2018 CEO Performance Award

On June 4, 2018, a purported Tesla stockholder filed a putative class and derivative action in the Delaware Court of Chancery against Elon Musk and the members of Tesla's board of directors as then constituted, alleging corporate waste, unjust enrichment and that such board members breached their fiduciary duties by approving the stock-based compensation plan. The complaint seeks, among other things, monetary damages and rescission or reformation of the stock-based compensation plan. On August 31, 2018, defendants filed a motion to dismiss the complaint; plaintiff filed its opposition brief on November 1, 2018 and defendants filed a reply brief on December 13, 2018. The hearing on the motion to dismiss was held on May 9, 2019. On September 20, 2019, the Court granted the motion to dismiss as to the corporate waste claim but denied the motion as to the breach of fiduciary duty and unjust enrichment claims. Our answer was filed on December 3, 2019, and trial is set for June 2021. We believe the claims asserted in this lawsuit are without merit and intend to defend against them vigorously.

Securities Litigation Relating to Potential Going Private Transaction

Between August 10, 2018 and September 6, 2018, nine purported stockholder class actions were filed against Tesla and Elon Musk in connection with Elon Musk's August 7, 2018 Twitter post that he was considering taking Tesla private. All of the suits are now pending in the U.S. District Court for the Northern District of California. Although the complaints vary in certain respects, they each purport to assert claims for violations of federal securities laws related to Mr. Musk's statement and seek unspecified compensatory damages and other relief on behalf of a purported class of purchasers of Tesla's securities. Plaintiffs filed their consolidated complaint on January 16, 2019 and added as defendants the members of Tesla's board of directors. The now-consolidated purported stockholder class action was stayed while the issue of selection of lead counsel was briefed and argued before the U.S. Court of Appeals for the Ninth Circuit. The Ninth Circuit ruled regarding lead counsel. Defendants filed a motion to dismiss the complaint on November 22, 2019. The hearing on the motion is set for March 6, 2020. We believe that the claims have no merit and intend to defend against them vigorously. We are unable to estimate the potential loss, or range of loss, associated with these claims.

Between October 17, 2018 and November 9, 2018, five derivative lawsuits were filed in the Delaware Court of Chancery against Mr. Musk and the members of Tesla's board of directors as then constituted in relation to statements made and actions connected to a potential going private transaction. In addition to these cases, on October 25, 2018, another derivative lawsuit was filed in the U.S. District Court for the District of Delaware against Mr. Musk and the members of the Tesla board of directors as then constituted. The Courts in both the Delaware federal court and Delaware Court of Chancery actions have consolidated their respective actions and stayed each consolidated action pending resolution of the above-referenced consolidated purported stockholder class action. We believe that the claims have no merit and intend to defend against them vigorously. We are unable to estimate the potential loss, or range of loss, associated with these claims.

On March 7, 2019, various stockholders filed a derivative suit in the Delaware Court of Chancery, purportedly on behalf of the Company, naming Elon Musk and Tesla's board of directors, also related to Mr. Musk's August 7, 2018 Twitter post that is the basis of the above-referenced consolidated purported stockholder class action as well as Mr. Musk's February 19, 2019 Twitter post regarding Tesla's vehicle production. The suit asserts claims for breach of fiduciary duty and seeks declaratory and injunctive relief, unspecified damages, and other relief. Plaintiffs moved for expedited proceedings in connection with the declaratory and injunctive relief. Briefs were filed on March 13, 2019 and the hearing held on March 18, 2019. Defendants prevailed, with the Court denying plaintiffs' request for an expedited trial and granting defendants' request to stay this action pending the outcome of the above-referenced consolidated purported stockholder class action.

Settlement with SEC related to Potential Going Private Transaction

On October 16, 2018, the U.S. District Court for the Southern District of New York entered a final judgment approving the terms of a settlement filed with the Court on September 29, 2018, in connection with the actions taken by the U.S. Securities and Exchange Commission (the "SEC") relating to Elon Musk's prior statement that he was considering taking Tesla private. Without admitting or denying any of the SEC's allegations, and with no restriction on Mr. Musk's ability to serve as an officer or director on the Board (other than as its Chair), among other things, we and Mr. Musk paid civil penalties of \$20 million each and agreed that an independent director will serve as Chair of the Board for at least three years, and we appointed such an independent Chair of the Board and two additional independent directors to the Board, and further enhanced our disclosure controls and other corporate governance-related matters. On April 26, 2019, the settlement was amended to modify certain of the previously-agreed disclosure procedures to clarify the application of such procedures, which was subsequently approved by the Court. All other terms of the prior settlement were reaffirmed without modification.

Certain Investigations and Other Matters

We receive requests for information from regulators and governmental authorities, such as the National Highway Traffic Safety Administration, the National Transportation Safety Board, the SEC, the Department of Justice ("DOJ") and various state, federal and international agencies. We routinely cooperate with such regulatory and governmental requests.

In particular, the SEC had issued subpoenas to Tesla in connection with (a) Elon Musk's prior statement that he was considering taking Tesla private and (b) certain projections that we made for Model 3 production rates during 2017 and other public statements relating to Model 3 production. The take-private investigation was resolved and closed with the settlement with the SEC described above. On December 4, 2019, the SEC (i) closed the investigation into the projections and other public statements regarding Model 3 production rates and (ii) issued a subpoena seeking information concerning certain financial data and contracts including Tesla's regular financing arrangements. Separately, the DOJ had also asked us to voluntarily provide it with information about the above matters related to taking Tesla private and Model 3 production rates.

Aside from the settlement, as amended, with the SEC relating to Mr. Musk's statement that he was considering taking Tesla private, there have not been any developments in these matters that we deem to be material, and to our knowledge no government agency in any ongoing investigation has concluded that any wrongdoing occurred. As is our normal practice, we have been cooperating and will continue to cooperate with government authorities. We cannot predict the outcome or impact of any ongoing matters. Should the government decide to pursue an enforcement action, there exists the possibility of a material adverse impact on our business, results of operation, prospects, cash flows, and financial position.

We are also subject to various other legal proceedings and claims that arise from the normal course of business activities. If an unfavorable ruling or development were to occur, there exists the possibility of a material adverse impact on our business, results of operations, prospects, cash flows, financial position and brand.

Indemnification and Guaranteed Returns

We are contractually obligated to compensate certain fund investors for any losses that they may suffer in certain limited circumstances resulting from reductions in U.S. Treasury grants or investment tax credits (“ITC”s). Generally, such obligations would arise as a result of reductions to the value of the underlying solar energy systems as assessed by the U.S. Treasury Department for purposes of claiming U.S. Treasury grants or as assessed by the IRS for purposes of claiming ITCs or U.S. Treasury grants. For each balance sheet date, we assess and recognize, when applicable, a distribution payable for the potential exposure from this obligation based on all the information available at that time, including any guidelines issued by the U.S. Treasury Department on solar energy system valuations for purposes of claiming U.S. Treasury grants and any audits undertaken by the IRS. We believe that any payments to the fund investors in excess of the amounts already recognized by us for this obligation are not probable or material based on the facts known at the filing date.

The maximum potential future payments that we could have to make under this obligation would depend on the difference between the fair values of the solar energy systems sold or transferred to the funds as determined by us and the values that the U.S. Treasury Department would determine as fair value for the systems for purposes of claiming U.S. Treasury grants or the values the IRS would determine as the fair value for the systems for purposes of claiming ITCs or U.S. Treasury grants. We claim U.S. Treasury grants based on guidelines provided by the U.S. Treasury department and the statutory regulations from the IRS. We use fair values determined with the assistance of independent third-party appraisals commissioned by us as the basis for determining the ITCs that are passed-through to and claimed by the fund investors. Since we cannot determine future revisions to U.S. Treasury Department guidelines governing solar energy system values or how the IRS will evaluate system values used in claiming ITCs or U.S. Treasury grants, we are unable to reliably estimate the maximum potential future payments that it could have to make under this obligation as of each balance sheet date.

We are eligible to receive certain state and local incentives that are associated with renewable energy generation. The amount of incentives that can be claimed is based on the projected or actual solar energy system size and/or the amount of solar energy produced. We also currently participate in one state’s incentive program that is based on either the fair market value or the tax basis of solar energy systems placed in service. State and local incentives received are allocated between us and fund investors in accordance with the contractual provisions of each fund. We are not contractually obligated to indemnify any fund investor for any losses they may incur due to a shortfall in the amount of state or local incentives actually received.

Our lease pass-through financing funds have a one-time lease payment reset mechanism that occurs after the installation of all solar energy systems in a fund. As a result of this mechanism, we may be required to refund master lease prepayments previously received from investors. Any refunds of master lease prepayments would reduce the lease pass-through financing obligation.

Letters of Credit

As of December 31, 2019, we had \$282 million of unused letters of credit outstanding.

Note 17 – Variable Interest Entity Arrangements

We have entered into various arrangements with investors to facilitate the funding and monetization of our solar energy systems and vehicles. In particular, our wholly owned subsidiaries and fund investors have formed and contributed cash and assets into various financing funds and entered into related agreements. We have determined that the funds are variable interest entities (“VIEs”) and we are the primary beneficiary of these VIEs by reference to the power and benefits criterion under ASC 810, *Consolidation*. We have considered the provisions within the agreements, which grant us the power to manage and make decisions that affect the operation of these VIEs, including determining the solar energy systems or vehicles and the associated customer contracts to be sold or contributed to these VIEs, redeploying solar energy systems or vehicles and managing customer receivables. We consider that the rights granted to the fund investors under the agreements are more protective in nature rather than participating.

As the primary beneficiary of these VIEs, we consolidate in the financial statements the financial position, results of operations and cash flows of these VIEs, and all intercompany balances and transactions between us and these VIEs are eliminated in the consolidated financial statements. Cash distributions of income and other receipts by a fund, net of agreed upon expenses, estimated expenses, tax benefits and detriments of income and loss and tax credits, are allocated to the fund investor and our subsidiary as specified in the agreements.

Generally, our subsidiary has the option to acquire the fund investor's interest in the fund for an amount based on the market value of the fund or the formula specified in the agreements.

Upon the sale or liquidation of a fund, distributions would occur in the order and priority specified in the agreements.

Pursuant to management services, maintenance and warranty arrangements, we have been contracted to provide services to the funds, such as operations and maintenance support, accounting, lease servicing and performance reporting. In some instances, we have guaranteed payments to the fund investors as specified in the agreements. A fund's creditors have no recourse to our general credit or to that of other funds. None of the assets of the funds had been pledged as collateral for their obligations.

The aggregate carrying values of the VIEs' assets and liabilities, after elimination of any intercompany transactions and balances, in the consolidated balance sheets were as follows (in millions):

	December 31, 2019	December 31, 2018
Assets		
Current assets		
Cash and cash equivalents	\$ 106	\$ 75
Restricted cash	90	131
Accounts receivable, net	27	19
Prepaid expenses and other current assets	10	10
Total current assets	233	235
Operating lease vehicles, net	1,183	155
Solar energy systems, net	5,030	5,117
Restricted cash, net of current portion	69	65
Other assets	87	56
Total assets	<u>\$ 6,602</u>	<u>\$ 5,628</u>
Liabilities		
Current liabilities		
Accrued liabilities and other	80	133
Deferred revenue	78	21
Customer deposits	9	—
Current portion of long-term debt and finance leases	608	663
Total current liabilities	775	817
Deferred revenue, net of current portion	264	178
Long-term debt and finance leases, net of current portion	1,516	1,238
Other long-term liabilities	22	26
Total liabilities	<u>\$ 2,577</u>	<u>\$ 2,259</u>

Note 18 – Lease Pass-Through Financing Obligation

Through December 31, 2019, we had entered into eight transactions referred to as “lease pass-through fund arrangements”. Under these arrangements, our wholly owned subsidiaries finance the cost of solar energy systems with investors through arrangements contractually structured as master leases for an initial term ranging between 10 and 25 years. These solar energy systems are subject to lease or PPAs with customers with an initial term not exceeding 25 years. These solar energy systems are included within solar energy systems, net on the consolidated balance sheets.

The cost of the solar energy systems under lease pass-through fund arrangements as of December 31, 2019 and 2018 was \$1.05 billion. The accumulated depreciation on these assets as of December 31, 2019 and 2018 was \$101 million and \$66 million, respectively. The total lease pass-through financing obligation as of December 31, 2019 was \$94 million, of which \$57 million is classified as a current liability. The total lease pass-through financing obligation as of December 31, 2018 was \$112 million, of which \$62 million was classified as a current liability. Lease pass-through financing obligation is included in accrued liabilities and other for the current portion and other long-term liabilities for the long-term portion on the consolidated balance sheets.

Under a lease pass-through fund arrangement, the investor makes a large upfront payment to the lessor, which is one of our subsidiaries, and in some cases, subsequent periodic payments. We allocate a portion of the aggregate investor payments to the fair value of the assigned ITCs, which is estimated by discounting the projected cash flow impact of the ITCs using a market interest rate and is accounted for separately (see Note 2, *Summary of Significant Accounting Policies*). We account for the remainder of the investor payments as a borrowing by recording the proceeds received as a lease pass-through financing obligation, which is repaid from the future customer lease payments and any incentive rebates. A portion of the amounts received by the investor is allocated to interest expense using the effective interest rate method.

The lease pass-through financing obligation is non-recourse once the associated solar energy systems have been placed in-service and the associated customer arrangements have been assigned to the investors. However, we are required to comply with certain financial covenants specified in the contractual agreements, which we had met as of December 31, 2019. In addition, we are responsible for any warranties, performance guarantees, accounting and performance reporting. Furthermore, we continue to account for the customer arrangements and any incentive rebates in the consolidated financial statements, regardless of whether the cash is received by us or directly by the investors.

As of December 31, 2019, the future minimum master lease payments to be received from investors, for each of the next five years and thereafter, were as follows (in millions):

2020	\$	42
2021		41
2022		33
2023		26
2024		18
Thereafter		450
Total	\$	610

For two of the lease pass-through fund arrangements, our subsidiaries have pledged its assets to the investors as security for its obligations under the contractual agreements.

Each lease pass-through fund arrangement has a one-time master lease prepayment adjustment mechanism that occurs when the capacity and the placed-in-service dates of the associated solar energy systems are finalized or on an agreed-upon date. As part of this mechanism, the master lease prepayment amount is updated, and we may be obligated to refund a portion of a master lease prepayment or entitled to receive an additional master lease prepayment. Any additional master lease prepayments are recorded as an additional lease pass-through financing obligation while any master lease prepayment refunds would reduce the lease pass-through financing obligation.

Note 19 – Defined Contribution Plan

We have a 401(k) savings plan that is intended to qualify as a deferred salary arrangement under Section 401(k) of the Internal Revenue Code. Under the 401(k) savings plan, participating employees may elect to contribute up to 100% of their eligible compensation, subject to certain limitations. Participants are fully vested in their contributions. We did not make any contributions to the 401(k) savings plan during the years ended December 31, 2019, 2018 and 2017 (other than employee deferrals of eligible compensation).

Note 20 – Related Party Transactions

Related party balances were comprised of the following (in millions):

	December 31, 2019	December 31, 2018
Convertible senior notes due to related parties	\$ 3	\$ 3

Our convertible senior notes are not re-measured at fair value (refer to Note 5, *Fair Value of Financial Instruments*). As of December 31, 2019 and 2018, the unpaid principal balance of convertible senior notes due to related parties is \$3 million.

In March 2017, our CEO purchased from us 95,420 shares of our common stock in a public offering at the public offering price for an aggregate \$25 million.

In April 2017, our CEO exercised his right under the indenture to convert all of his Zero-Coupon Convertible Senior Notes due in 2020, which had an aggregate principal amount of \$10 million. As a result, on April 26, 2017, we issued 33,333 shares of our common stock to our CEO in accordance with the specified conversion rate, and we recorded an increase to additional paid-in capital of \$10 million.

In November 2018, our CEO purchased from us 56,915 shares of our common stock in a private placement at a per share price equal to the last closing price of our stock prior to the execution of the purchase agreement for an aggregate \$20 million.

In May 2019, our CEO purchased from us 102,880 shares of our common stock in a public offering at the public offering price for an aggregate \$25 million.

Note 21 – Segment Reporting and Information about Geographic Areas

We have two operating and reportable segments: (i) automotive and (ii) energy generation and storage. The automotive segment includes the design, development, manufacturing, sales, and leasing of electric vehicles as well as sales of automotive regulatory credits. Additionally, the automotive segment is also comprised of services and other, which includes non-warranty after-sales vehicle services, sales of used vehicles, retail merchandise, sales by our acquired subsidiaries to third party customers, and vehicle insurance revenue. The energy generation and storage segment includes the design, manufacture, installation, sales, and leasing of solar energy generation and energy storage products and related services and sales of solar energy systems incentives. Our CODM does not evaluate operating segments using asset or liability information. The following table presents revenues and gross profit by reportable segment (in millions):

	Year Ended December 31,		
	2019	2018	2017
Automotive segment			
Revenues	\$ 23,047	\$ 19,906	\$ 10,643
Gross profit	\$ 3,879	\$ 3,852	\$ 1,981
Energy generation and storage segment			
Revenues	\$ 1,531	\$ 1,555	\$ 1,116
Gross profit	\$ 190	\$ 190	\$ 242

The following table presents revenues by geographic area based on the sales location of our products (in millions):

	Year Ended December 31,		
	2019	2018	2017
United States	\$ 12,653	\$ 14,872	\$ 6,221
China	2,979	1,757	2,027
Netherlands	1,590	965	331
Norway	1,201	813	823
Other	6,155	3,054	2,357
Total	<u>\$ 24,578</u>	<u>\$ 21,461</u>	<u>\$ 11,759</u>

The revenues in certain geographic areas were impacted by the price adjustments we made to our vehicle offerings during 2019. Refer to Note 2, *Summary of Significant Accounting Policies*, for details.

The following table presents long-lived assets by geographic area (in millions):

	December 31, 2019	December 31, 2018
United States	\$ 15,644	\$ 16,741
International	890	860
Total	<u>\$ 16,534</u>	<u>\$ 17,601</u>

Note 22 – Restructuring and Other

During the year ended December 31, 2019, we carried out certain restructuring actions in order to reduce costs and improve efficiency. As a result, we recognized \$50 million of costs primarily related to employee termination expenses and losses from closing certain stores impacting both segments. We recognized \$47 million in impairment related to the IPR&D intangible asset as we abandoned further development efforts (refer to Note 4, *Goodwill and Intangible Assets* for details) and \$15 million for the related equipment within the energy generation and storage segment. We also incurred a loss of \$37 million for closing operations in certain facilities. On the statement of cash flows, the amounts were presented in the captions in which such amounts would have been recorded absent the impairment charges. The employee termination expenses were substantially paid by December 31, 2019, while the remaining amounts were non-cash.

During the year ended December 31, 2018, we carried-out certain restructuring actions in order to reduce costs and improve efficiency and recognized \$37 million of employee termination expenses and estimated losses from sub-leasing a certain facility. The employee termination cash expenses of \$27 million were substantially paid by the end of 2018, while the remaining amounts were non-cash. Also included within restructuring and other activities was \$55 million of expenses (materially all of which were non-cash) from restructuring the energy generation and storage segment, which comprised of disposals of certain tangible assets, the shortening of the useful life of a trade name intangible asset and a contract termination penalty. In addition, we concluded that a small portion of the IPR&D asset is not commercially feasible. Consequently, we recognized an impairment loss of \$13 million. We recognized settlement and legal expenses of \$30 million in the year ended December 31, 2018 for the settlement with the SEC relating to a take-private proposal for Tesla. These expenses were substantially paid by the end of 2018.

Note 23 – Quarterly Results of Operations (Unaudited)

The following table presents selected quarterly results of operations data for the years ended December 31, 2019 and 2018 (in millions, except per share amounts):

	Three Months Ended			
	March 31	June 30	September 30	December 31
2019				
Total revenues	\$ 4,541	\$ 6,350	\$ 6,303	\$ 7,384
Gross profit	\$ 566	\$ 921	\$ 1,191	\$ 1,391
Net (loss) income attributable to common stockholders	\$ (702)	\$ (408)	\$ 143	\$ 105
Net (loss) income per share of common stock attributable to common stockholders, basic	\$ (4.10)	\$ (2.31)	\$ 0.80	\$ 0.58
Net (loss) income per share of common stock attributable to common stockholders, diluted	\$ (4.10)	\$ (2.31)	\$ 0.78	\$ 0.56
2018				
Total revenues	\$ 3,409	\$ 4,002	\$ 6,824	\$ 7,226
Gross profit	\$ 456	\$ 619	\$ 1,524	\$ 1,443
Net (loss) income attributable to common stockholders	\$ (709)	\$ (718)	\$ 311	\$ 140
Net (loss) income per share of common stock attributable to common stockholders, basic	\$ (4.19)	\$ (4.22)	\$ 1.82	\$ 0.81
Net (loss) income per share of common stock attributable to common stockholders, diluted	\$ (4.19)	\$ (4.22)	\$ 1.75	\$ 0.78

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures pursuant to Rule 13a-15 under the Securities Exchange Act of 1934, as amended (the “Exchange Act”). In designing and evaluating the disclosure controls and procedures, our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that our management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Based on this evaluation, our Chief Executive Officer and our Chief Financial Officer concluded that, as of December 31, 2019, our disclosure controls and procedures were designed at a reasonable assurance level and were effective to provide reasonable assurance that the information we are required to disclose in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and our Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosures.

Management’s Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is a process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles and includes those policies and procedures that (1) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). Our management concluded that our internal control over financial reporting was effective as of December 31, 2019.

Our independent registered public accounting firm, PricewaterhouseCoopers LLP, has audited the effectiveness of our internal control over financial reporting as of December 31, 2019, as stated in their report which is included herein.

Limitations on the Effectiveness of Controls

Because of inherent limitations, internal control over financial reporting may not prevent or detect misstatements and projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the fourth fiscal quarter of the year ended December 31, 2019, which has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item 10 of Form 10-K will be included in our 2020 Proxy Statement to be filed with the Securities and Exchange Commission in connection with the solicitation of proxies for our 2020 Annual Meeting of Stockholders and is incorporated herein by reference. The 2020 Proxy Statement will be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year to which this report relates.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item 11 of Form 10-K will be included in our 2020 Proxy Statement and is incorporated herein by reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item 12 of Form 10-K will be included in our 2020 Proxy Statement and is incorporated herein by reference.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

The information required by this Item 13 of Form 10-K will be included in our 2020 Proxy Statement and is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item 14 of Form 10-K will be included in our 2020 Proxy Statement and is incorporated herein by reference.

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

1. Financial statements (see *Index to Consolidated Financial Statements* in Part II, Item 8 of this report)
2. All financial statement schedules have been omitted since the required information was not applicable or was not present in amounts sufficient to require submission of the schedules, or because the information required is included in the consolidated financial statements or the accompanying notes
3. The exhibits listed in the following *Index to Exhibits* are filed or incorporated by reference as part of this report

INDEX TO EXHIBITS

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
3.1	Amended and Restated Certificate of Incorporation of the Registrant.	10-K	001-34756	3.1	March 1, 2017	
3.2	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of the Registrant.	10-K	001-34756	3.2	March 1, 2017	
3.3	Amended and Restated Bylaws of the Registrant.	8-K	001-34756	3.2	February 1, 2017	
4.1	Specimen common stock certificate of the Registrant.	10-K	001-34756	4.1	March 1, 2017	
4.2	Fifth Amended and Restated Investors' Rights Agreement, dated as of August 31, 2009, between Registrant and certain holders of the Registrant's capital stock named therein.	S-1	333-164593	4.2	January 29, 2010	
4.3	Amendment to Fifth Amended and Restated Investors' Rights Agreement, dated as of May 20, 2010, between Registrant and certain holders of the Registrant's capital stock named therein.	S-1/A	333-164593	4.2A	May 27, 2010	
4.4	Amendment to Fifth Amended and Restated Investors' Rights Agreement between Registrant, Toyota Motor Corporation and certain holders of the Registrant's capital stock named therein.	S-1/A	333-164593	4.2B	May 27, 2010	
4.5	Amendment to Fifth Amended and Restated Investor's Rights Agreement, dated as of June 14, 2010, between Registrant and certain holders of the Registrant's capital stock named therein.	S-1/A	333-164593	4.2C	June 15, 2010	
4.6	Amendment to Fifth Amended and Restated Investor's Rights Agreement, dated as of November 2, 2010, between Registrant and certain holders of the Registrant's capital stock named therein.	8-K	001-34756	4.1	November 4, 2010	
4.7	Waiver to Fifth Amended and Restated Investor's Rights Agreement, dated as of May 22, 2011, between Registrant and certain holders of the Registrant's capital stock named therein.	S-1/A	333-174466	4.2E	June 2, 2011	
4.8	Amendment to Fifth Amended and Restated Investor's Rights Agreement, dated as of May 30, 2011, between Registrant and certain holders of the Registrant's capital stock named therein.	8-K	001-34756	4.1	June 1, 2011	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.9	<u>Sixth Amendment to Fifth Amended and Restated Investors' Rights Agreement, dated as of May 15, 2013 among the Registrant, the Elon Musk Revocable Trust dated July 22, 2003 and certain other holders of the capital stock of the Registrant named therein.</u>	8-K	001-34756	4.1	May 20, 2013	
4.10	<u>Waiver to Fifth Amended and Restated Investor's Rights Agreement, dated as of May 14, 2013, between the Registrant and certain holders of the capital stock of the Registrant named therein.</u>	8-K	001-34756	4.2	May 20, 2013	
4.11	<u>Waiver to Fifth Amended and Restated Investor's Rights Agreement, dated as of August 13, 2015, between the Registrant and certain holders of the capital stock of the Registrant named therein.</u>	8-K	001-34756	4.1	August 19, 2015	
4.12	<u>Waiver to Fifth Amended and Restated Investors' Rights Agreement, dated as of May 18, 2016, between the Registrant and certain holders of the capital stock of the Registrant named therein.</u>	8-K	001-34756	4.1	May 24, 2016	
4.13	<u>Waiver to Fifth Amended and Restated Investors' Rights Agreement, dated as of March 15, 2017, between the Registrant and certain holders of the capital stock of the Registrant named therein.</u>	8-K	001-34756	4.1	March 17, 2017	
4.14	<u>Waiver to Fifth Amended and Restated Investors' Rights Agreement, dated as of May 1, 2019, between the Registrant and certain holders of the capital stock of the Registrant named therein.</u>	8-K	001-34756	4.1	May 3, 2019	
4.15	<u>Indenture, dated as of May 22, 2013, by and between the Registrant and U.S. Bank National Association.</u>	8-K	001-34756	4.1	May 22, 2013	
4.16	<u>Third Supplemental Indenture, dated as of March 5, 2014, by and between the Registrant and U.S. Bank National Association.</u>	8-K	001-34756	4.4	March 5, 2014	
4.17	<u>Form of 1.25% Convertible Senior Note Due March 1, 2021 (included in Exhibit 4.19).</u>	8-K	001-34756	4.4	March 5, 2014	
4.18	<u>Fourth Supplemental Indenture, dated as of March 22, 2017, by and between the Registrant and U.S. Bank National Association.</u>	8-K	001-34756	4.2	March 22, 2017	
4.19	<u>Form of 2.375% Convertible Senior Note Due March 15, 2022 (included in Exhibit 4.21).</u>	8-K	001-34756	4.2	March 22, 2017	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.20	Indenture, dated as of August 18, 2017, by and among the Registrant, SolarCity, and U.S. Bank National Association, as trustee.	8-K	001-34756	4.1	August 23, 2017	
4.21	Form of 5.30% Senior Note due August 15, 2025.	8-K	001-34756	4.2	August 23, 2017	
4.22	Indenture, dated as of September 30, 2014, between SolarCity and Wells Fargo Bank, National Association	8-K(1)	001-35758	4.1	October 6, 2014	
4.23	First Supplemental Indenture, dated as of November 21, 2016, between SolarCity and Wells Fargo Bank, National Association, as trustee to the Indenture, dated as of September 30, 2014, between SolarCity and Wells Fargo Bank, National Association, as trustee.	8-K	001-34756	4.2	November 21, 2016	
4.24	Indenture, dated as of December 7, 2015, between SolarCity and Wells Fargo Bank, National Association	8-K(1)	001-35758	4.1	December 7, 2015	
4.25	First Supplemental Indenture, dated as of November 21, 2016, between SolarCity and Wells Fargo Bank, National Association, as trustee to the Indenture, dated as of December 7, 2015, between SolarCity and Wells Fargo Bank, National Association, as trustee.	8-K	001-34756	4.3	November 21, 2016	
4.26	Indenture, dated as of October 15, 2014, between SolarCity and U.S. Bank National Association, as trustee.	S-3ASR(1)	333-199321	4.1	October 15, 2014	
4.27	Fifth Supplemental Indenture, dated as of May 7, 2019, by and between Registrant and U.S. Bank National Association, related to 2.00% Convertible Senior Notes due May 15, 2024.	8-K	001-34756	4.2	May 8, 2019	
4.28	Form of 2.00% Convertible Senior Notes due May 15, 2024 (included in Exhibit 4.27).	8-K	001-34756	4.3	May 8, 2019	
4.29	Fourth Supplemental Indenture, dated as of October 15, 2014, by and between SolarCity and the Trustee, related to SolarCity's 4.00% Solar Bonds, Series 2014/4-7.	8-K(1)	001-35758	4.5	October 15, 2014	
4.30	Eighth Supplemental Indenture, dated as of January 29, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.00% Solar Bonds, Series 2015/4-7.	8-K(1)	001-35758	4.5	January 29, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.31	Ninth Supplemental Indenture, dated as of March 9, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.00% Solar Bonds, Series 2015/5-5.	8-K(1)	001-35758	4.2	March 9, 2015	
4.32	Tenth Supplemental Indenture, dated as of March 9, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.00% Solar Bonds, Series 2015/6-10.	8-K(1)	001-35758	4.3	March 9, 2015	
4.33	Eleventh Supplemental Indenture, dated as of March 9, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.75% Solar Bonds, Series 2015/7-15.	8-K(1)	001-35758	4.4	March 9, 2015	
4.34	Fourteenth Supplemental Indenture, dated as of March 19, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C3-5.	8-K(1)	001-35758	4.4	March 19, 2015	
4.35	Fifteenth Supplemental Indenture, dated as of March 19, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C4-10.	8-K(1)	001-35758	4.5	March 19, 2015	
4.36	Sixteenth Supplemental Indenture, dated as of March 19, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C5-15.	8-K(1)	001-35758	4.6	March 19, 2015	
4.37	Nineteenth Supplemental Indenture, dated as of March 26, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C8-5.	8-K(1)	001-35758	4.4	March 26, 2015	
4.38	Twentieth Supplemental Indenture, dated as of March 26, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C9-10.	8-K(1)	001-35758	4.5	March 26, 2015	
4.39	Twenty-First Supplemental Indenture, dated as of March 26, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C10-15.	8-K(1)	001-35758	4.6	March 26, 2015	
4.40	Twenty-Fifth Supplemental Indenture, dated as of April 2, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C13-5.	8-K(1)	001-35758	4.4	April 2, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.41	Twenty-Sixth Supplemental Indenture, dated as of April 2, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C14-10.	8-K(1)	001-35758	4.5	April 2, 2015	
4.42	Twenty-Ninth Supplemental Indenture, dated as of April 9, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C18-5.	8-K(1)	001-35758	4.4	April 9, 2015	
4.43	Thirtieth Supplemental Indenture, dated as of April 9, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C19-10.	8-K(1)	001-35758	4.5	April 9, 2015	
4.44	Thirty-First Supplemental Indenture, dated as of April 9, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C20-15.	8-K(1)	001-35758	4.6	April 9, 2015	
4.45	Thirty-Fourth Supplemental Indenture, dated as of April 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C23-5.	8-K(1)	001-35758	4.4	April 14, 2015	
4.46	Thirty-Fifth Supplemental Indenture, dated as of April 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C24-10.	8-K(1)	001-35758	4.5	April 14, 2015	
4.47	Thirty-Sixth Supplemental Indenture, dated as of April 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C25-15.	8-K(1)	001-35758	4.6	April 14, 2015	
4.48	Thirty-Eighth Supplemental Indenture, dated as of April 21, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C27-10.	8-K(1)	001-35758	4.3	April 21, 2015	
4.49	Thirty-Ninth Supplemental Indenture, dated as of April 21, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C28-15.	8-K(1)	001-35758	4.4	April 21, 2015	
4.50	Forty-Second Supplemental Indenture, dated as of April 27, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C31-5.	8-K(1)	001-35758	4.4	April 27, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.51	Forty-Third Supplemental Indenture, dated as of April 27, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C32-10.	8-K(1)	001-35758	4.5	April 27, 2015	
4.52	Forty-Fourth Supplemental Indenture, dated as of April 27, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C33-15.	8-K(1)	001-35758	4.6	April 27, 2015	
4.53	Forty-Seventh Supplemental Indenture, dated as of May 1, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.00% Solar Bonds, Series 2015/11-5.	8-K(1)	001-35758	4.4	May 1, 2015	
4.54	Forty-Eighth Supplemental Indenture, dated as of May 1, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.00% Solar Bonds, Series 2015/12-10.	8-K(1)	001-35758	4.5	May 1, 2015	
4.55	Forty-Ninth Supplemental Indenture, dated as of May 1, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.75% Solar Bonds, Series 2015/13-15.	8-K(1)	001-35758	4.6	May 1, 2015	
4.56	Fifty-First Supplemental Indenture, dated as of May 11, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C35-5.	8-K(1)	001-35758	4.3	May 11, 2015	
4.57	Fifty-Second Supplemental Indenture, dated as of May 11, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C36-10.	8-K(1)	001-35758	4.4	May 11, 2015	
4.58	Fifty-Third Supplemental Indenture, dated as of May 11, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C37-15.	8-K(1)	001-35758	4.5	May 11, 2015	
4.59	Fifty-Sixth Supplemental Indenture, dated as of May 18, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C39-5.	8-K(1)	001-35758	4.3	May 18, 2015	
4.60	Fifty-Seventh Supplemental Indenture, dated as of May 18, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C40-10.	8-K(1)	001-35758	4.4	May 18, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.61	Fifty-Eighth Supplemental Indenture, dated as of May 18, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C41-15.	8-K(1)	001-35758	4.5	May 18, 2015	
4.62	Sixtieth Supplemental Indenture, dated as of May 26, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C43-5.	8-K(1)	001-35758	4.3	May 26, 2015	
4.63	Sixty-First Supplemental Indenture, dated as of May 26, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C44-10.	8-K(1)	001-35758	4.4	May 26, 2015	
4.64	Sixty-Second Supplemental Indenture, dated as of May 26, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C45-15.	8-K(1)	001-35758	4.5	May 26, 2015	
4.65	Sixty-Fifth Supplemental Indenture, dated as of June 8, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C47-5.	8-K(1)	001-35758	4.3	June 10, 2015	
4.66	Sixty-Seventh Supplemental Indenture, dated as of June 8, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C49-15.	8-K(1)	001-35758	4.5	June 10, 2015	
4.67	Seventieth Supplemental Indenture, dated as of June 16, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C52-10.	8-K(1)	001-35758	4.4	June 16, 2015	
4.68	Seventy-First Supplemental Indenture, dated as of June 16, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C53-15.	8-K(1)	001-35758	4.5	June 16, 2015	
4.69	Seventy-Fourth Supplemental Indenture, dated as of June 22, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C56-10.	8-K(1)	001-35758	4.4	June 23, 2015	
4.70	Seventy-Fifth Supplemental Indenture, dated as of June 22, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C57-15.	8-K(1)	001-35758	4.5	June 23, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.71	<u>Seventy-Ninth Supplemental Indenture, dated as of June 29, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C60-5.</u>	8-K(1)	001-35758	4.4	June 29, 2015	
4.72	<u>Eightieth Supplemental Indenture, dated as of June 29, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C61-10.</u>	8-K(1)	001-35758	4.5	June 29, 2015	
4.73	<u>Eighty-First Supplemental Indenture, dated as of June 29, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C62-15.</u>	8-K(1)	001-35758	4.6	June 29, 2015	
4.74	<u>Eighty-Fourth Supplemental Indenture, dated as of July 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C65-5.</u>	8-K(1)	001-35758	4.4	July 14, 2015	
4.75	<u>Eighty-Sixth Supplemental Indenture, dated as of July 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C67-15.</u>	8-K(1)	001-35758	4.6	July 14, 2015	
4.76	<u>Eighty-Ninth Supplemental Indenture, dated as of July 20, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C70-5.</u>	8-K(1)	001-35758	4.4	July 21, 2015	
4.77	<u>Ninetieth Supplemental Indenture, dated as of July 20, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C71-10.</u>	8-K(1)	001-35758	4.5	July 21, 2015	
4.78	<u>Ninety-First Supplemental Indenture, dated as of July 20, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C72-15.</u>	8-K(1)	001-35758	4.6	July 21, 2015	
4.79	<u>Ninety-Fourth Supplemental Indenture, dated as of July 31, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.00% Solar Bonds, Series 2015/19-5.</u>	8-K(1)	001-35758	4.4	July 31, 2015	
4.80	<u>Ninety-Fifth Supplemental Indenture, dated as of July 31, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.00% Solar Bonds, Series 2015/20-10.</u>	8-K(1)	001-35758	4.5	July 31, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.81	Ninety-Sixth Supplemental Indenture, dated as of July 31, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.75% Solar Bonds, Series 2015/21-15.	8-K(1)	001-35758	4.6	July 31, 2015	
4.82	Ninety-Ninth Supplemental Indenture, dated as of August 3, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C75-5.	8-K(1)	001-35758	4.4	August 3, 2015	
4.83	One Hundred-and-Fifth Supplemental Indenture, dated as of August 10, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C81-10.	8-K(1)	001-35758	4.5	August 10, 2015	
4.84	One Hundred-and-Ninth Supplemental Indenture, dated as of August 17, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C85-5.	8-K(1)	001-35758	4.4	August 17, 2015	
4.85	One Hundred-and-Eleventh Supplemental Indenture, dated as of August 17, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C87-15.	8-K(1)	001-35758	4.6	August 17, 2015	
4.86	One Hundred-and-Fourteenth Supplemental Indenture, dated as of August 24, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C90-5.	8-K(1)	001-35758	4.4	August 24, 2015	
4.87	One Hundred-and-Sixteenth Supplemental Indenture, dated as of August 24, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C92-15.	8-K(1)	001-35758	4.6	August 24, 2015	
4.88	One Hundred-and-Nineteenth Supplemental Indenture, dated as of August 31, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C95-5.	8-K(1)	001-35758	4.4	August 31, 2015	
4.89	One Hundred-and-Twenty-First Supplemental Indenture, dated as of August 31, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C97-15.	8-K(1)	001-35758	4.6	August 31, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.90	<u>One Hundred-and-Twenty-Seventh Supplemental Indenture, dated as of September 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C100-5.</u>	8-K(1)	001-35758	4.4	September 15, 2015	
4.91	<u>One Hundred-and-Twenty-Eighth Supplemental Indenture, dated as of September 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C101-10.</u>	8-K(1)	001-35758	4.5	September 15, 2015	
4.92	<u>One Hundred-and-Twenty-Ninth Supplemental Indenture, dated as of September 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C102-15.</u>	8-K(1)	001-35758	4.6	September 15, 2015	
4.93	<u>One Hundred-and-Thirty-Second Supplemental Indenture, dated as of September 28, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C105-5.</u>	8-K(1)	001-35758	4.4	September 29, 2015	
4.94	<u>One Hundred-and-Thirty-Third Supplemental Indenture, dated as of September 28, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C106-10.</u>	8-K(1)	001-35758	4.5	September 29, 2015	
4.95	<u>One Hundred-and-Thirty-Fourth Supplemental Indenture, dated as of September 28, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C107-15.</u>	8-K(1)	001-35758	4.6	September 29, 2015	
4.96	<u>One Hundred-and-Thirty-Seventh Supplemental Indenture, dated as of October 13, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C110-5.</u>	8-K(1)	001-35758	4.4	October 13, 2015	
4.97	<u>One Hundred-and-Thirty-Eighth Supplemental Indenture, dated as of October 13, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C111-10.</u>	8-K(1)	001-35758	4.5	October 13, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.98	<u>One Hundred-and-Forty-Second Supplemental Indenture, dated as of October 30, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.00% Solar Bonds, Series 2015/24-5.</u>	8-K(1)	001-35758	4.4	October 30, 2015	
4.99	<u>One Hundred-and-Forty-Third Supplemental Indenture, dated as of October 30, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.00% Solar Bonds, Series 2015/25-10.</u>	8-K(1)	001-35758	4.5	October 30, 2015	
4.100	<u>One Hundred-and-Forty-Fourth Supplemental Indenture, dated as of October 30, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.75% Solar Bonds, Series 2015/26-15.</u>	8-K(1)	001-35758	4.6	October 30, 2015	
4.101	<u>One Hundred-and-Forty-Seventh Supplemental Indenture, dated as of November 4, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C115-5.</u>	8-K(1)	001-35758	4.4	November 4, 2015	
4.102	<u>One Hundred-and-Forty-Eighth Supplemental Indenture, dated as of November 4, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C116-10.</u>	8-K(1)	001-35758	4.5	November 4, 2015	
4.103	<u>One Hundred-and-Fifty-Third Supplemental Indenture, dated as of November 16, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C121-10.</u>	8-K(1)	001-35758	4.5	November 17, 2015	
4.104	<u>One Hundred-and-Fifty-Fourth Supplemental Indenture, dated as of November 16, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C122-15.</u>	8-K(1)	001-35758	4.6	November 17, 2015	
4.105	<u>One Hundred-and-Fifty-Eighth Supplemental Indenture, dated as of November 30, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C126-10.</u>	8-K(1)	001-35758	4.5	November 30, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.106	<u>One Hundred-and-Fifty-Ninth Supplemental Indenture, dated as of November 30, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C127-15.</u>	8-K(1)	001-35758	4.6	November 30, 2015	
4.107	<u>One Hundred-and-Sixty-Second Supplemental Indenture, dated as of December 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C130-5.</u>	8-K(1)	001-35758	4.4	December 14, 2015	
4.058	<u>One Hundred-and-Sixty-Third Supplemental Indenture, dated as of December 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C131-10.</u>	8-K(1)	001-35758	4.5	December 14, 2015	
4.109	<u>One Hundred-and-Sixty-Fourth Supplemental Indenture, dated as of December 14, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C132-15.</u>	8-K(1)	001-35758	4.6	December 14, 2015	
4.110	<u>One Hundred-and-Sixty-Seventh Supplemental Indenture, dated as of December 28, 2015, by and between SolarCity and the Trustee, related to SolarCity's 3.60% Solar Bonds, Series 2015/C135-5.</u>	8-K(1)	001-35758	4.4	December 28, 2015	
4.111	<u>One Hundred-and-Sixty-Eighth Supplemental Indenture, dated as of December 28, 2015, by and between SolarCity and the Trustee, related to SolarCity's 4.70% Solar Bonds, Series 2015/C136-10.</u>	8-K(1)	001-35758	4.5	December 28, 2015	
4.112	<u>One Hundred-and-Sixty-Ninth Supplemental Indenture, dated as of December 28, 2015, by and between SolarCity and the Trustee, related to SolarCity's 5.45% Solar Bonds, Series 2015/C137-15.</u>	8-K(1)	001-35758	4.6	December 28, 2015	
4.113	<u>One Hundred-and-Seventy-Second Supplemental Indenture, dated as of January 29, 2016, by and between SolarCity and the Trustee, related to SolarCity's 4.00% Solar Bonds, Series 2016/3-5.</u>	8-K(1)	001-35758	4.4	January 29, 2016	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
4.114	One Hundred-and-Seventy-Third Supplemental Indenture, dated as of January 29, 2016, by and between SolarCity and the Trustee, related to SolarCity's 5.00% Solar Bonds, Series 2016/4-10.	8-K(1)	001-35758	4.5	January 29, 2016	
4.115	One Hundred-and-Seventy-Fourth Supplemental Indenture, dated as of January 29, 2016, by and between SolarCity and the Trustee, related to SolarCity's 5.75% Solar Bonds, Series 2016/5-15.	8-K(1)	001-35758	4.6	January 29, 2016	
4.116	One Hundred-and-Seventy-Seventh Supplemental Indenture, dated as of February 26, 2016, by and between SolarCity and the Trustee, related to SolarCity's 5.25% Solar Bonds, Series 2016/8-5.	8-K(1)	001-35758	4.4	February 26, 2016	
4.117	One Hundred-and-Seventy-Ninth Supplemental Indenture, dated as of March 21, 2016, by and between SolarCity and the Trustee, related to SolarCity's 5.25% Solar Bonds, Series 2016/10-5.	8-K(1)	001-35758	4.3	March 21, 2016	
4.118	One Hundred-and-Eighty-First Supplemental Indenture, dated as of June 10, 2016, by and between SolarCity and the Trustee, related to SolarCity's 5.25% Solar Bonds, Series 2016/12-5.	8-K(1)	001-35758	4.3	June 10, 2016	
4.119	Description of Registrant's Securities	—	—	—	—	X
10.1**	Form of Indemnification Agreement between the Registrant and its directors and officers.	S-1/A	333-164593	10.1	June 15, 2010	
10.2**	2003 Equity Incentive Plan.	S-1/A	333-164593	10.2	May 27, 2010	
10.3**	Form of Stock Option Agreement under 2003 Equity Incentive Plan.	S-1	333-164593	10.3	January 29, 2010	
10.4**	Amended and Restated 2010 Equity Incentive Plan.	10-K	001-34756	10.4	February 23, 2018	
10.5**	Form of Stock Option Agreement under 2010 Equity Incentive Plan.	10-K	001-34756	10.6	March 1, 2017	
10.6**	Form of Restricted Stock Unit Award Agreement under 2010 Equity Incentive Plan.	10-K	001-34756	10.7	March 1, 2017	
10.7**	Amended and Restated 2010 Employee Stock Purchase Plan, effective as of February 1, 2017.	10-K	001-34756	10.8	March 1, 2017	
10.8**	2019 Equity Incentive Plan.	S-8	333-232079	4.2	June 12, 2019	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.9**	Form of Stock Option Agreement under 2019 Equity Incentive Plan.	S-8	333-232079	4.3	June 12, 2019	
10.10**	Form of Restricted Stock Unit Award Agreement under 2019 Equity Incentive Plan.	S-8	333-232079	4.4	June 12, 2019	
10.11**	Employee Stock Purchase Plan, effective as of June 12, 2019.	S-8	333-232079	4.5	June 12, 2019	
10.12**	2007 SolarCity Stock Plan and form of agreements used thereunder.	S-1(1)	333-184317	10.2	October 5, 2012	
10.13**	2012 SolarCity Equity Incentive Plan and form of agreements used thereunder.	S-1(1)	333-184317	10.3	October 5, 2012	
10.14**	2010 Zep Solar, Inc. Equity Incentive Plan and form of agreements used thereunder.	S-8(1)	333-192996	4.5	December 20, 2013	
10.15**	Offer Letter between the Registrant and Elon Musk dated October 13, 2008.	S-1	333-164593	10.9	January 29, 2010	
10.16**	Performance Stock Option Agreement between the Registrant and Elon Musk dated January 21, 2018.	DEF 14A	001-34756	Appendix A	February 8, 2018	
10.17	Indemnification Agreement, dated as of February 27, 2014, by and between the Registrant and J.P. Morgan Securities LLC.	8-K	001-34756	10.1	March 5, 2014	
10.18	Form of Call Option Confirmation relating to 0.25% Convertible Senior Notes Due March 1, 2019.	8-K	001-34756	10.2	March 5, 2014	
10.19	Form of Call Option Confirmation relating to 1.25% Convertible Senior Notes Due March 1, 2021.	8-K	001-34756	10.3	March 5, 2014	
10.20	Form of Warrant Confirmation relating to 0.25% Convertible Senior Notes Due March 1, 2019.	8-K	001-34756	10.4	March 5, 2014	
10.21	Form of Warrant Confirmation relating to 1.25% Convertible Senior Notes Due March 1, 2021.	8-K	001-34756	10.5	March 5, 2014	
10.22	Form of Call Option Confirmation relating to 2.375% Convertible Notes due March 15, 2022.	8-K	001-34756	10.1	March 22, 2017	
10.23	Form of Warrant Confirmation relating to 2.375% Convertible Notes due March 15, 2022.	8-K	001-34756	10.2	March 22, 2017	
10.24	Form of Call Option Confirmation relating to 2.00% Convertible Senior Notes due May 15, 2024.	8-K	001-34756	10.1	May 3, 2019	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.25	Form of Warrant Confirmation relating to 2.00% Convertible Senior Notes due May 15, 2024.	8-K	001-34756	10.2	May 3, 2019	
10.26†	Supply Agreement between Panasonic Corporation and the Registrant dated October 5, 2011.	10-K	-001-34756	10.50	February 27, 2012	
10.27†	Amendment No. 1 to Supply Agreement between Panasonic Corporation and the Registrant dated October 29, 2013.	10-K	001-34756	10.35A	February 26, 2014	
10.28	Agreement between Panasonic Corporation and the Registrant dated July 31, 2014.	10-Q	001-34756	10.1	November 7, 2014	
10.29†	General Terms and Conditions between Panasonic Corporation and the Registrant dated October 1, 2014.	8-K	001-34756	10.2	October 11, 2016	
10.30	Letter Agreement, dated as of February 24, 2015, regarding addition of co-party to General Terms and Conditions, Production Pricing Agreement and Investment Letter Agreement between Panasonic Corporation and the Registrant.	10-K	001-34756	10.25A	February 24, 2016	
10.31†	Amendment to Gigafactory General Terms, dated March 1, 2016, by and among the Registrant, Panasonic Corporation and Panasonic Energy Corporation of North America.	8-K	001-34756	10.1	October 11, 2016	
10.32†	Production Pricing Agreement between Panasonic Corporation and the Registrant dated October 1, 2014.	10-Q	001-34756	10.3	November 7, 2014	
10.33†	Investment Letter Agreement between Panasonic Corporation and the Registrant dated October 1, 2014.	10-Q	001-34756	10.4	November 7, 2014	
10.34	Amendment to Gigafactory Documents, dated April 5, 2016, by and among the Registrant, Panasonic Corporation, Panasonic Corporation of North America and Panasonic Energy Corporation of North America.	10-Q	001-34756	10.2	May 10, 2016	
10.35††	2019 Pricing Agreement (2170 Cells) with respect to 2014 Gigafactory Agreements, executed September 20, 2019, by and among the Registrant, Tesla Motors Netherlands B.V., Panasonic Corporation and Panasonic Corporation of North America, on behalf of its division Panasonic Energy Corporation of North America.	10-Q	001-34756	10.5	October 29, 2019	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.36††	<u>2019 Pricing Agreement (Japan Cells) with respect to 2011 Supply Agreement, executed September 20, 2019, by and among the Registrant, Tesla Motors Netherlands B.V., Panasonic Corporation and SANYO Electric Co., Ltd.</u>	10-Q	001-34756	10.6	October 29, 2019	
10.37††	<u>Amended and Restated Factory Lease, executed as of March 26, 10'9, by and between Tesla, Inc. and Panasonic Energy North America, a division of Panasonic Corporation of North America, as tenant.</u>	10-Q	001-34756	10.3	July 29, 2019	
10.38††	<u>Lease Amendment, executed September 20, 2019, by and among the Registrant, Panasonic Corporation of North America, on behalf of its division Panasonic Energy of North America, with respect to the Amended and Restated Factory Lease, executed as of March 26, 2019.</u>	10-Q	001-34756	10.7	October 29, 2019	
10.39	<u>ABL Credit Agreement, dated as of June 10, 2015, by and among the Registrant, Tesla Motors Netherlands B.V., certain of the Registrant's and Tesla Motors Netherlands B.V.'s direct or indirect subsidiaries from time to time party thereto, as borrowers, Wells Fargo Bank, National Association, as documentation agent, JPMorgan Chase Bank, N.A., Goldman Sachs Bank USA, Morgan Stanley Senior Funding Inc. and Bank of America, N.A., as syndication agents, the lenders from time to time party thereto, and Deutsche Bank AG New York Branch, as administrative agent and collateral agent.</u>	8-K	001-34756	10.1	June 12, 2015	
10.40	<u>First Amendment, dated as of November 3, 2015, to ABL Credit Agreement, dated as of June 10, 2015, by and among the Registrant, Tesla Motors Netherlands B.V., certain of the Registrant's and Tesla Motors Netherlands B.V.'s direct or indirect subsidiaries from time to time party thereto, as borrowers, and the documentation agent, syndication agents, administrative agent, collateral agent and lenders from time to time party thereto.</u>	10-Q	001-34756	10.1	November 5, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.41	<u>Second Amendment, dated as of December 31, 2015, to ABL Credit Agreement, dated as of June 10, 2015, by and among the Registrant, Tesla Motors Netherlands B.V., certain of the Registrant's and Tesla Motors Netherlands B.V.'s direct or indirect subsidiaries from time to time party thereto, as borrowers, and the documentation agent, syndication agents, administrative agent, collateral agent and lenders from time to time party thereto.</u>	10-K	001-34756	10.28B	February 24, 2016	
10.42	<u>Third Amendment, dated as of February 9, 2016, to ABL Credit Agreement, dated as of June 10, 2015, by and among the Registrant, Tesla Motors Netherlands B.V., certain of the Registrant's and Tesla Motors Netherlands B.V.'s direct or indirect subsidiaries from time to time party thereto, as borrowers, and the documentation agent, syndication agents, administrative agent, collateral agent and lenders from time to time party thereto.</u>	10-K	001-34756	10.28C	February 24, 2016	
10.43	<u>Fourth Amendment to Credit Agreement, dated as of July 31, 2016, by and among the Registrant, Tesla Motors Netherlands B.V., the lenders party thereto and Deutsche Bank AG New York Branch, as administrative agent and collateral agent.</u>	8-K	001-34756	10.1	August 1, 2016	
10.44	<u>Fifth Amendment to Credit Agreement, dated as of December 15, 2016, among the Registrant, Tesla Motors Netherlands B.V., the lenders party thereto and Deutsche Bank AG New York Branch, as administrative agent and collateral agent.</u>	8-K	001-34756	10.1	December 20, 2016	
10.45	<u>Sixth Amendment to Credit Agreement, dated as of June 19, 2017, among the Registrant, Tesla Motors Netherlands B.V., the lenders party thereto and Deutsche Bank AG New York Branch, as administrative agent and collateral agent.</u>	10-Q	001-34756	10.1	August 4, 2017	
10.46	<u>Seventh Amendment to the ABL Credit Agreement, dated as of August 11, 2017, by and among the Registrant, Tesla Motors Netherlands B.V., Deutsche Bank AG New York Branch, as administrative agent and collateral agent, and the other agents party thereto.</u>	8-K	001-34756	10.2	August 23, 2017	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.47	<u>Eighth Amendment to the ABL Credit Agreement, dated as of March 12, 2018, by and among the Registrant, Tesla Motors Netherlands B.V., Deutsche Bank AG New York Branch, as administrative agent and collateral agent, and the other agents party thereto.</u>	10-Q	001-34756	10.2	May 7, 2018	
10.48	<u>Ninth Amendment to the ABL Credit Agreement, dated as of May 3, 2018, by and among the Registrant, Tesla Motors Netherlands B.V., Deutsche Bank AG New York Branch, as administrative agent and collateral agent, and the other agents party thereto.</u>	10-Q	001-34756	10.3	May 7, 2018	
10.49	<u>Tenth Amendment to the ABL Credit Agreement, dated as of December 10, 2018, by and among the Registrant, Tesla Motors Netherlands B.V., Deutsche Bank AG New York Branch, as administrative agent and collateral agent, and the other agents party thereto.</u>	10-K	001-34756	10.41	February 19, 2019	
10.50	<u>Amendment and Restatement in respect of ABL Credit Agreement, dated as of March 6, 2019, by and among certain of the Registrant's and Tesla Motors Netherlands B.V.'s direct or indirect subsidiaries from time to time party thereto, as borrowers, Wells Fargo Bank, National Association, as documentation agent, JPMorgan Chase Bank, N.A., Goldman Sachs Bank USA, Morgan Stanley Senior Funding Inc. and Bank of America, N.A., as syndication agents, the lenders from time to time party thereto, and Deutsche Bank AG New York Branch, as administrative agent and collateral agent.</u>	S-4/A	333-229749	10.68	April 3, 2019	
10.51	<u>Eleventh Amendment to Credit Agreement, dated as of February 1, 2019, in respect of the ABL Credit Agreement, dated as of June 10, 2015, among Tesla, Inc., Tesla Motors Netherlands B.V., the lenders from time to time party thereto, Deutsche Bank AG New York Branch, as administrative agent and collateral agent and as Collateral Agent, and the other agent parties thereto.</u>	10-Q	001-34756	10.1	April 29, 2019	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.52†	<u>Agreement for Tax Abatement and Incentives, dated as of May 7, 2015, by and between Tesla Motors, Inc. and the State of Nevada, acting by and through the Nevada Governor's Office of Economic Development.</u>	10-Q	001-34756	10.1	August 7, 2015	
10.53†	<u>Amended and Restated Loan and Security Agreement, dated as of August 17, 2017, by and among Tesla 2014 Warehouse SPV LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, and Deutsche Bank AG, New York Branch, as Administrative Agent.</u>	10-Q	001-34756	10.3	November 3, 2017	
10.54†	<u>Amendment No. 1 to Amended and Restated Loan and Security Agreement, dated as of October 18, 2017, by and among Tesla 2014 Warehouse SPV LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, Deutsche Bank AG, New York Branch, as Administrative Agent, and Deutsche Bank Trust Company Americas, as Paying Agent.</u>	10-K	001-34756	10.44	February 23, 2018	
10.55	<u>Amendment No. 2 to Amended and Restated Loan and Security Agreement, dated as of March 23, 2018, by and among Tesla 2014 Warehouse SPV LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, Deutsche Bank AG, New York Branch, as Administrative Agent, and Deutsche Bank Trust Company Americas, as Paying Agent.</u>	10-Q	001-34756	10.4	May 7, 2018	
10.56	<u>Amendment No. 3 to Amended and Restated Loan and Security Agreement, dated as of May 4, 2018, by and among Tesla 2014 Warehouse SPV LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, Deutsche Bank AG, New York Branch as Administrative Agent, and Deutsche Bank Trust Company Americas, as Paying Agent.</u>	10-Q	001-34756	10.1	November 2, 2018	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.57†	<u>Amendment No. 4 to Amended and Restated Loan and Security Agreement, dated as of August 16, 2018, by and among Tesla 2014 Warehouse SPV LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, Deutsche Bank AG, New York Branch as Administrative Agent and Deutsche Bank Trust Company Americas, as Paying Agent.</u>	10-Q	001-34756	10.3	November 2, 2018	
10.58†	<u>Amendment No. 5 to Amended and Restated Loan and Security Agreement, executed on December 28, 2018, by and among Tesla 2014 Warehouse SPV LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, Deutsche Bank AG, New York Branch as Administrative Agent and Deutsche Bank Trust Company Americas, as Paying Agent.</u>	10-K	001-34756	10.48	February 19, 2019	
10.59††	<u>Amendment No. 6 to Amended and Restated Loan and Security Agreement, dated as of August 16, 2019, by and among Tesla 2014 Warehouse SPV LLC, Deutsche Bank Trust Company Americas, New York Branch, as Administrative Agent, and the Lenders and Group Agents from time to time party thereto.</u>	10-Q	001-34756	10.1	October 29, 2019	
10.60†	<u>Loan and Security Agreement, dated as of August 17, 2017, by and among LML Warehouse SPV, LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, and Deutsche Bank AG, New York Branch, as Administrative Agent.</u>	10-Q	001-34756	10.4	November 3, 2017	
10.61†	<u>Amendment No. 1 to Loan and Security Agreement, dated as of October 18, 2017, by and among LML Warehouse SPV, LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, Deutsche Bank AG, New York Branch, as Administrative Agent, and Deutsche Bank Trust Company Americas, as Paying Agent.</u>	10-K	001-34756	10.46	February 23, 2018	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.62	<u>Amendment No. 2 to Loan and Security Agreement, dated as of March 23, 2018, by and among LML Warehouse SPV, LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, Deutsche Bank AG, New York Branch, as Administrative Agent, and Deutsche Bank Trust Company Americas, as Paying Agent.</u>	10-Q	001-34756	10.5	May 7, 2018	
10.63	<u>Amendment No. 3 to Loan and Security Agreement, dated as of May 4, 2018, by and among LML Warehouse SPV, LLC, the Lenders and Group Agents from time to time party thereto, and Deutsche Bank AG, New York Branch, as Administrative Agent.</u>	10-Q	001-34756	10.2	November 2, 2018	
10.64†	<u>Amendment No. 4 to Loan and Security Agreement, dated as of August 16, 2018, by and among LML Warehouse SPV, LLC, the Lenders and Group Agents from time to time party thereto, and Deutsche Bank AG, New York Branch, as Administrative Agent.</u>	10-Q	001-34756	10.4	November 2, 2018	
10.65†	<u>Payoff and Termination Letter, executed on December 28, 2018, by and among LML Warehouse SPV, LLC, the Lenders and Group Agents from time to time party thereto, and Deutsche Bank AG, New York Branch, as Administrative Agent, relating to Loan and Security Agreement.</u>	10-K	001-34756	10.54	February 19, 2019	
10.66†	<u>Loan and Security Agreement, executed on December 28, 2018, by and among LML 2018 Warehouse SPV, LLC, Tesla Finance LLC, the Lenders and Group Agents from time to time party thereto, Deutsche Bank Trust Company Americas, as Paying Agent, and Deutsche Bank AG, New York Branch, as Administrative Agent.</u>	10-K	001-34756	10.55	February 19, 2019	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.67††	Letter of Consent, dated as of June 14, 2019, by and among LML 2018 Warehouse SPV, LLC, Deutsche Bank AG, New York Branch, as Administrative Agent, and the Group Agents party thereto, in respect of the Loan and Security Agreement, dated as of August 17, 2017 and as amended from time to time, by and among LML Warehouse SPV, LLC, Tesla Finance LLC, and the Lenders, Group Agents and Administrative Agent from time to time party thereto.	10-Q	001-34756	10.1	July 29, 2019	
10.68††	Amendment No. 1 to Loan and Security Agreement, dated as of August 16, 2019, by and among LML 2018 Warehouse SPV, LLC, Deutsche Bank Trust Company Americas, as Paying Agent, and Deutsche Bank AG, New York Branch, as Administrative Agent, and the Lenders and Group Agents from time to time party thereto.	10-Q	001-34756	10.2	October 29, 2019	
10.69	Amendment No. 2 to Loan and Security Agreement, dated as of December 13, 2019, by and among LML 2018 Warehouse SPV, LLC, Deutsche Bank Trust Company Americas, as Paying Agent, and Deutsche Bank AG, New York Branch, as Administrative Agent, and the Lenders and Group Agents from time to time party thereto.	—	—	—	—	X
10.70	Purchase Agreement, dated as of August 11, 2017, by and among the Registrant, SolarCity and Goldman Sachs & Co. LLC and Morgan Stanley & Co. LLC as representatives of the several initial purchasers named therein.	8-K	001-34756	10.1	August 23, 2017	
10.71	Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of September 2, 2014, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, Inc.	10-Q(1)	001-35758	10.16	November 6, 2014	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.72	<u>First Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of October 31, 2014, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, Inc.</u>	10-K(1)	001-35758	10.16a	February 24, 2015	
10.73	<u>Second Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of December 15, 2014, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, Inc.</u>	10-K(1)	001-35758	10.16b	February 24, 2015	
10.74	<u>Third Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of February 12, 2015, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, Inc.</u>	10-Q(1)	001-35758	10.16c	May 6, 2015	
10.75	<u>Fourth Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of March 30, 2015, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, Inc.</u>	10-Q(1)	001-35758	10.16d	May 6, 2015	
10.76	<u>Fifth Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of June 30, 2015, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, LLC.</u>	10-Q(1)	001-35758	10.16e	July 30, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.77	<u>Sixth Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of September 1, 2015, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, LLC.</u>	10-Q(1)	001-35758	10.16f	October 30, 2015	
10.78	<u>Seventh Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of October 9, 2015, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, LLC.</u>	10-Q(1)	001-35758	10.16g	October 30, 2015	
10.79	<u>Eighth Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of October 26, 2015, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, LLC.</u>	10-Q(1)	001-35758	10.16h	October 30, 2015	
10.80	<u>Ninth Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of December 9, 2015, by and between The Research Foundation For The State University of New York, on behalf of the College of Nanoscale Science and Engineering of the State University of New York, and Silevo, LLC.</u>	10-K(1)	001-35758	10.16i	February 10, 2016	
10.81	<u>Tenth Amendment to Amended and Restated Agreement For Research & Development Alliance on Triex Module Technology, effective as of March 31, 2017, by and between The Research Foundation For The State University of New York, on behalf of the Colleges of Nanoscale Science and Engineering of the State University of New York, and Silevo, LLC.</u>	10-Q	001-34756	10.8	May 10, 2017	

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.82††	Grant Contract for State-Owned Construction Land Use Right, dated as of October 17, 2018, by and between Shanghai Planning and Land Resource Administration Bureau, as grantor, and Tesla (Shanghai) Co., Ltd., as grantee (English translation).	10-Q	001-34756	10.2	July 29, 2019	
10.83††	Facility Agreement, dated as of September 26, 2019, by and between China Merchants Bank Co., Ltd. Beijing Branch and Tesla Automobile (Beijing) Co., Ltd. (English translation).	10-Q	001-34756	10.3	October 29, 2019	
10.84††	Statement Letter to China Merchants Bank Co., Ltd. Beijing Branch from Tesla Automobile (Beijing) Co., Ltd., dated as of September 26, 2019 (English translation).	10-Q	001-34756	10.4	October 29, 2019	
10.85††	Fixed Asset Syndication Loan Agreement, dated as of December 18, 2019, by and among Tesla (Shanghai) Co., Ltd., China Construction Bank Corporation, China (Shanghai) Pilot Free Trade Zone Special Area Branch, Agricultural Bank of China Shanghai Changning Sub-branch, Shanghai Pudong Development Bank Co., Ltd., Shanghai Branch, and Industrial and Commercial Bank of China Limited, China (Shanghai) Pilot Free Trade Zone Special Area Branch (English translation).	—	—	—	—	X
10.86††	Fixed Asset Syndication Loan Agreement and Supplemental Agreement, dated as of December 18, 2019, by and among Tesla (Shanghai) Co., Ltd., China Construction Bank Corporation, China (Shanghai) Pilot Free Trade Zone Special Area Branch, Agricultural Bank of China Shanghai Changning Sub-branch, Shanghai Pudong Development Bank Co., Ltd., Shanghai Branch, and Industrial and Commercial Bank of China Limited, China (Shanghai) Pilot Free Trade Zone Special Area Branch (English translation).	—	—	—	—	X

Exhibit Number	Exhibit Description	Incorporated by Reference				Filed Herewith
		Form	File No.	Exhibit	Filing Date	
10.87††	Syndication Revolving Loan Agreement, dated as of December 18, 2019, by and among Tesla (Shanghai) Co., Ltd. China Construction Bank Corporation, China (Shanghai) Pilot Free Trade Zone Special Area Branch, Agricultural Bank of China Shanghai Changning Sub-branch, Shanghai Pudong Development Bank Co., Ltd., Shanghai Branch, and Industrial and Commercial Bank of China Limited, China (Shanghai) Pilot Free Trade Zone Special Area Branch (English translation).	—	—	—	—	X
21.1	List of Subsidiaries of the Registrant	—	—	—	—	X
23.1	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm	—	—	—	—	X
31.1	Rule 13a-14(a) / 15(d)-14(a) Certification of Principal Executive Officer	—	—	—	—	X
31.2	Rule 13a-14(a) / 15(d)-14(a) Certification of Principal Financial Officer	—	—	—	—	X
32.1*	Section 1350 Certifications	—	—	—	—	X
101.INS	Inline XBRL Instance Document	—	—	—	—	X
101.SCH	Inline XBRL Taxonomy Extension Schema Document	—	—	—	—	X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.	—	—	—	—	X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document	—	—	—	—	X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document	—	—	—	—	X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document	—	—	—	—	X
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101)					
*	Furnished herewith					
**	Indicates a management contract or compensatory plan or arrangement					
†	Confidential treatment has been requested for portions of this exhibit					
††	Portions of this exhibit have been redacted in compliance with Regulation S-K Item 601(b)(10).					
(1)	Indicates a filing of SolarCity					

ITEM 16. SUMMARY

None

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Tesla, Inc.

Date: February 13, 2020

/s/ Elon Musk
Elon Musk
Chief Executive Officer
(Principal Executive Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Elon Musk Elon Musk	Chief Executive Officer and Director (Principal Executive Officer)	February 13, 2020
/s/ Zachary J. Kirkhorn Zachary J. Kirkhorn	Chief Financial Officer (Principal Financial Officer)	February 13, 2020
/s/ Vaibhav Taneja Vaibhav Taneja	Chief Accounting Officer (Principal Accounting Officer)	February 13, 2020
/s/ Robyn Denholm Robyn Denholm	Director	February 13, 2020
/s/ Ira Ehrenpreis Ira Ehrenpreis	Director	February 13, 2020
/s/ Lawrence J. Ellison Lawrence J. Ellison	Director	February 13, 2020
/s/ Antonio J. Gracias Antonio J. Gracias	Director	February 13, 2020
/s/ Stephen T. Jurvetson Stephen T. Jurvetson	Director	February 13, 2020
/s/ James Murdoch James Murdoch	Director	February 13, 2020
/s/ Kimbal Musk Kimbal Musk	Director	February 13, 2020
/s/ Kathleen Wilson-Thompson Kathleen Wilson-Thompson	Director	February 13, 2020