

T E S L A

2018

# IMPACT REPORT



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Certain statements in this report, including statements regarding future development plans, are forward-looking statements that are subject to risks and uncertainties. These forward-looking statements are based on management's current expectations. Various important factors could cause actual results to differ materially, including the risks identified in our U.S. Securities and Exchange Commission [filings](#). Tesla disclaims any obligation to update any forward-looking statement contained in this report.

## INTRODUCTION

Tesla was founded in 2003 by a group of engineers who wanted to prove that people didn't need to compromise to drive electric – that electric vehicles could be better, quicker and more fun to drive than gasoline cars. Today, we build not only all-electric vehicles but also infinitely scalable clean energy generation and storage products.

We believe the faster the world stops relying on fossil fuels and moves towards a zero-emissions future, the better. Tesla's products offer a complete solution – sustainable generation, storage and usage – all capable of being powered by the sun. We envision a world powered by solar energy, running on batteries and transported by all-electric cars.

By design, Tesla's products are sustainable, and we're working hard to build them in a sustainable way too. We're publishing our very first Impact Report measuring the impacts of our products and operations on the environment and our communities. We recognize there's still much to be done.

As we grow and prove to the world that a business rooted in sustainability can also be successful, we will continue to improve our processes and report on our progress in future Impact Reports.

## THE TESLA TEAM

MISSION

GLOBAL GREENHOUSE GAS (GHG) EMISSIONS BY ECONOMIC SECTOR

Global GHG emissions are increasing at an accelerating rate. Annual GHG emissions have approximately doubled over the past 50 years to over 35 gigatons per year. Energy use through electricity and heat production (25%) and transportation (14%) together drive these GHG emissions.



Electricity & Heat Production*	25%
Agriculture, Forestry & Other Land Use	24%
Industry	21%
Transportation*	14%
Other Energy	10%
Buildings	6%

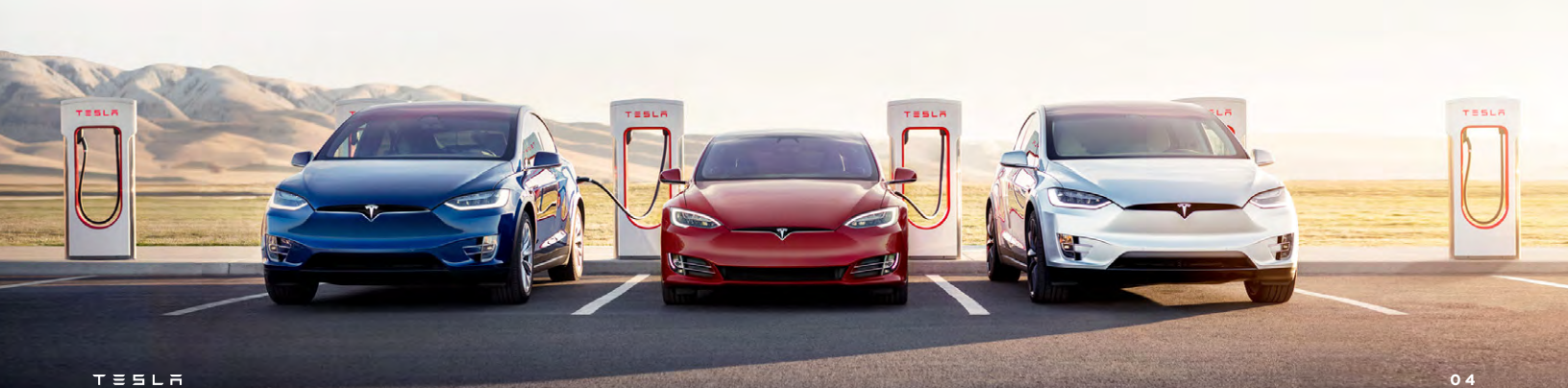
\*Tesla-related sectors

Tesla’s mission is to accelerate the world’s transition to sustainable energy.

Climate change is reaching alarming levels – in large part due to emissions from burning fossil fuels for transportation and electricity generation. In 2016, carbon dioxide (CO<sub>2</sub>) concentration levels permanently exceeded the 400 parts per million threshold, a level that many climate scientists believe will have a catastrophic impact on the environment. Worse, global CO<sub>2</sub> emissions are increasing at an accelerating rate. Annual CO<sub>2</sub> emissions have approximately doubled over the past 50 years to over 35 gigatons per year. The path that the world currently is on is unsustainable and unwise.

The world cannot reduce CO<sub>2</sub> emissions without addressing energy generation and consumption. And the world cannot address its energy habits without directly reducing emissions in the transportation and power sectors. This issue is Tesla’s entire reason for existing. We are focused on creating a complete power and transportation ecosystem from solar generation and energy storage to all-electric vehicles.

The first step in our [Master Plan](#) was to build an all-electric sports car (the Tesla Roadster) to prove that people didn’t need to compromise performance, speed or comfort to drive all-electric. From there, we designed the world’s first-ever premium all-electric sedan from the ground up, [Model S](#), our [Model X](#) SUV, and an affordable vehicle for the mass market, [Model 3](#). As part of [Master Plan, Part Deux](#), we introduced [Tesla Semi](#), an all-electric truck that delivers massive savings in energy costs, performance, efficiency and reliability.



## MISSION

We recognize that we cannot achieve our mission alone, so we decided to [open source Tesla patents](#), making them [accessible](#) to anyone who wants to design and build electric vehicles.

To create an entire sustainable energy ecosystem, Tesla also manufactures a unique set of energy products that enable homeowners, businesses and utilities to produce and manage renewable energy generation, storage and consumption. Homeowners can install [solar panels](#) or [Solar Roof](#) to power their home using 100% renewable energy and store that energy in [Powerwall](#), which makes electricity [available during peak energy-use periods](#) to help them [save money](#) and provides power during grid outages. Meanwhile, utilities and businesses can use [Powerpack](#) – an infinitely scalable energy storage system that provides greater control, efficiency and reliability across the electric grid.



Combined with a 13 MW photovoltaic array, the 52 MWh Powerpack system in Kaua'i stores solar energy captured during the day and feeds it to the grid to help reduce the amount of diesel power generation needed to meet the island's electricity demand. This system is helping the Kaua'i Island Utility Cooperative meet its goal of using renewable resources to generate at least half of the island's electricity by the end of 2019.



Renewable energy generation and storage are critical components of developing microgrids — an increasingly important means of delivering reliable and sustainable electricity around the world. As deployment of Tesla's products continues to accelerate, we can scale the adoption of renewable energy, cost-effectively modernize our aging infrastructure (and become less reliant on it) and improve the resilience of the electric grid to benefit everyone.



# PRODUCT IMPACT

## SUSTAINABLE AND SUPERIOR PRODUCTS FOR EVERYONE

The foundation of Tesla's mission rests first and foremost on our products. Our focus from the beginning has been to develop products that are not only sustainable, but superior to fossil-fuel alternatives, as many believe that choosing sustainable products requires consumers to compromise on price or performance. Tesla's all-electric vehicles combine performance, safety and efficiency, making them the best cars in the world, while Tesla's energy generation and storage products power both urban and remote communities with reliable, affordable energy.

## ENVIRONMENTAL IMPACT

Transportation and electricity production are two of the largest sources of GHG emissions, making up more than half of all U.S. emissions. Tesla's ecosystem (solar, batteries and vehicles) aims to reduce the environmental impacts of transportation, electricity production and energy use by people, homes, businesses and the grid.

Powerwall is a rechargeable lithium-ion battery that integrates with solar to store excess energy generated during the day and make electricity available when homeowners need it — for example, during grid outages and when the sun is not shining.



In 2006, prior to the launch of the Tesla Roadster, there was no viable all-electric vehicle option on the market. Now, 12 years later, there are over 3M electric vehicles on the road globally, with more being produced every day. The auto industry is moving towards electrification, and governments around the world have recognized the harmful impact of internal combustion engine (ICE) vehicle emissions and have started to take concrete steps towards making the future more environmentally friendly and sustainable.



## ENVIRONMENTAL IMPACT



550,000+

Tesla vehicles sold



10,000,000,000+

Miles driven



4,000,000+

Metric tons of CO<sub>2</sub> saved

Tesla began delivering its first mass-market vehicle, Model 3, in July 2017.

Like every Tesla, Model 3 combines range, performance, safety and technology — accelerating from 0-60 mph in a mere 3.2 seconds.



Over 550K Tesla vehicles have been sold, and they have driven over 10B miles to date, resulting in a combined savings of over 4M metric tons of CO<sub>2</sub>. This is the equivalent of saving emissions from being released into the environment from over 500K ICE vehicles with a fuel economy of 22 miles per gallon (MPG).

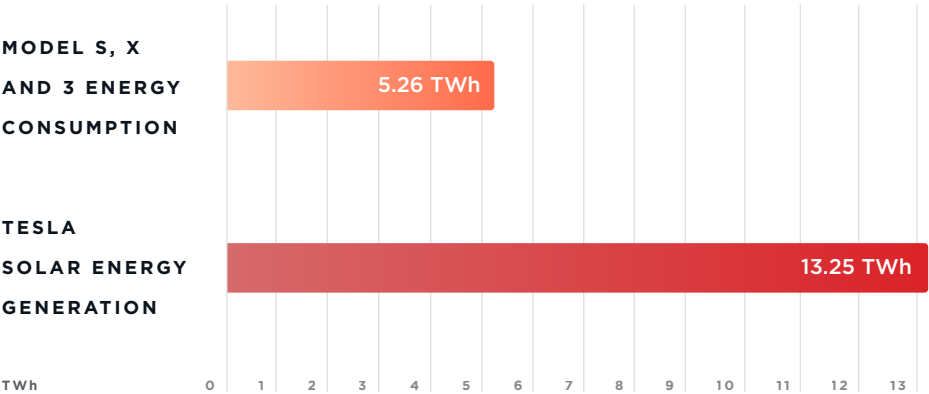
Tesla's Supercharger network — the fastest and most extensive charging network in the world — has delivered over 595 Gigawatt-hours (GWhs) of energy, saving the equivalent of over 75M gallons of gasoline. That's enough gasoline for the average ICE vehicle with a fuel economy of 22 MPG to travel round trip from Los Angeles to New York City over 290K times.

As of February 2019, Tesla Energy has installed over 3.5 Gigawatts of solar installations and has cumulatively generated over 13 Terawatt-hours (TWhs) of 100% clean, emissions-free electricity. To put 13 TWhs in perspective, this amount of energy could supply the annual residential electricity consumption for the entire state of Connecticut. Over their entire expected use life of 35+ years, these solar installations are expected to generate 86.5 TWh of energy, which is enough electricity to power all of Washington D.C. for almost a decade.



ALL-TIME TESLA ENERGY CONSUMPTION VS. GENERATION

Telsa’s solar electricity generation has far exceeded the amount of energy the entire Tesla vehicle fleet on the road has consumed to date.



The World Health Organization estimates greenhouse gases and harmful air pollutants, such as particulate matter, ozone, nitrogen dioxide and sulfur dioxide, cause over 7M premature deaths around the globe each year. Reducing the use of fossil fuels for transportation and electricity generation decreases the risk of cardiovascular disease, respiratory disease and stroke in both developed and undeveloped countries.

While many recognize the impact that power generation has on CO<sub>2</sub> emissions, power generation’s impact on water consumption is less appreciated. Power generation is one of the leading causes of water withdrawal in the U.S., as water for thermoelectric power is used in generating electricity with steam-driven turbine generators and also to cool the power-producing equipment. So every kilowatt-hour (kWh) of clean solar energy produced not only lowers CO<sub>2</sub> emissions, but also lowers water consumption.

## RESILIENCE OF THE GRID



Tesla batteries combined with existing solar arrays on the island of Culebra in Puerto Rico provide clean energy for communities nearby.



Solar and energy storage systems don't just provide clean, zero-emission energy, they also improve the reliability and resilience of the electric grid. For example, in the event of an electric grid outage, energy storage systems can immediately provide power to homes, communities and businesses.

When Hurricane Maria struck Puerto Rico in September 2017, destroying thousands of homes and cutting electric grid power on the island, the initial emergency response was focused on deploying diesel generators to provide temporary electricity. In addition to releasing harmful emissions and requiring constant refueling and maintenance, these generators were extremely loud and not designed to run for long periods, so many failed. In response, Tesla provided over 1K battery storage systems paired with solar panels to deliver reliable and emissions-free electricity to over 660 locations throughout Puerto Rico, such as the Hospital del Niño Children's Hospital in San Juan.



## RESILIENCE OF THE GRID

In addition to providing back-up power during an electric grid outage, the combination of solar and energy storage systems provides communities the flexibility of using the solar power when needed. Battery energy storage systems also smooth out the variable peaks and valleys in electricity demand, thus reducing both peak demand costs and the operational costs for utilities of generating power during peak periods. This solution is also offsetting the need to overbuild infrastructure, such as peaker power plants — some of the world's dirtiest and least stable polluting energy generators — to meet the highest demand hours of the year.

In December 2017, Tesla turned on the world's largest lithium-ion battery in South Australia. A 50-year storm had damaged critical infrastructure in this region, causing a statewide blackout and leaving 1.7M residents without electricity. As a result, the local government looked for a sustainable solution to ensure energy security for all residents, and Tesla, with the developer, Neoen, were selected to work on this project. Tesla provided a 100 MW / 129 MWh Powerpack system to be paired with Neoen's Hornsdale Wind Farm near Jamestown and completed the project in less than 100 days. Just a few weeks after, when a major coal-fired power plant failed, Tesla's battery system was activated in mere milliseconds to help stabilize the electric grid. This grid scale energy storage project is an example of a zero-emissions solution that is helping to reduce power outages and improving the reliability of South Australia's electrical infrastructure.



Powerpacks in South Australia charge using wind energy from the Hornsdale Wind Farm — providing not only a sustainable solution to the region's energy needs, but also helping to solve power shortages, reduce intermittencies and manage summer electricity peak load to improve the infrastructure's reliability.



## ACCESS TO SUSTAINABLE ENERGY



Ta'u Island in American Samoa used diesel generators as their main source of power for many years, leaving the residents vulnerable to blackouts when diesel supplies were low. To solve this, Tesla paired solar with Powerpacks to power homes, schools, the local hospital and other facilities to deliver 100% clean energy around the clock to the entire community.



More than 1B people worldwide do not have access to electricity, and many that do get their electricity from polluting sources such as coal or fossil fuels. Tesla is bringing sustainable and affordable energy solutions to communities around the world. On the island of Ta'u in American Samoa, Tesla created a microgrid consisting of over 5.3K solar panels and 60 Powerpack systems, which is capable of powering 100% of the island on clean energy for 3 full days without sun. Today, instead of burning almost 110K gallons of diesel per year, paying for rising fuel and related transportation costs and having to face negative health impacts, nearly 900 residents of Ta'u benefit from clean, affordable and reliable energy year round.

**1.4 MW**  
of solar generation

**3 days**  
of energy without the sun

**100%**  
coverage of the island

## BUILDING THE SAFEST CARS FROM THE GROUND UP

### MODEL 3 SPOTLIGHT

The National Highway Traffic Safety Administration awarded Model 3 a 5-star safety rating in every category and sub-category, making it one of the safest cars on the road.

#### FRONTAL CRASH



#### SIDE CRASH



#### ROLLOVER



#### OVERALL RATING



#### FRONT-IMPACT PROTECTION

#### SIDE-IMPACT PROTECTION

#### LOWEST ROLLOVER RISK



Improving occupant safety has always been key to our mission, because vehicle safety is essential to mass all-electric vehicle adoption. When we set out to build our first full-sized vehicle, Model S, we positioned the battery pack and electric motors beneath the floor of the vehicle to give it an extremely low center of gravity, greatly reducing the risk of rollover while enhancing handling and performance. Today, all Tesla vehicles feature this same battery placement.

Another benefit of Tesla vehicles is improved frontal impact safety due to our vehicles' front trunk. The entire front end of the vehicle becomes a superior crumple zone since there is no gasoline engine block. This design improves impact absorption in the event of a crash, and the area doubles as an extra storage space. Beneath our vehicles, the titanium underbody shield consists of a ¼-inch ballistic grade aluminum armor plate that protects the battery pack.

Based on the advanced architecture of Model S and Model X, we engineered Model 3 to be the safest car built to date. In addition to its near 50/50 weight distribution, Model 3 was also designed with an extremely low polar moment of inertia, meaning its heaviest components are located closer to the car's center of gravity. Even though Model 3 has no engine, its performance is similar to a "mid-engine car" due to its centered battery pack and the fact that Model 3's rear motor is placed slightly in front of the rear axle rather than behind it. Not only does this architecture add to the overall agility and handling of the car, it also improves the capability of stability control by minimizing rotational kinetic energy. After testing Model 3 as part of its New Car Assessment Program through a series of crash tests used to calculate the likelihood of serious bodily injury for front, side and rollover crashes, the National Highway Traffic Safety Administration (NHTSA) awarded Model 3 a perfect 5-star safety rating in every category and sub-category.

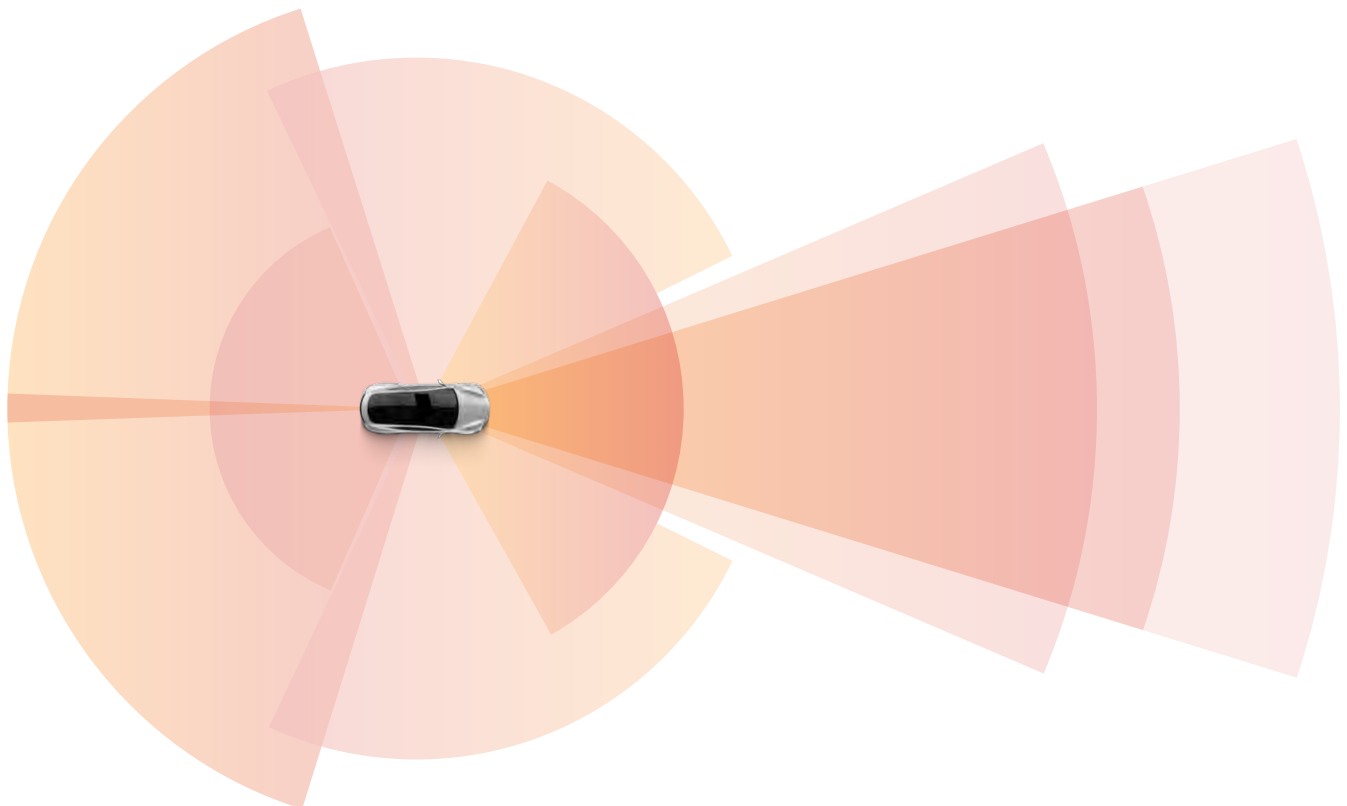
## BUILDING THE SAFEST CARS FROM THE GROUND UP

All new Tesla vehicles have the hardware needed for full self-driving capability at a safety level substantially greater than that of a human driver. Eight surround cameras provide 360° visibility around the car, complemented by 12 ultrasonic sensors. A 250-meter forward-facing radar with enhanced processing provides additional data about the car's surroundings on a redundant wavelength that is able to see through heavy rain, fog, dust and even the car ahead.



Our commitment to safety is why all Tesla vehicles built since October 2016 come with a suite of external cameras, sensors and onboard computing that enable advanced safety features like Automatic Emergency Braking, Lane Departure Warning, Forward and Side Collision Warning, Obstacle-Aware Acceleration, blind spot warnings and more. These features are made possible by our Autopilot hardware and software system, which is an advanced driver assistance tool that provides an additional layer of safety that two eyes alone would not have and helps make highway driving more enjoyable. We believe that the unique combination of passive safety, active safety, and automated driving is crucial for keeping not just Tesla drivers and passengers safe, but all drivers on the road.

In Q1 2019, we registered one accident for every 2.87M miles driven in which drivers had Autopilot engaged. For those driving without Autopilot, we registered one accident for every 1.76M miles driven. By comparison, NHTSA's most recent data shows that in the United States there is an automobile crash every 436K miles.



# OPERATIONAL IMPACT

**BUILDING A  
SUSTAINABLE  
FUTURE IN A  
SUSTAINABLE WAY**

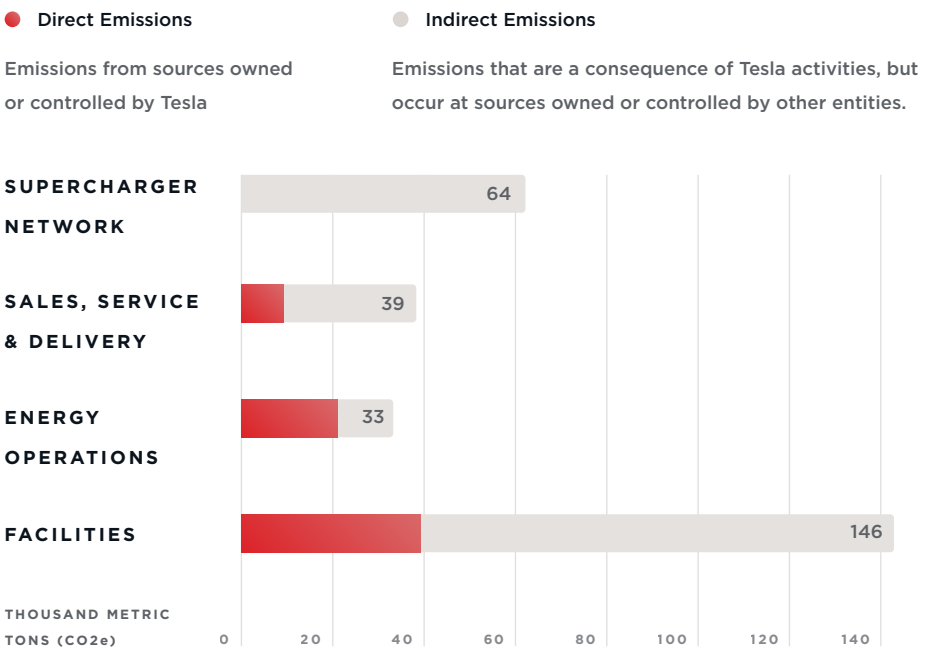
**GREENHOUSE GAS  
(GHG) INVENTORY**

While the everyday use of Tesla products by consumers has by far the biggest environmental impact, we also care deeply about operating our business and manufacturing our products in a sustainable way. Tesla has expanded its global manufacturing, charging, sales and service footprint rapidly in recent years. Keeping track of our various operational impacts allows us to implement efficiency improvements that simultaneously reduce our impact on the environment and lower operational costs.

Global CO<sub>2</sub> levels in the atmosphere are higher than ever. It is an unsustainable trend that drives Tesla’s mission to accelerate the world’s transition to sustainable energy.

In 2017, Tesla established a baseline global carbon impact footprint across manufacturing, retail, distribution, sales, Supercharger, energy, warehouse and office facilities. For this baseline year, Tesla focused on tracking electricity and natural gas usage for our sites. Moving forward, we will continue to build out this data, which will help us set specific targets with the goal of driving down our GHG footprint on a per-product basis as we continue to grow our business.

**2017 GLOBAL CARBON IMPACT**



## ENERGY EFFICIENCY

Energy efficiency plays an important role in Tesla's long-term sustainable energy goal, and through active retrofitting of our existing facilities and the construction of new, more efficient facilities, we are working to reduce our energy use every day.

In our Fremont Factory, the installation of LED lighting, as well as efficiency improvements to manufacturing systems such as compressed air, castings, injection molding, water test booth and cooling towers, combined with a new energy-efficient paint shop, have resulted in over 10 GWhs of energy savings over the last 5 years. These savings are the equivalent of the annual electricity consumption of almost 1K U.S. households. As a result of many improvements, the energy usage at the Fremont Factory per vehicle manufactured has decreased by 19% compared to 2016.

In 2017, we established our energy-use baseline for the Fremont Factory. We have started the process of gathering energy intensity data for all of our main manufacturing locations and plan to add that information to the Impact Report in the future.

## SUSTAINABLE ENERGY

Sustainability is at the heart of everything we do. In the same way our customers are adopting zero-emissions lifestyles by using solar energy systems, battery storage and all-electric vehicles, Tesla is also installing sustainable energy systems at our own facilities to utilize renewable energy generation and storage where possible.

As we continue to ramp production of Tesla products, we are committed to making significant progress towards our goal of operating global Tesla manufacturing, vehicle charging and other operations using 100% renewable energy.

## FREMONT FACTORY

### PRODUCT

1 MW / 2 MWh

Powerpack Battery

### APPLICATION

Peak Shaving

Tesla builds every Model S, Model X and Model 3 at its factory in Fremont, where some vehicle components are also manufactured. In addition to the 10K+ employees at this factory, hundreds of robots are located throughout the facility, including on the Model 3 production line.



Tesla purchased the Fremont plant in 2010 and completed a significant \$3 billion modernization of the site to create one of the most advanced manufacturing facilities in the world. Originally built in the 1960s, the Fremont Factory contains 5.3M sq ft of manufacturing and office space — the equivalent of over 90 American football fields. The original roof layout and building infrastructure make solar deployment on-site challenging, but our long-term plan is to install rooftop solar panels at this site where possible. The Fremont Factory is also home to one of our first battery installations, originally commissioned in 2015. The Fremont Factory battery pack system monitors the facility's energy use throughout the day and cuts back the amount of electricity taken from the grid during peak hours. This also helps to decrease demand on the local electric grid in addition to reducing the facility's energy costs, as electricity purchased during peak hours is priced at a premium.



## LATHROP FACTORY

### PRODUCT

2 MW / 4 MWh

Powerpack Battery

### APPLICATION

Peak Shaving

With 431K sq ft of manufacturing space, Tesla's Lathrop facility in California hosts computer numerical control (CNC) operations, machining and castings manufacturing. Located 50 miles from our Fremont Factory, the Lathrop facility features an installed battery operation that helps reduce peak energy consumption, alleviating stress on the electricity grid during heavy-use times and minimizing the dependence on peaker power plants.

## TILBURG FACTORY

### PRODUCT

3.4 MW

Solar Array

### APPLICATION

Facility's Energy Needs

Tesla's Tilburg Factory in the Netherlands serves as the local assembly, quality testing and distribution point for Model S and Model X vehicles sold in the European Union (EU). The Tilburg Factory houses a 3.4 MW solar array that consists of almost 10.5K solar modules. This solar system generates enough electricity to meet the Tilburg Factory's energy needs throughout most of the year. To put the magnitude of the installation in perspective, it is the size of almost 3 European football fields and between July 2017 to June 2018 generated an amount of electricity that would have been sufficient to power 942 households in the region. In other words, the solar power captured by this system from that same time period would be sufficient to meet the energy needs for electric vehicles to drive a combined total of over 16.7M km (10.4M miles).

Opened in 2013, Tesla's Tilburg Factory in the Netherlands spans 11-acres, houses a rooftop solar array and features an indoor driving track, quality control stations and several assembly lines.



## GIGAFACTORY 1

### PRODUCT

#### Solar Array

Under construction

### APPLICATION

#### Facility's Energy Needs

Unlike our Fremont Factory which was purchased and renovated, Tesla designed and built from the ground up our Gigafactory 1, a battery and motor manufacturing facility in Sparks, Nevada, allowing us to design and implement sustainable solutions throughout the site from the beginning. Gigafactory 1 began mass production of lithium-ion battery cells in January 2017 and started manufacturing Model 3 battery packs and drive units in mid-2018. At 15M sq ft, Gigafactory 1 will be the world's largest building by footprint when completed and will eventually be powered by 100% renewable energy sources. Tesla built Gigafactory 1 with an efficient lighting design utilizing high-efficiency LED light fixtures combined with an optimized layout that reduces the facility's overall electrical load. Gigafactory 1's current lighting power density is 0.45 watts per sq ft, which is 65% less than the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) lighting design allowance of 1.3 watts per sq ft for a manufacturing facility. In the course of 30 days, the facility's lighting system can save 144 MWhs of energy – enough energy for a Model S to drive 480K miles. Designed to be a net-zero energy factory upon completion, the facility will have the largest rooftop solar array in the world, with roughly 200K solar panels. Solar installation is already underway, in addition to a microgrid R&D facility.

## GIGAFACTORY 2

Tesla's Gigafactory 2 in Buffalo, New York, is located on the remediated RiverBend brownfield site that was previously home to Republic Steel until its closure in 1984. As an abandoned heavy industrial site, the land suffered from a long history of extensive environmental contamination and required significant rehabilitation before being put to its new use. During Gigafactory 2's construction, old steel manufacturing debris removed from the site included everything from old rail boxcars to contaminated slag in the soil. Now, the brownfield is restored and home to a new 1.2M sq ft clean energy manufacturing complex where Tesla's solar energy products are made. The facility is symbolic of the comprehensive clean up and transformation of the adjacent Buffalo River, which is now valued as an environmental, economic and community resource.

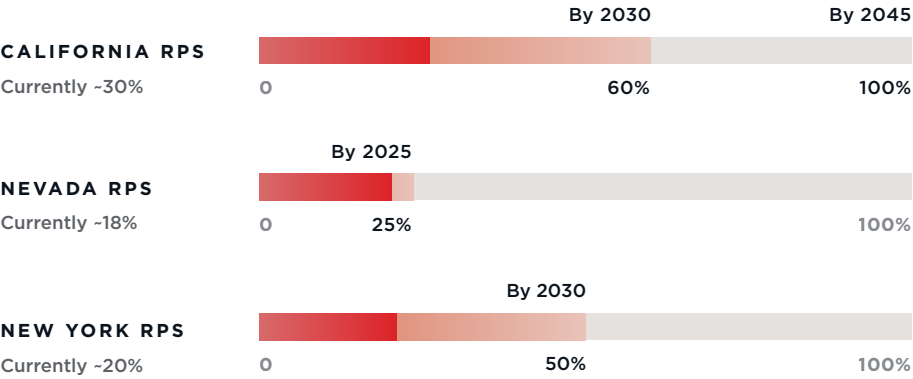
GIGAFACTORY 2

The facility's sustainability efforts include recycling 100% of any recyclable wood that comes into the plant, as well as reusing or recycling 90% of the plastic pallets provided by suppliers. Tesla is also working with local recyclers to develop a more robust recycling program that will continue to be implemented as the facility's production grows.

FACTORY PROFILES  
AND GRID MIXES

Tesla's manufacturing facilities in California (Fremont Factory), Nevada (Gigafactory 1) and New York (Gigafactory 2) are located within some of the cleanest electricity grid mixes and most aggressive Renewable Portfolio Standard (RPS) Policies in the U.S. In states such as Nevada, which derives 11% of its energy from solar, or New York, which generates 18% of its energy from hydropower, Tesla is able to purchase electricity with a low-carbon footprint.

STATE RENEWABLE PORTFOLIO STANDARDS



Gigafactory 2 currently produces solar cells and modules.



## SUPERCHARGERS



12,800+

Superchargers globally



1,400+

Supercharger Stations



36

Countries with Superchargers



99%

U.S. population within  
150 miles of a Supercharger

40-stall Supercharger station in  
Kettleman City, California with  
solar panels.



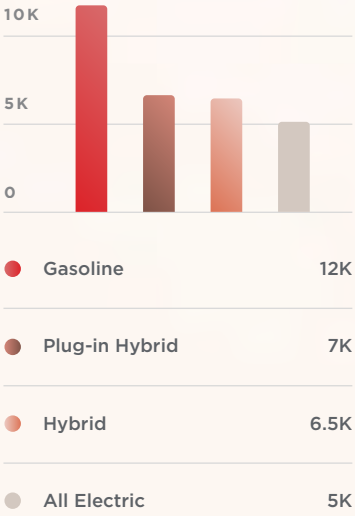
Building a charging system that enables quick, convenient and long-distance travel is critical to the mass adoption of electric vehicles. In 2012, we opened our very first Supercharger station and have since deployed over 12K Superchargers, building out the world's fastest and most extensive charging network for Tesla vehicle owners. Superchargers are strategically placed to allow owners to take long road trips with minimal stops and are located near restaurants, coffee shops, markets and other convenient amenities. With charging speeds up to 120 kW, the typical driver charges for about 30 minutes before continuing their journey.

While the electricity grid varies from region to region, charging electric vehicles is cleaner than ever. In the U.S., coal has historically been the dominant energy source for generating electricity, but in the last decade, coal power has declined significantly. Instead, energy generated by sustainable sources has grown rapidly, accounting for an estimated 70% of new electric generation capacity in 2017. Many U.S. states have been making significant investments in new renewable energy resources now that they are competitively priced with fossil fuel resources. For example, California generated approximately 30% of its electricity needs from renewable energy sources in 2017, up from 12% in 2009, and the state is targeting 60% by 2030. To put this in perspective, GHG emissions from charging an average all-electric vehicle in the U.S. is equivalent to the emissions that would be produced by a conventional ICE vehicle that gets a fuel economy of 80 MPG. Keep in mind, the average ICE vehicle gets around 22 MPG.



SUPERCHARGERS

STATE OF TEXAS ANNUAL EMISSIONS PER VEHICLE (LBS OF CO<sub>2</sub> EQUIVALENT)



Tesla's Supercharger station in Arlington, Texas.



Even when electric vehicles are charged in regions that derive much of their electricity from the burning of fossil fuels, the electricity production needed to charge electric vehicles is still considerably less harmful to the environment than filling up an ICE vehicle gas tank. For example, as of July 2018, according to the U.S. Department of Energy’s Alternative Fuels Data Center, even in Texas — one of the states with the highest amount of electricity coming from fossil fuels at 75% — emissions related to the production of electricity used in electric vehicles are still over 22% lower than gasoline cars and almost 5% lower than plug-in hybrid vehicles. In states with a much higher proportion of electricity generated from renewable energy generation, such as California, the effect of lower emissions from driving electric vehicles as compared to gasoline or plug-in hybrid vehicles is far greater. The reality is that while burning gasoline won’t get cleaner, driving on electricity continues to get cleaner — all while delivering immediate health and environmental benefits. Governments around the world are recognizing the harmful impact of ICE vehicle emissions, with Norway, India, France and others aiming to ban sales of ICE vehicles as soon as the next decade.

As more regions adopt sustainable energy solutions, emissions related to electric vehicle charging will decrease even further. All Tesla vehicles produce significantly less CO<sub>2</sub> than any gasoline-powered competitor – and if an electric vehicle is powered by solar energy, essentially no CO<sub>2</sub> is produced at all. In the EU, where Tesla has the option to select local energy providers, over 85% of energy delivered by our Superchargers is produced by clean, low-carbon energy sources, including solar, wind and hydropower. In the future, as we continue to expand our global charging network, our goal is to strategically pair solar and battery storage at as many Supercharger stations as possible.



**CASE STUDY:**  
**SPOTLIGHT ON**  
**FREMONT FACTORY**

As a manufacturing company, minimizing waste at Tesla goes beyond recycling office and café consumables. Whether via reuse, recycling or compost, efforts to divert material waste from ending up in a landfill or a waste-to-energy facility are found throughout all Tesla manufacturing, service and office facilities.

In 2016, the Fremont Factory was certified as a “Zero Waste” facility, and was recognized for our commitment to recycling and product reuse. In 2017, the Fremont Factory diverted over 93% of waste from landfills to recycling or to a waste-to-energy facility. Our on-site recycling center allows the “commoditization” of different recyclable materials.

**MATERIALS RECYCLING**

1.9M

Pounds of organics sent for compost

2,900 tons

Plastic recycled at Fremont in 2017,  
a 9% year-over-year increase  
despite challenges in the global  
market for recycled plastics.

The Fremont Factory was originally home to General Motors (GM) from 1962-82, and then GM and Toyota’s partnership, New United Motor Manufacturing, Inc. (NUMMI), from 1984-2009, when the partnership ended. Tesla purchased the facility in 2010 and is working to nearly double its size to almost 10M sq ft.



Balers enable us to generate recycling revenue from cardboard and to turn loose films and bubble wrap into recyclable commodities. Styrofoam densifiers convert a small room’s worth of foam into a dense brick of hard plastic the size of a briefcase. This 50:1 densification ratio converts a commodity we previously had to pay to get rid of into a revenue-generating recyclable.

We streamlined the recycling process for metal scraps from our stamping presses that create metal parts for Model S, Model X and Model 3 by using an online bidding platform to provide local and international recyclers easier access to our scrap metals. Decommissioned and scrapped materials, such as charging equipment, motor components, wiring, metal casings, wheel rims and more, are also recycled through this platform. This systematic categorization of scrapped materials enables significant economic recovery for Tesla from parts otherwise destined for the landfill or a scrapyard.



## **ON-SITE PRODUCT RE-USE STORE**

When we first opened the Fremont Factory in 2010, Tesla operations were a fraction of the total footprint. As areas within the facility expand, we send parts that are no longer needed to an onsite “store” where these items can be used by other Tesla teams. For example, surplus eye-wash station signs from the Fremont Factory were made available to a new area opening within our Lathrop facility. This reuse effort has resulted in millions of dollars in avoided costs, and contributes significantly to our efforts to divert as much waste as possible from landfills.

## **WATER**

Through efficiency improvements and water reuse systems, we work to lower the per-product water usage in our manufacturing process. In addition, water reduction efforts are included in our sales, service and delivery facilities. Where possible, our service technicians use a waterless car wash method to maintain Tesla vehicles while minimizing environmental impacts.

Throughout the Fremont Factory, water use per vehicle manufactured dropped by 9% from 2016 to 2017. In 2017, we established a water-use baseline for our manufacturing and support operations. During the same period, global water use was 8.77 m<sup>3</sup> per vehicle. As we increase production in coming years, we expect water use per vehicle to decrease significantly.

Our main manufacturing facilities are not only looking to increase water-use efficiencies, but also to improve wastewater and stormwater management. These projects include reverse osmosis and distilled water system installations to improve water quality and to allow existing water sources to be recycled and reused in other processing areas such as the closed-loop system of our facilities’ cooling towers. Projects in development include water mapping to identify opportunities for either recycling or increased passes in our closed-loop systems as well as leak identification. At Gigafactory 2, Tesla is dedicated to making our production activities supportive of the comprehensive cleanup and transformation of the Buffalo River and to ensure the waterway remains a rich environmental, economic and community resource.

## BATTERY RECYCLING

A common question we hear is, “What happens to Tesla vehicle battery packs once they reach their end of life?” An important distinction between fossil fuels and lithium-ion batteries as an energy source is that while fossil fuels are extracted and used once, the materials in a lithium-ion battery are recyclable. When petroleum is pumped out of the ground, chemically refined and then burned, it releases harmful emissions into the atmosphere that are not recovered for reuse. Battery materials, in contrast, are refined and put into a cell, and will still remain at the end of their life, when they can be recycled to recover its valuable materials for reuse over and over again.

Since Tesla battery packs are made to last many years, we are only just starting to receive these batteries back from the field. Currently, most of the batteries for recycling come to us through R&D, manufacturing, quality control and service operations.

Today, we work with third-party recyclers around the world to process all scrap and end-of-life batteries to recover valuable metals. Our recycling partners work with us to ensure that non-valuable or non-recoverable materials from the batteries are disposed of responsibly. At Gigafactory 1, Tesla is developing a unique battery recycling system that will process both battery manufacturing scrap and end-of-life batteries. Through this system, the recovery of critical minerals such as lithium and cobalt will be maximized along with the recovery of all metals used in the battery cell, such as copper, aluminum and steel. All of these materials will be recovered in forms optimized for new battery material production.

The closed-loop battery recycling process at Gigafactory 1 presents a compelling solution to move energy supply away from the fossil-fuel based practice of take, make and burn, to a more circular model of recycling end-of-life batteries for reuse over and over again. From an economic perspective, we expect to recognize significant savings over the long term, as the costs associated with large-scale battery material recovery and recycling will be far lower than purchasing and transporting new materials.

**CASE STUDY:**  
**GIGAFACTORY 1 —**  
**SUSTAINABLE**  
**BY DESIGN**

2014 rendering of Gigafactory 1, prior to Tesla beginning construction on the 3.2K-acre site. Tesla is currently building a solar array on the rooftop to power the factory with sunlight.



Tesla first broke ground on Gigafactory 1 in 2014, providing the opportunity to build a truly sustainable facility from the ground up.

Located in Sparks, Nevada, the facility is being built in phases so that Tesla and our partners can manufacture inside the finished sections as we continue to expand. This phased approach allows us to learn and continuously improve our construction and operational techniques as we drive down the cost of battery production. As with many of our manufacturing processes, Tesla applies first-principles thinking to achieve efficiencies across all areas of Gigafactory 1, translating into lower operating costs. Since batteries remain the costliest part of electric vehicles, these efficiencies are ultimately reflected in the cost of the final product, allowing us to get more vehicles to consumers.



ROOFTOP SOLAR ARRAY

WATER STORAGE  
AND RE-USE SYSTEM



## **ELIMINATING NATURAL GAS LINES: MAXIMIZING HEAT RECOVERY**

One unique aspect of Gigafactory 1 is that there is no natural gas line within the factory. Tesla made this decision at the design stage because we wanted a sustainably-powered facility with no on-site combustion of fossil fuels. While challenging to achieve from a design perspective due to manufacturing processes that require high levels of energy or heat (like high-temperature ovens), Tesla engineered thermal systems to maximize heat recovery resulting in significant energy efficiency gains compared to standard industrial designs. This included using heat pumps to upgrade low-temperature waste heat from manufacturing, thus reducing the energy used to heat the facility by over 80% compared to traditional electric heaters and is expected to save over 16K MWh in the winter season. The facility also has a heat exchanger system to recover more than 60% of the heat from the exhaust of industrial ovens.

## **BRINGING THE OUTSIDE IN: OUR NATURAL AIR SYSTEM**

Several battery manufacturing areas throughout the facility require very low levels of humidity during production (<300 ppm), and creating dry air for these areas can be costly and require a lot of energy. Because Gigafactory 1 is located in the high desert of Nevada, Tesla was able to turn to nature itself and pull in outside air that starts with much less moisture. Tesla also configured its compressors and dehumidifier to take the heat rejected by the compressor to supply over 50% of the heat required to be dehumidified. The facility's unique system dramatically reduces the energy and cost required to produce dry air compared to manufacturing facilities located in more humid regions.

## **THE PERFECT SYSTEM: DESIGNING FOR SOLAR**

Tesla designed the Gigafactory 1 roof with a white reflective surface and no obstructions, so that it is a perfect fit for solar panels. Designed to be a net-zero energy facility upon completion, Gigafactory 1 will be powered primarily by solar from the rooftop solar installation that is currently underway.

**COLD DESERT  
NIGHTS: THERMAL  
WATER STORAGE**

Traditional cell manufacturing is energy intensive, resulting in large amounts of heat dissipated from manufacturing equipment that must be removed from the building. This heat removal is achieved by pumping chilled water throughout the entire factory. Conventional chilled water generation consumes an enormous amount of electric power and water, even with high-efficiency chillers. To reduce the economic and energy costs of generating this chilled water, Tesla designed and built a one-of-a-kind chilled water plant precisely tuned to take advantage of the vast daily temperature swings and dry desert air by equipping Gigafactory 1 with a 10M gallon concrete thermal energy storage reservoir. At night, when the ambient air is cool and dry and the factory operates efficiently, it intentionally generates more chilled water than is needed for the manufacturing processes and the excess is stored in the reservoir. Then, during the daytime when the hot desert sun is beaming and causing the factory to operate at low efficiency, the stored cold water is sent throughout the factory to provide all cooling needs. By shifting the generation of chilled water to the night time, the factory is able to operate in “dry mode” so that no water evaporation is required for a greater percentage of time and there is no consumption of water during these periods. This improved design is expected to reduce the factory’s chilled water electrical consumption by as much as 40% and water consumption up to 60%, pushing Gigafactory 1 toward its net-zero emissions goals.

Aerial view of Gigafactory 1 in the winter.



## **ZERO WASTE: SOLVENT RECOVERY SYSTEM**

To manufacture lithium-ion batteries, a solvent is used to coat metal electrodes inside the cell. During manufacturing, this solvent evaporates and is carried away with warm air, leaving behind powders coated evenly on the metal foil. The solvent vapor is then condensed out of the air, and the used solvent is collected as a waste liquid.

In conventional battery factories, this used-solvent liquid is trucked offsite to third-party processing centers. To avoid the high financial and energy costs of this offsite treatment, Tesla designed our own dedicated solvent refining process to convert waste solvent back into reusable solvent in a closed-loop fashion. This solvent refining system was constructed onsite and has been operating since the end of 2017, demonstrating a greater than 95% conversion of waste solvent. This system has also eliminated the need for more than 30 tanker trucks per week that previously would have transported this material to and from an outside refiner. Due to our onsite refining system that was designed specifically for this application, the purity of this refined solvent has shown to be even higher than solvent purchased from third-party suppliers.

The solvent refining process is typically very energy intensive, so Tesla developed a custom heat pumping system to minimize total energy consumption. Waste heat that is usually sent to a cooling tower is instead captured as recovered heat. The implementation of this closed-loop steam-water vapor compression heat pump system resulted in an approximately 85% reduction in energy consumption when compared to a standard system. This heat pump system was the first patent application filed for any Gigafactory 1-related operation and was granted by the U.S. Patent and Trademarks Office in November 2017.

## SUPPLY CHAIN

## RESPONSIBLE SOURCING

Tesla is committed to only sourcing responsibly produced materials. The Tesla [Supplier Code of Conduct](#) (Code) and our [Human Rights and Conflict Minerals Policy](#) outline our expectations of all suppliers and partners who work with us. Tesla is committed to making working conditions in our supply chain safe and humane, ensuring that workers are treated with respect and dignity and that manufacturing processes are environmentally responsible. Tesla suppliers are required to provide evidence of management systems that ensure social, environmental and sustainability best practices in their own operations, as well as to demonstrate a commitment to responsible sourcing into their supply chains.

Our complex supply chain is a unique hybrid of the traditional automotive and high-tech industries and encompasses suppliers from around the world. Many of our Tier 1 suppliers (i.e. direct suppliers) do not purchase all of their raw materials directly and instead obtain them from their suppliers and sub-suppliers. Therefore, reliably determining the origin is a difficult task, but the due diligence practices required of our suppliers adds transparency to help us and our suppliers adhere to the responsible sourcing principles of our Code.

Our Tier 1 suppliers are required to register and complete the domestic and international material compliance requirements in the International Material Data System (IMDS) to meet EU and other international material and environmental related regulations. This requirement is mandated for all suppliers who supply their products or raw materials to us as part of our production-parts approval process. Tesla, along with our partners and independent third parties, conducts audits to observe these principles in action. If there is a reasonable basis to believe a supplier partner is in violation of the Code, Tesla will transition away from that relationship unless the violation is cured in a satisfactory manner.

While Tesla's responsible sourcing practices apply to all materials and supply chain partners, we recognize the conditions associated with select artisanal mining (ASM) of cobalt in the Democratic Republic of the Congo (DRC). To assure the cobalt in Tesla's supply chain does not come from ASM sites, we have implemented targeted due diligence procedures for cobalt sourcing.

We have visited many cobalt mines and processing plants that support Tesla's main supply chain, as well as potential future suppliers throughout the world. We discuss with these suppliers the major risks they face and the practices they have implemented to mitigate these risks. Safeguards include chain of custody controls and iterative checks performed from mining through customer delivery to combat illegal or artisanal ore use; on-site security and access control; hiring practices and management engagement to protect against child labor onsite; internal and third-party audit practices; and engagement with local communities to maintain a positive social license to operate.

It is important to note that there is very little cobalt in Tesla's battery cells. On a relative basis, cobalt is not that significant to the composition of Tesla's battery cells, as we mainly use batteries based on a nickel-cobalt-aluminum oxide (NCA) chemistry, which contain substantially less cobalt than the industry standard batteries based on a nickel-manganese-cobalt oxide (NMC) chemistry. Cells used in Model 3 production are the highest energy density cells used in any electric vehicle. We have achieved this by significantly reducing cobalt content per battery pack while increasing nickel content and still maintaining superior thermal stability. The cobalt content of NCA cathode chemistry is already lower than next-generation cathodes that will be made by traditional battery cell producers with an NMC ratio of 8:1:1. Thus, Tesla not only uses far less cobalt per vehicle than the rest of the electric vehicle industry but also plans to recycle and reuse the cobalt at these batteries' end of life. Tesla continues to look for ways to reduce the amount of cobalt used in our battery cells with a goal of eliminating it entirely.

## **CONFLICT MINERALS**

Tesla has a zero-tolerance policy towards human rights abuses in our supply chain. Many Tesla products, like most electronics, contain minerals such as tin, tungsten, tantalum and gold, often referred to as “3TG”. While these minerals can be found in deposits all around the world, they also exist in the Democratic Republic of Congo (DRC) and surrounding areas. Tesla’s Human Rights and Conflict Minerals Policy is in place to ensure that Tesla’s products do not directly or indirectly finance or benefit armed groups through mining or mineral trading in the DRC and its adjoining countries.

### **[DOWNLOAD TESLA’S 2017 CONFLICT MINERALS REPORT](#)**

## **SUPPLIER DIVERSITY**

At Tesla, we strive to have a diverse supply chain and provide the maximum practical opportunities to provide goods and services as a part of the corporate procurement process. The use of diverse suppliers is an integral part of Tesla’s purchasing plans, just as equal opportunity employment is central to our personnel policies and procedures. Tesla recognizes that supplier diversity creates a competitive advantage for the company and has a positive impact on the global community. Tesla believes that the success of our company and society depends on enabling diverse businesses to share and grow in the global market.

# EMPLOYEES AND CULTURE



## INTRODUCTION

We're on a mission to accelerate the world's transition to sustainable energy. Along the way, we're building a culture that is safe, fair and exciting for all of our employees. It is incredibly important to Tesla that everyone looks forward to coming to work every day. We are proud to have built a company filled with employees of all backgrounds who possess the energy and drive to accelerate our vision forward.

## BECOMING THE SAFEST CAR FACTORY IN THE WORLD

Our goal is to have the safest car factory in the world. Car manufacturers have historically built cars by relying heavily on physical activity that could cause stress or harm to the body. We seek to create new methods of manufacturing that will result in as close to zero injuries as possible.

To achieve this goal, Tesla's Global Environmental, Health and Safety (EHS) team has built a strategy based on three pillars:

### 1. DO THE BASICS RIGHT

Active Health & Safety Committees and implementation of standardized reporting and trending for all sites globally have led to increased visibility of corrective actions and the application of learnings in all regions.

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### 2. ENGAGE OUR STAKEHOLDERS

We are implementing change management processes to design EHS into our products, while our employees continuously help identify issues and suggest process improvements.

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### 3. REDUCE RISK

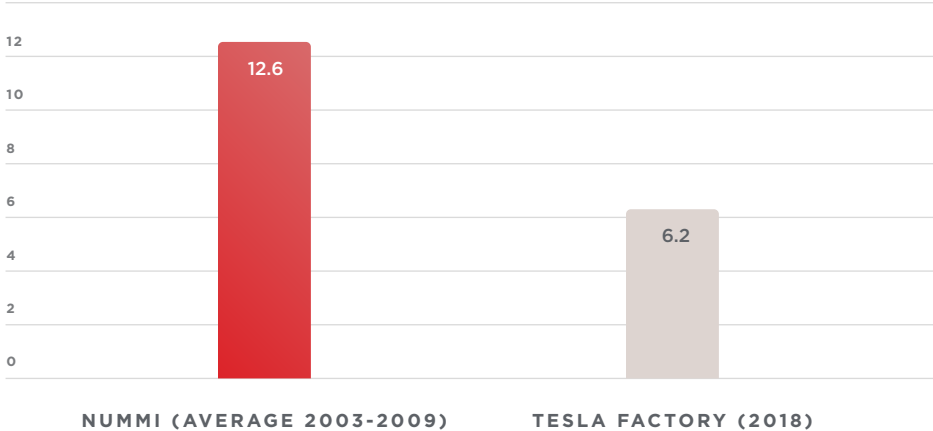
We launched a "Find It-Fix It" campaign globally and are implementing a global document control and communications process, as well as creating a life-saving and life-altering risk control system.

**BECOMING THE SAFEST  
CAR FACTORY IN  
THE WORLD**

While injury and illness rates are useful indicators of a company’s safety and health environment, reliance on lagging indicators can sometimes lead to the wrong conclusion. Thus, we also focus on leading indicators, such as safety training, ergonomic opportunities and our global “Find-it; Fix-it” improvement campaign that was kicked off globally in 2017. We ended 2018 with over 60K improvements, which were the result of engagement at all levels, including employee suggestions, leadership walkthroughs, safety team meetings, as well as audits and inspections.

**TOTAL RECORDABLE INCIDENT RATE (TRIR)**

The average TRIR for the Fremont Factory is lower than when the facility was operated as NUMMI prior to Tesla’s acquisition in 2010.



**THE SAFEST CARS  
FOR CUSTOMERS  
AND EMPLOYEES**

Our commitment is to design and build the best possible products for both our customers and our employees. Safety is a core value for our operations at Tesla, and we have made significant strides since the days of ramping production of our first models. We’ve taken our learnings from building Model S and Model X and applied them to designing the manufacturing process for Model 3. Tesla’s ergonomics team was heavily involved in the development of Model 3 assembly lines by using a virtual reality program to study the exact movements that would be used by our employees when building the car. This effort significantly improved ergonomics on the Model 3 assembly line by reducing potential stresses and strains.

**THE SAFEST CARS  
FOR CUSTOMERS  
AND EMPLOYEES**

Our employees have provided safety solutions through active safety teams and transparent reporting of incidents. Based on a company-wide 360-survey in January 2018, of the 88% of employees who responded, 83% agreed that Tesla cares about their safety and well-being.

We proactively started an industrial athlete early symptom intervention program at our Fremont Factory to identify and act upon opportunities for improvement. We are committed to engaging with our workforce on safety issues. For example, our leaders conduct walkthroughs and events so our employees have a voice to continuously improve our work environment.

Tesla employees working on the Model 3 line at the Fremont factory.



## **REWARDING THE INDIVIDUAL**

We believe it is important for everyone to be an owner of the company. That is why, unlike other car companies, everyone who works at Tesla is awarded shares of Tesla stock and can buy additional Tesla stock at a discount through the employee stock purchase program. The value of Tesla's shares has increased significantly since our IPO in 2010. The importance of equity awards cannot be ignored, especially in Silicon Valley.

Tesla offers competitive wages and benefits in every market in which we operate. In addition, we periodically review each employee's total compensation and make adjustments as necessary. We also believe in pay-for-performance and in providing ample opportunities for individuals to receive incremental base-pay increases and equity awards as they build their Tesla careers. We proactively examine whether pay parity issues exist to help ensure our employees are paid consistently regardless of gender, race or ethnicity.

Tesla's entry-level wages for production employees at our Fremont Factory are higher than those of other automakers, and that is before equity and benefits are factored in, which are equivalent to an additional 60% of base pay. One-fourth of Tesla's entry-level production employees in Fremont are promoted within a year, at which point they earn an hourly wage that is 14% higher than comparable positions at Ford, GM and Fiat-Chrysler. Tesla maintains the flexibility to regularly increase wages and has done so 3 times in the past 2 years. In comparison, union-represented facilities' wage increases are typically fixed for 4-year periods.

## **DIVERSITY AND INCLUSION**

At Tesla, we strive to hire the best and brightest employees, regardless of race, color, religion, sex, sexual orientation, age, national origin, disability, protected veteran status, gender expression or gender identity, and any other protected status under applicable law. We work hard to create a diverse and inclusive workforce composed of talented individuals not just because it's the right thing to do, but because our differences are what make us stronger and smarter as a company. Focusing on hiring outstanding talent, we also work to ensure that we have a diverse pipeline of candidates by completing outreach in the communities where we operate.

**AMPLIFY — TO BUILD A  
DIVERSE, INCLUSIVE AND  
SAFE ENVIRONMENT**

One of the many ways Tesla amplifies diversity and inclusion is through employee resource groups led by fellow employees to encourage peers to share ideas, build relationships and take advantage of mentorship opportunities. Our employee resource groups include: Black@Tesla, Intersectionality@Tesla, LGBTQ@Tesla, Teslatinos, Veterans Taskforce and Women In Tesla. They serve as a resource regarding employee and community issues, ideas and policies and promote a company culture of inclusion, respect and support for everyone.

Every year, Tesla employees participate in Pride parades across the country, including the most recent Los Angeles Pride Festival.



Tesla is absolutely against any form of discrimination, harassment or unfair treatment of any kind. We hold each other accountable for our actions and provide a structure by which employees can suggest improvements or report issues. This includes anti-discrimination and anti-sexual harassment training courses for employees and mandatory training for managers and executives to understand and discuss their role as leaders to continually improve our work environment.



**INTEGRATE — TO CONNECT  
DIVERSITY AND INCLUSION  
TO THE BUSINESS AND  
EMPLOYEES**

Diversity and inclusion is integrated into our business, recruiting and the communities in which we work. Our leaders review their demographics and create business action plans in order to continue to lead an inclusive workforce. We require a diverse interview panel to reflect the diversity of our candidates, and provide our recruiting team with unconscious bias training to uncover and mitigate their biases when reviewing potential Tesla candidates. We also partner with the Public Workforce Systems, a network of U.S. federal, state and local offices that support economic expansion and development of the U.S.'s workforce, to train and recruit diverse talent.

These partners include the Department of Veteran's Affairs, Department of Social Services, Department of Labor, Department of Education and various government agencies and community resources. Tesla also has collaborative partnerships with organizations utilizing The Workforce Innovation and Opportunity Act (WIOA), an initiative that provides employment services, develops career pathways, training programs and talent pipelines. WIOA provides U.S. federal funds to eligible community-based organizations to help job seekers, workers and businesses with career services, job training and education.

Our production leads reflect the diversity of the Fremont Factory, with over two-thirds identifying as Asian, Hispanic/Latino, African American or Other. Having a diverse workforce is only one piece of our impact as an organization. We know that our suppliers and those that we do business with also impact the communities that we serve. We have many diverse suppliers in our portfolio, and we require all vendors to abide by our [Code](#) and to understand our commitment to diversity. We also participate in outreach events with certified diverse suppliers to continue to broaden the range of our vendor base, such as the California Public Utilities Commission's Small and Diverse Business Expo.

**EXCELLENCE —  
THE PASSING GRADE**

We connect with industry leadership, external partners, government agencies and universities to push the envelope in technology, manufacturing and the overall business of Tesla. For example, Tesla partners with Watermark, AnitaB.Org, National Society of Black Engineers, Society of Women Engineers, Women in Automotive, Lesbians Who Tech + Allies, Wounded Warrior Project and more. These partnerships provide us with numerous opportunities to recruit diverse talent and provide valuable leadership development and networking communities for our employees.

As we work to achieve our mission, we look to our employees and external experts to help review our practices and provide us with feedback so that we can continue to improve. As one example, the Human Rights Campaign's Corporate Equality Index is the national benchmarking tool on corporate policies and practices pertinent to lesbian, gay, bisexual, transgender and queer employees. Tesla is proud to have received a score of 100/100 on the Corporate Equality Index for 5 years in a row, and has been named in the "Best Places to Work for LGBTQ Equality" from the Human Rights Campaign.

As a Military Friendly Employer, we are proud to have one of the largest veteran groups in the state of California and over 1.8K veterans in our workforce globally. We support numerous organizations that sponsor veteran hiring including CA State Employment Development Department offices, The Work for Warriors program, the U.S. Army PaYS program and the U.S. Army Reserve's Private Public Partnership Program. Tesla Energy is also the founding recruiting partner of the U.S. Department of Energy's Solar Ready Vets program, providing accelerated training to help place transitioning veterans into the solar industry.

## EMPLOYEE MOBILITY AND TRANSPORTATION PROGRAMS

Tesla's Veterans Task Force participated in Reno's annual Veterans Day Parade. We're proud of the veterans working at Tesla, and their dedication, commitment and work ethic to helping transition the world to sustainable energy.

To reduce our employees' carbon impact on the environment, Tesla offers alternative transportation programs to provide them with a more sustainable way of commuting, like Tesla's bike-to-work program in the U.S. Tesla also encourages ride sharing through a variety of carpooling services. We operate a network of commuter shuttles to and from work to reduce not only vehicle emissions, but also time spent in traffic too. In the Bay Area, almost 4K employees take shuttles to work a day and in Nevada, roughly 2K employees ride shuttles to Gigafactory a day, lowering commuting costs for our employees. Several hundred of our employees also carpool daily, and Tesla encourages all employees to take public transportation to work, subsidizing these costs in select markets. Naturally, Tesla also has hundreds of electric vehicle charging stations at our facilities to encourage Tesla employees to go electric.



## EDUCATION

Tesla partners with local high schools, universities and nonprofits to accelerate the world's transition to sustainable energy and address the growing demand for science, technology, engineering and mathematics (STEM) jobs. Utilizing student grade-specific activities, Tesla has increased access for students in California to early professional experiences by providing career exposure workshops, STEM/STEAM hands-on activities, factory tours, and speaking opportunities at facilities and local community events, including at the Community Youth Center of San Francisco.

In Nevada, growth in STEM jobs is projected to be 40% higher than in non-STEM jobs between 2014-2024. To prepare students for manufacturing and engineering careers at Tesla and other companies, Tesla is investing \$37.5M in Nevada K-12 education over the next 5 years – a commitment we made in 2014 when we finalized plans to locate Gigafactory 1 in Sparks. As part of our workforce development, Tesla also launched a high school graduate apprenticeship, the Manufacturing Development Program, to educate and recruit talent from diverse high schools across the state to become Production Associates at Gigafactory 1. In the last two years, we hosted over 250 educational tours of Gigafactory 1 for more than 3K students, teachers and administrators.

Nevada high school students tour Gigafactory 1 as part of Tesla's new Manufacturing Development Program — an apprenticeship designed to accelerate high school graduates' careers by giving them full-time employment at Tesla and opportunities to receive credits from a nearby community college.



## EDUCATION

Near Gigafactory 2 in Buffalo, Tesla partners with Erie Community College and local high schools for the Solar Pathways Program, which exposes students to careers in the energy sector and creates a pipeline for local jobs.

To put students at the forefront of the electric vehicle revolution, in 2018, we introduced [Tesla START](#), an intensive 12-week training program designed to provide students with the skills necessary to jump start a career at a Tesla Service Center. The program is currently running in the San Jose, Los Angeles, Seattle, Charlotte, and Miami regions, where dozens of students are developing technical expertise and earning certificates through a blended approach of in-class theory, hands-on labs and self-paced learning.

## **CORPORATE GOVERNANCE**

Our Board of Directors sets high standards for our employees, officers and directors, and we periodically add new, highly qualified directors to the Board, such as [Larry Ellison and Kathleen Wilson-Thompson](#) in 2018, [Linda Johnson Rice and James Murdoch](#) in 2017 and [Robyn Denholm](#) in 2014. Implicit in this philosophy is the importance of sound corporate governance to help us achieve our goals. We are committed to establishing an operating framework that exercises appropriate oversight of responsibilities at all levels throughout the company and manages its affairs consistent with high principles of business ethics. As detailed on our [Investor Relations website](#), we have a number of policies that set the high standards we hold ourselves to, including our [Code of Business Conduct and Ethics](#) and our [Corporate Governance Guidelines](#).

**CORPORATE**  
**GOVERNANCE**

We also train our personnel on other corporate governance policies, such as our [Worldwide Bribery & Anti-Corruption Policy](#). This policy boils down to: “Don’t offer any bribe to anybody, anytime, for any reason (and when in doubt, please consult with the General Counsel or the Legal Department).” Additionally, we maintain and enforce an OFAC compliance policy, which allows us to make sure that we don’t participate in transactions with sanctioned countries, legal entities or individuals, such as terrorists or narcotics traffickers.

We believe in regular and transparent communication with employees. We encourage Tesla employees to share their feedback openly (and anonymously if they prefer), and the company provides easy methods to do so. We regularly conduct employee surveys to identify strengths and opportunities for improvement. We have a robust action planning process to ensure we proactively address the concerns or feedback. As a result of recent feedback, we have invested additional resources in our performance and leadership training.

We also have a whistleblower hotline through which employees can report concerns at any time. The company keeps information reported by employees in confidence, whether through the hotline or another channel. Our policies prohibit retaliatory actions against employees for raising concerns or making complaints. We are committed to maintaining an open and transparent culture where it is safe and acceptable for all employees to raise concerns about policy violations by their manager or colleagues or about the workplace overall.

## DRIVEN BY SUSTAINABILITY

Sustainability is what drives us at Tesla, and it's not just about our products — it's the values, manufacturing and mission of our business. It's at the core of everything we do and what drives us in the work that we do. To achieve a zero-emissions future, we've implemented several programs and initiatives at our manufacturing facilities and in the communities in which we operate, providing clean energy, partnering with local schools and nonprofits and everything in between. We're a company of sustainability ambassadors — looking for ways to continue to set concrete sustainability goals and the paths we intend to take to achieve them — which will be shared in future Tesla Impact Reports.

In July 2018, Tesla employees celebrated achieving an incredible Company milestone of producing 5K Model 3s per week.



We are proud of the work we have done thus far and look forward to sharing how our continued sustainability efforts make a difference in the world and to accelerate the world's transition to sustainable energy.



ENERGY UNITS OF MEASUREMENT

SYMBOL	UNIT OF ENERGY	EQUIVALENT CONSUMPTION	AMOUNT EQUIVALENT TO 1TWh
kWh	kilowatt-hour	1 kWh = Ten 100-watt light bulbs on for 1 hour	1,000,000,000 kWhs
MWh	megawatt-hour	1 MWh = Avg. U.S. household for 1 month	1,000,000 MWhs
GWh	gigawatt-hour	1 GWh ≅ 100 avg. U.S. households for 1 year	1,000 GWhs
TWh	terawatt-hour	1 TWh ≅ 100,000 avg. U.S. households for 1 year	1 TWhs