



Impact Report

20
23



**Our mission is to accelerate
the world's transition to
sustainable energy.**

To accomplish our mission, we need to design products that are far superior to their fossil fuel alternatives in every way, source and manufacture them as sustainably as possible and sell as many of them as we can.

We believe the best way to do this is by offering an ecosystem of products that comprehensively addresses our world's clean energy and transportation needs.



To learn more, view our full [2023 Impact Report](#).

Tackling Climate Change

We are dedicated to solving the problems that have a meaningful impact on the emissions from GHG-intensive sectors and segments.

Global Greenhouse Gas (GHG) Emissions by Economic Sector

● Tesla-related sectors

31%

Electricity/Heat

15%

Transportation

19%

Industrial Processes

15%

Agriculture, Land Use Change and Forestry

6%

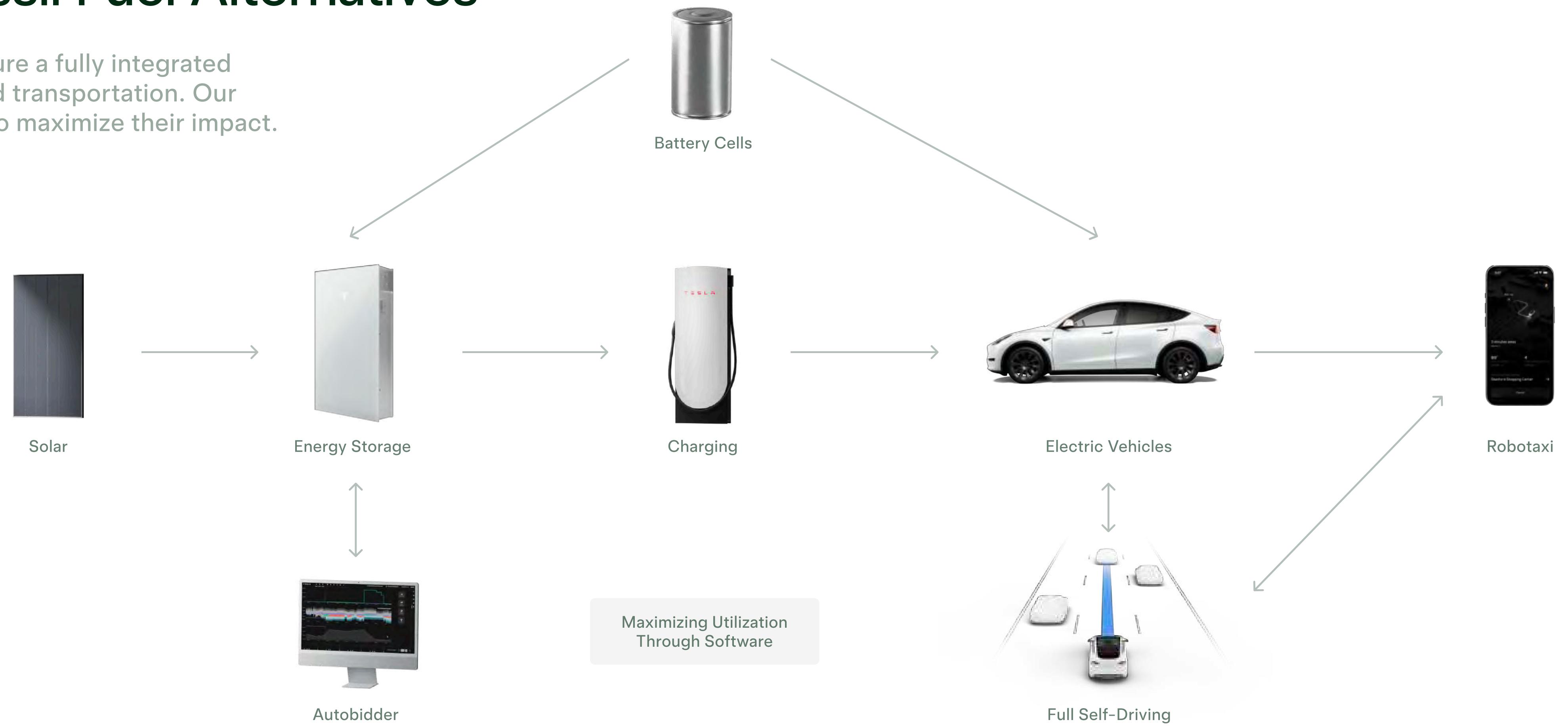
Building

13%

Other

We Make Products That Displace Fossil Fuel Alternatives

We design and manufacture a fully integrated ecosystem for energy and transportation. Our products work together to maximize their impact.



No Pollution in Cities

Pollution from burning fossil fuels leads to eight million premature deaths globally each year. That accounts for one-in-five premature deaths worldwide.

Our products are not just about the future of our planet, but also about addressing preventable deaths today. This is a major advantage of zero-emission products that is often forgotten.

20M

In 2023, our customers avoided releasing over **20 million metric tons of CO₂e** into the atmosphere by using our products.





Environment

1



Minimizing Our Environmental Footprint

Unlike ICE vehicles, it is possible to fully decarbonize the manufacturing and lifetime use of EVs.

Electric vehicles and sustainable energy products have a far better environmental impact than fossil fuel alternatives. This includes the full lifecycle: raw material mining, manufacturing, product use and disposal.



To learn more, view the Environment section of our full [2023 Impact Report](#).

Tesla Strives to Achieve Net-Zero GHG Emissions

An ambitious stance on GHG emissions reduction is necessary to continue moving the world toward a sustainable energy economy. While we have made progress in reducing our emissions intensity in the near term and made meaningful progress on building a plan to achieve net-zero emissions as soon as possible, there remains work to do to finalize this plan.

Our goal is to set a target that is both meaningful and thoughtful. When we talk about our net-zero ambitions, this includes the full product lifecycle from mining and production through use and end-of-life recycling.

In addition, we aim to transition our operational electricity load to 100% renewables well before we achieve our net-zero emissions goal and to continue matching our Supercharger electricity load annually with renewable electricity.

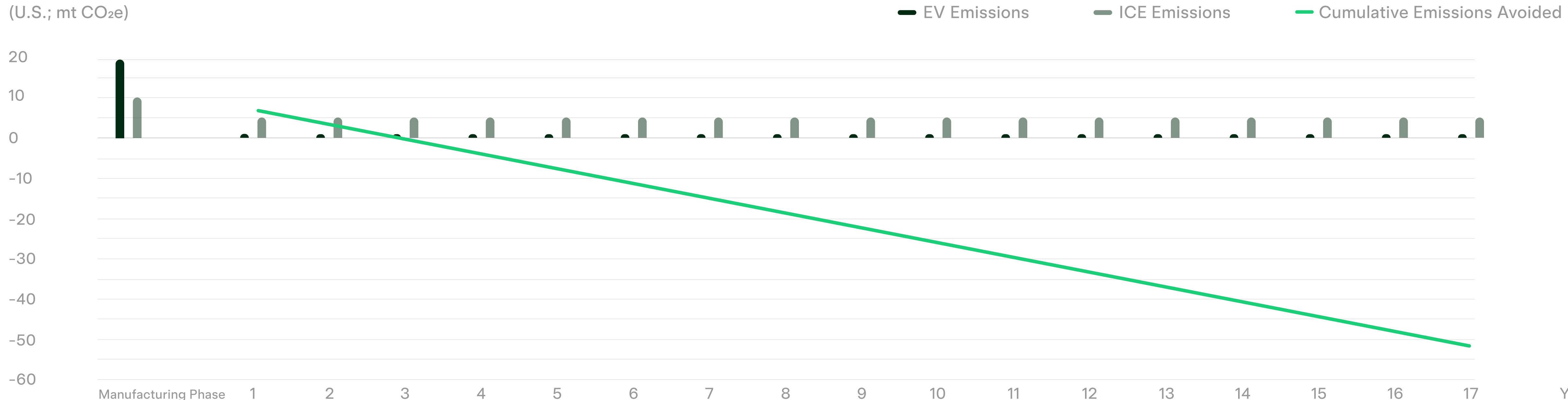


Each Tesla on the Road Avoids About 51 Tons of CO₂e

After 17 years of driving, a Tesla vehicle will avoid approximately 51 metric tons of CO₂e. Charging EVs becomes greener over time as electricity generation becomes cleaner. By comparison, the carbon impact of ICE vehicles remains the same every year of use.

This year, we updated our avoided emissions calculation methodology using a global model with more primary GHG emissions data collected from our suppliers.

EV Emissions Avoided Over Time



A Sustainable Energy Economy Requires Less Mining and Raw Material Extraction

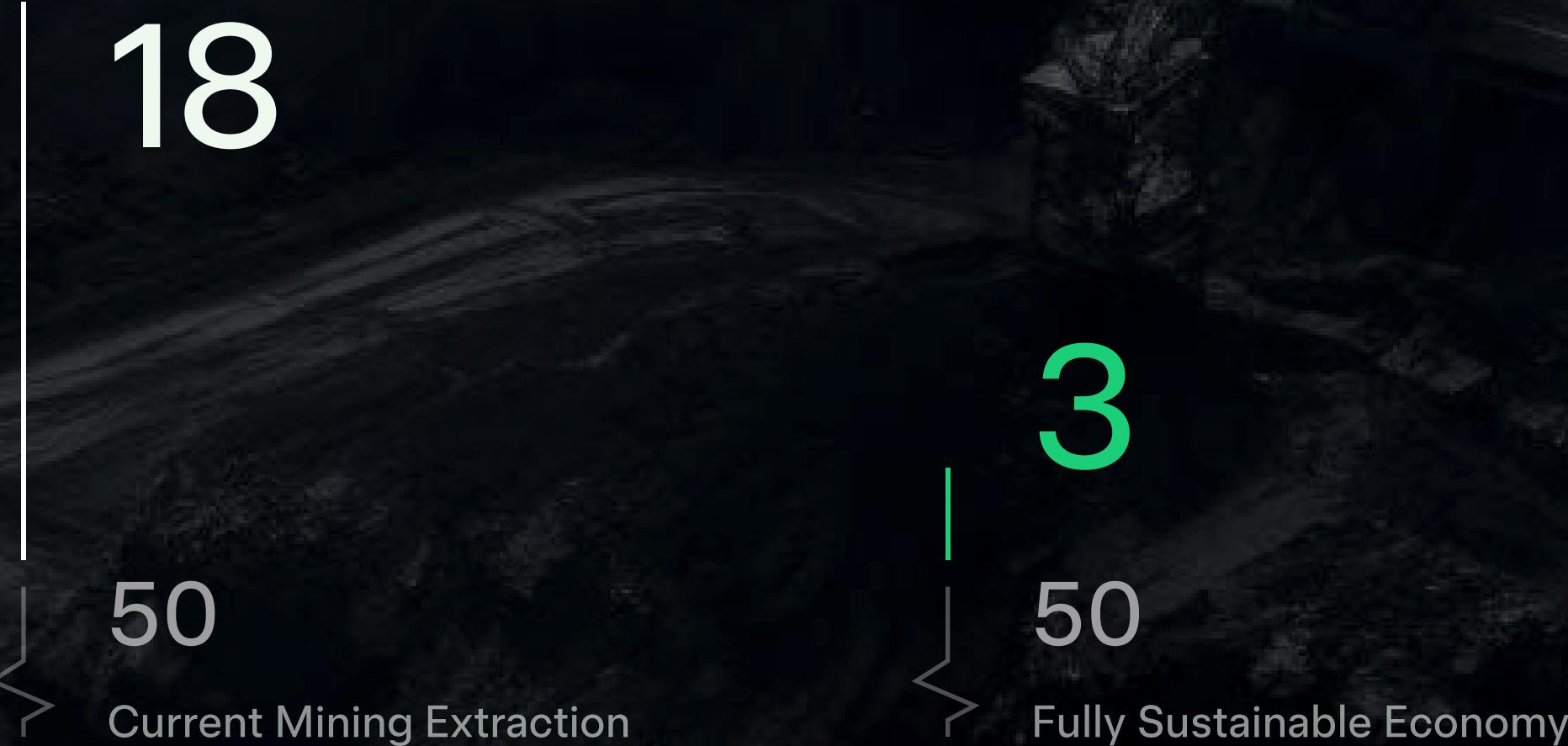
With a sustainable energy economy, the world can stop extracting 18 gigatons of fossil fuels every year.

Once transitioned—accounting for a maximum need for battery metals such as lithium, nickel and others—an extra three gigatons of mining per year would be required. On net, we can reduce raw material extraction by 15 gigatons per year in a fossil fuel-free economy.

We were the first automotive company to directly buy battery raw materials at the mine level, enforcing our responsible sourcing principles from the very start. In 2023, we completed more audits in this part of the supply chain than ever before and implemented improvements on GHG emissions, water and air quality, mine closure, mine waste, biodiversity and community and civil society engagement.

Current Mining Extraction vs. Fully Sustainable Economy

(Gigatons) ● All Other Materials ● Fossil Fuel Extraction ● Sustainable Economy Materials (Peak Demand)



We Start by Sourcing Sustainably



We recycle as much as possible and, over time, recycling will increasingly help reduce raw material extraction

We prioritize working with our suppliers to reduce supply chain emissions and other adverse impacts at critical hotspots.

For the most GHG emission-intensive areas in our supply chain, we work directly with suppliers to develop strict on-site reduction plans. This includes projects like increasing renewable energy usage and implementing more efficient processes. We also collected more GHG data than ever before directly from suppliers to inform this decarbonization.



To learn more, view the Supply Chain section of our full [2023 Impact Report](#).



43K

In 2023, we supported the recovery of enough battery materials to produce 43,000 Model Y Rear-Wheel Drive vehicles. And we are just getting started.



We Build Efficient Factories

We build our factories to limit waste, water usage and energy consumption. With each new Gigafactory, we aim to manufacture our products more sustainably. Where we can't reduce energy consumption, we source renewables as much as possible.

Reducing energy consumption



35%

less energy used per vehicle produced in Shanghai vs. Fremont

Dynamic controls for energy efficiency



49%

of total HVAC systems at Gigafactory Nevada run by dynamic controls (+100% YoY)

Sourcing renewable energy



100%

of Gigafactory Berlin electricity was matched with renewables in 2023

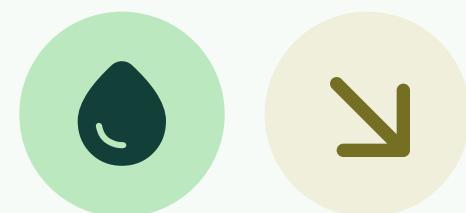
Generating More Electricity Than is Consumed

In 2023, Tesla solar owners generated enough zero-emissions electricity to power all Tesla locations, including manufacturing, support, research, sales, service and delivery locations—more than three times.



Reducing Water Consumption

We've reduced water use per vehicle by nearly 25% over the last five years and we achieve one of the lowest water withdrawals per vehicle produced in the industry.



Water Use per Vehicle Produced by Tesla Is Coming Down Over Time

m³ of Water per Vehicle Produced

3.37

Industry Avg
(Latest)

3.27

Tesla
(2018)

2.48

Tesla
(2023)



We Make the Most Efficient Electric SUV on the Road

More efficient vehicles equals less lifetime energy use. Tesla vehicles are among the most efficient EVs built to date, meaning they need to be charged less often, generate fewer emissions per mile driven and result in greater savings for customers. Model Y All-Wheel Drive achieves 3.8 EPA miles/kWh—making it the most efficient electric SUV ever made.

Our Supercharger network is the largest fast-charging network in the world. We are opening our network to non-Tesla drivers to further accelerate the transition to a sustainable energy economy.

The global Supercharger network was 100% renewable in 2023, achieved through a combination of on-site resources and annual renewable matching.

**EV Powertrain Efficiency
(mi/kWh)**

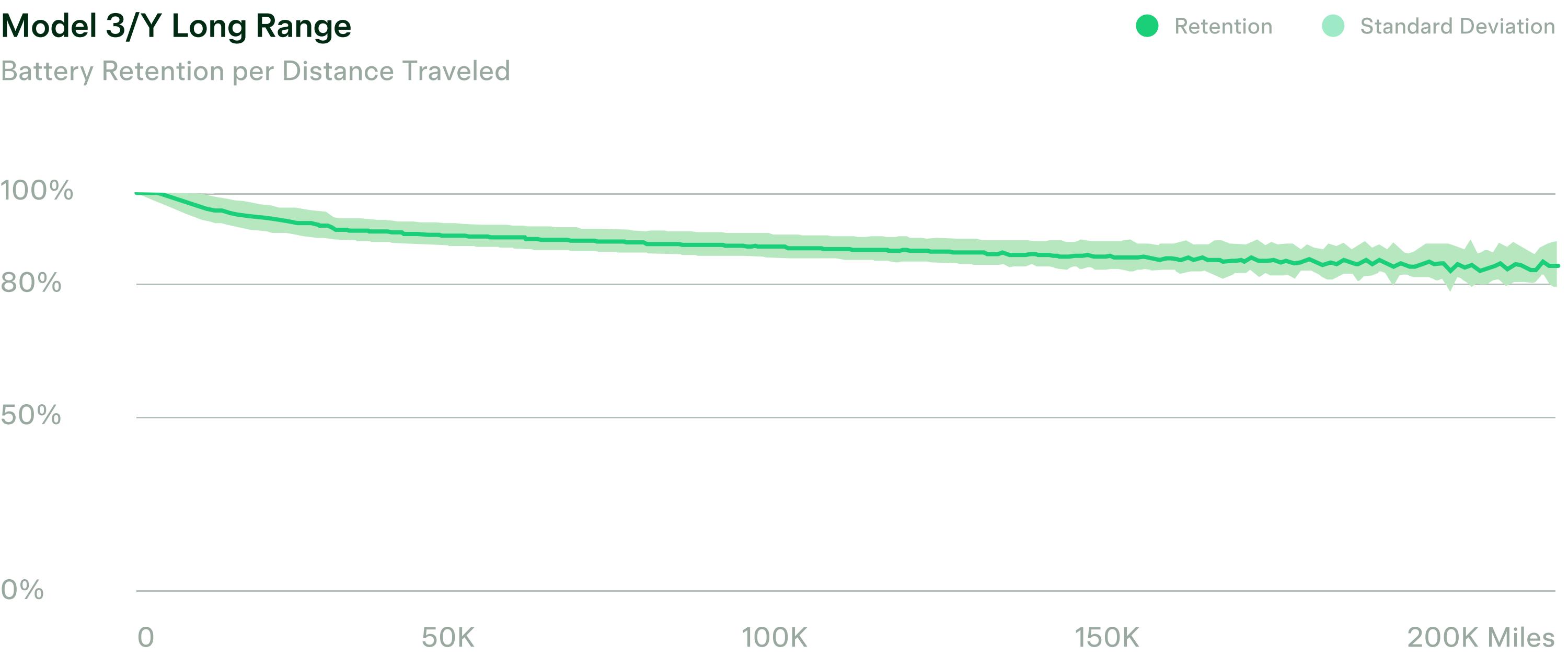


Our Batteries Are Designed for 200K+ Miles of Driving

Vehicle battery production can result in over six metric tons of GHG emissions, so it's important that the battery lasts as long as the vehicle. Even after 200,000 miles of usage (the average life of a vehicle in the U.S.), our batteries in Model 3 and Model Y lose just 15% of their capacity on average, while batteries in Model S and Model X lose just 12% of their capacity on average.

Our cathodes and anodes contain critical minerals like lithium, nickel, cobalt, copper, graphite, manganese, iron and phosphorus. Direct sourcing, vertical integration and regionalization help us source battery materials responsibly and give us more control over supply.

At our own lithium refinery in Corpus Christi, Texas, instead of sulfuric acid, we will use less-toxic reagents, generating a byproduct that can be used as a construction material.



Product

2





We Make Affordable Products That People Love

Many people are unlikely to buy products just because they have a low lifetime carbon footprint. They need to be better in every way—more affordable, more reliable, safer and more fun. We are not just trying to build “green” products; we are committed to building the best products, period.

We support our customers with a full ecosystem throughout their ownership—from sales through delivery and service—to ensure we provide the best possible experience.



Connect with a Tesla Advisor to [learn more](#).

Suited to Every Lifestyle

Our data show that our customers drive Tesla vehicles more than the average vehicle in the U.S., suggesting our customers use their Tesla as their primary vehicle.

Furthermore, Model Y was the best-selling vehicle of any kind globally in 2023.

Average Annual Miles Driven
(United States)

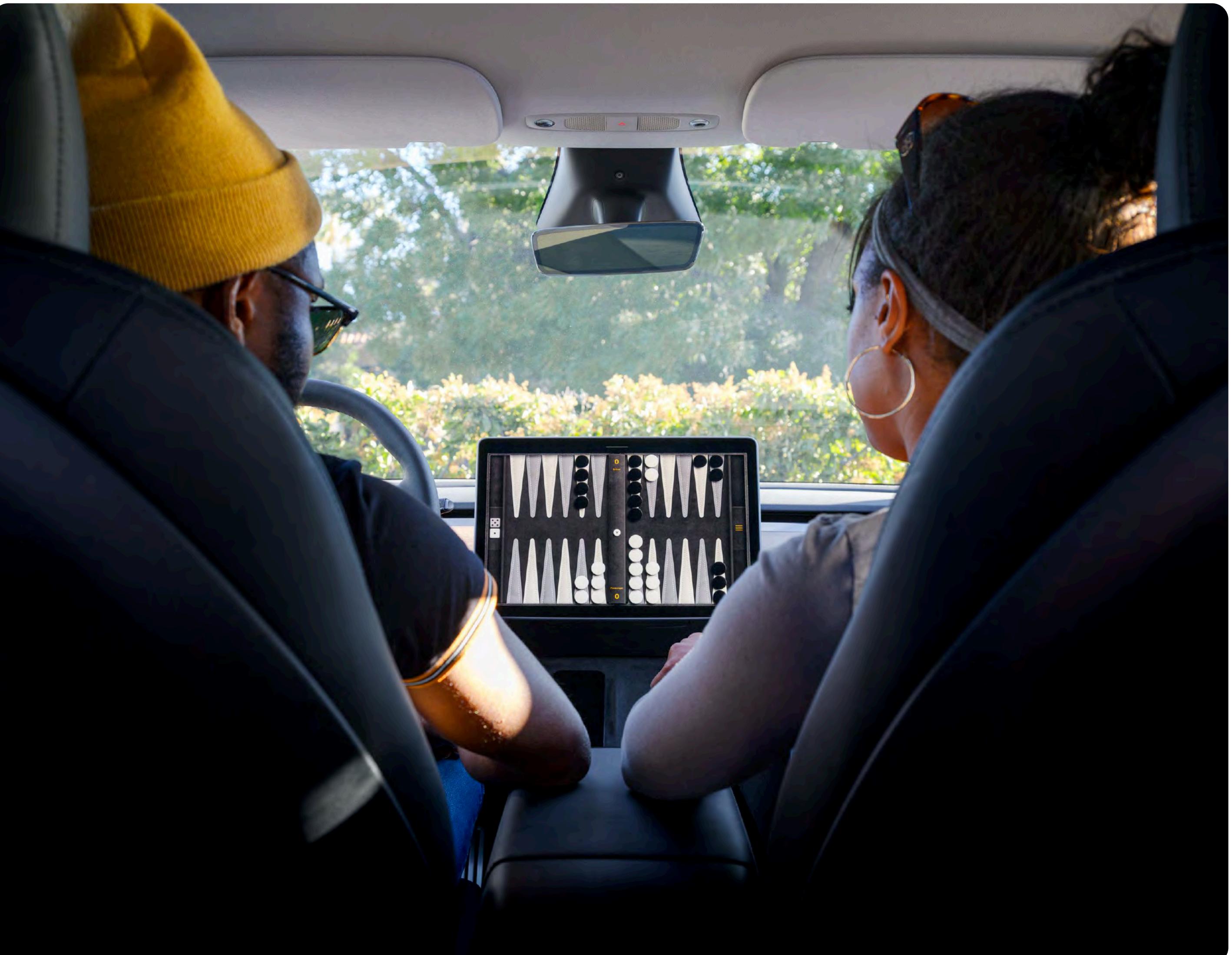
13,768

Model Y



11,142

Average Vehicle



Model Y is Priced Below the Average New Vehicle in the U.S.

Model 3 and Model Y are priced on par with premium ICE equivalents and below the average new car selling price in the U.S. Starting at \$299 per month in the U.S., leasing Model 3 is more affordable than ever.

Model Y
Long Range Rear-Wheel Drive

\$44,990

\$30,490

Reflects pricing at time of publication, May 2024.
Savings over 5 years and 60,000 miles.



After Federal Credit
and Est. Gas Savings

**Average
New Vehicle**



\$47,244

More Affordable Than You Think

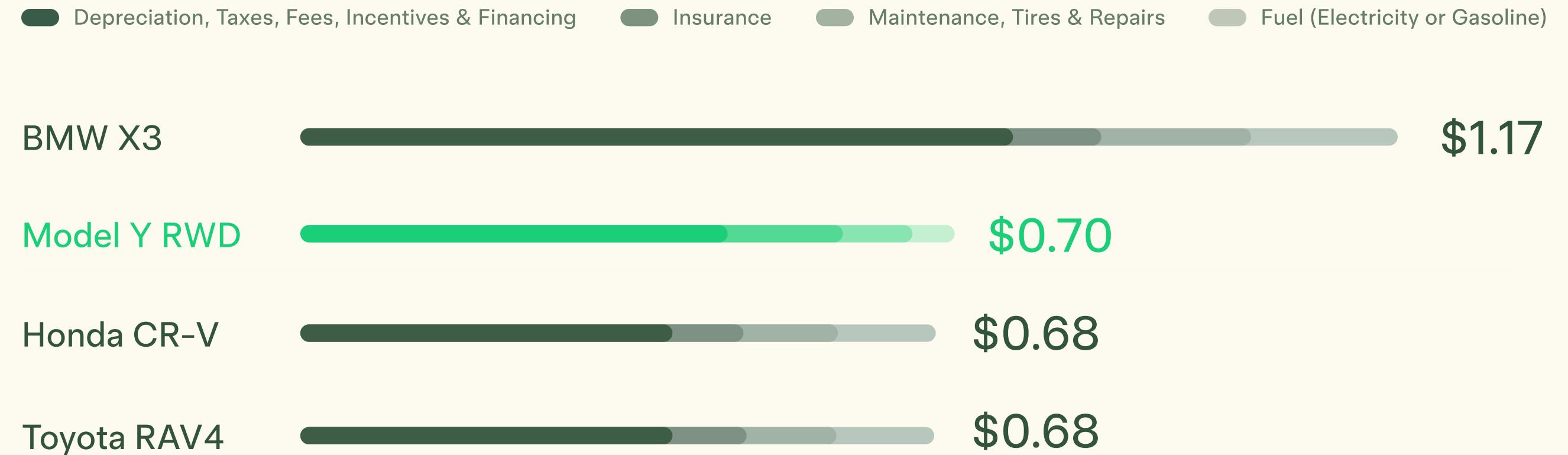
Model Y comes standard with premium features that create a driving experience rivaling that of luxury vehicles, which have a much higher average ownership cost. When you factor in incentives, fuel savings and minimal maintenance, Model Y has ownership costs close to those of mass-market-less premium—vehicles.

The cost of electricity to power Model Y is up to three times lower than a comparable ICE vehicle—resulting in up to \$7,000 of fuel savings over five years and 60,000 miles.

Total Cost of Ownership (\$ per Mile)

5 Years and 60,000 Miles

Model Y RWD
\$0.70



The Freedom to Go Anywhere

The most convenient place to charge is at home overnight. Away from home, our global Supercharger network is expansive, ultra-fast and reliable.

[Learn more about charging.](#)



Average Uptime of Supercharger Sites*

*Uptime of Supercharger sites reflects the average percentage of sites globally that had at least 50% of their daily capacity functional for the year.

2019

99.90%

2020

99.74%

2021

99.96%

2022

99.95%

2023

99.97%

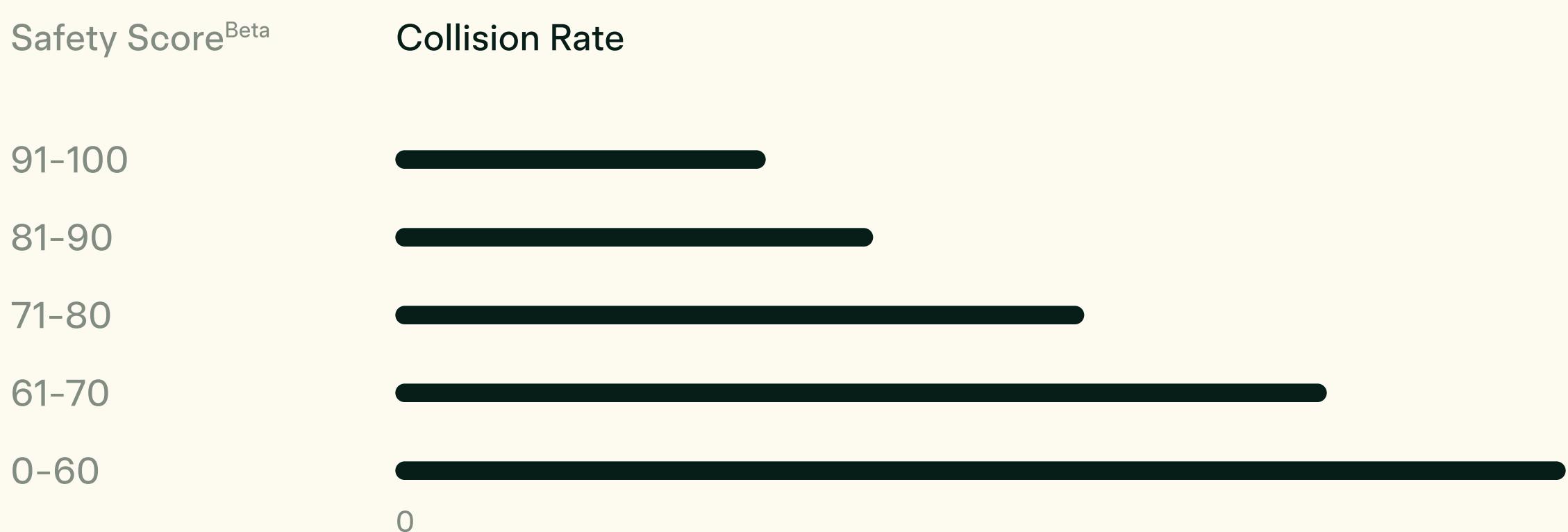
Tesla's Safety Score^{Beta} Incentivizes Safer Driving

Tesla vehicles are engineered to be some of the safest in the world.

We believe the best crash is no crash and are focused on enhancing avoidance mitigations and active safety improvements in our vehicles. We also incentivize safe driving through our Safety Score^{Beta} in the Tesla Insurance program. Safer driving—based on actual driving behavior—leads to a better score, fewer collisions and lower premiums.

All our safety features come standard in all Tesla vehicles, and safety is enhanced when driver-assist technologies are engaged.

Safer Driving, Higher Safety Scores, Fewer Collisions



Exceeding Safety Standards Across Four Continents



Model 3

★★★★★
2018Best in Class
★★★★★
2019Top Performer
★★★★★
2019Top Rating
Occupant Safety
Active Safety
2021

Model Y

★★★★★
2020Best in Class
★★★★★
2022Top Performer
★★★★★
2022Top Rating
Occupant Safety
Pedestrian Safety
Active Safety
2021

Model S

★★★★★
2013Best in Class
★★★★★
2022★★★★★
2014

Model X

★★★★★
2017Best in Class
★★★★★
2019Top Performer
★★★★★
2019

Safety is Enhanced With Driver-Assist Technologies

For more information about our methodology,
see our [Vehicle Safety Report](#).



Miles Driven Before One Accident

Million Miles (2023)

Tesla Vehicles
With Driver-Assist
Technologies Engaged

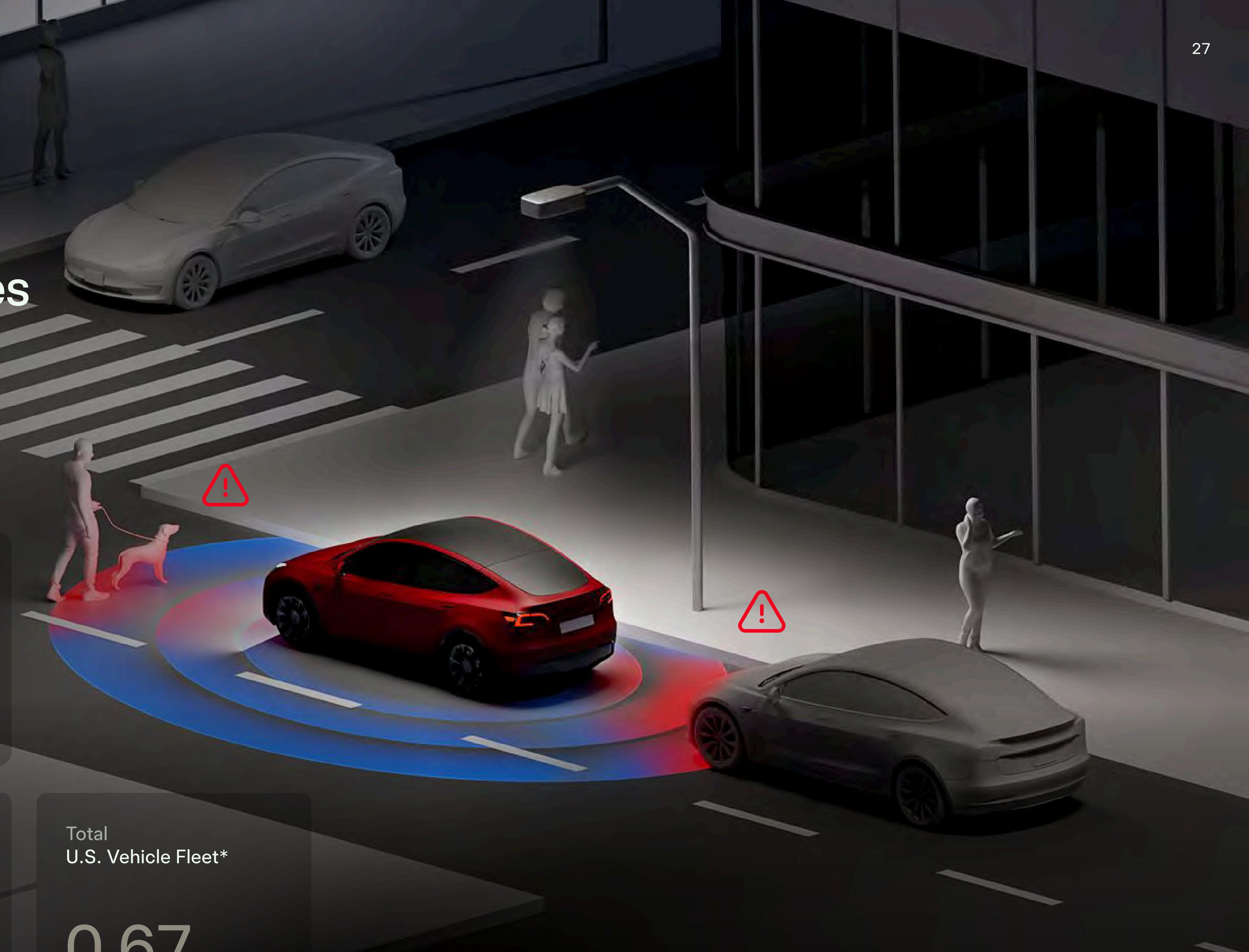
5.64

Tesla Vehicles
No Active Safety

1.24

Total
U.S. Vehicle Fleet*

0.67

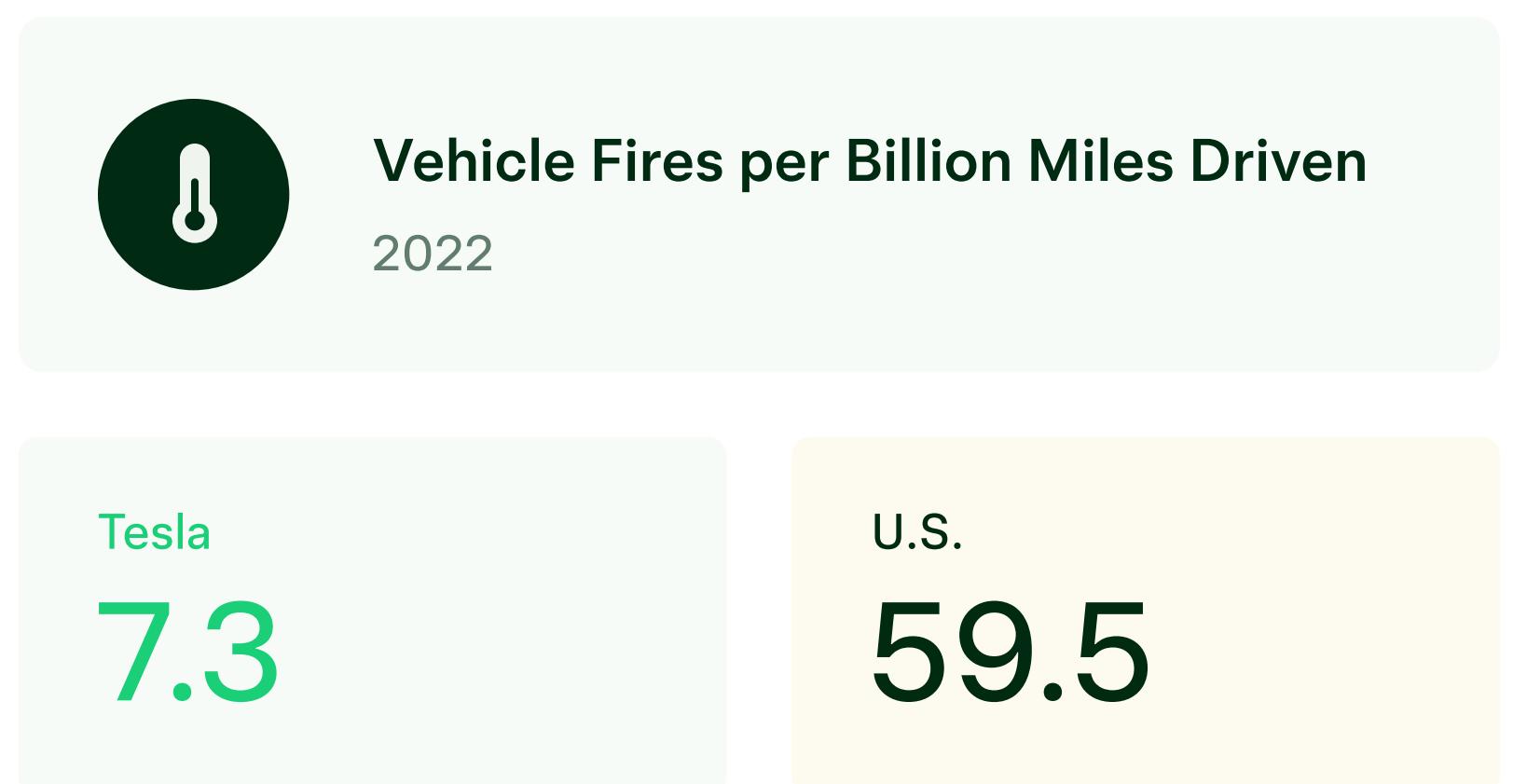


*Based on Tesla vehicle data and NHTSA vehicle data.

Setting a High Standard for Fire Safety

Ensuring that the risk of fire for EVs and energy storage products is as low as possible is critical for mass adoption. Safety is always our priority and we continue to review, test and update our safety requirements and procedures ahead of industry standards.

Our latest data show that vehicle fires for Tesla vehicles are eight-times less likely than the U.S. average.



Learn more by reading our [Vehicle Safety Report](#)

Reliable Energy That's Affordable

Our energy products can serve many purposes, including reducing emissions, helping to prevent grid outages and acting as backup power if the grid does go down. Keeping the grid up means keeping our economy functioning, from household appliances to factories to life-saving machinery at hospitals.

We are committed to reducing the cost of our products to improve access and foster mass adoption. As costs continue to decline, more customers will be able to financially benefit from turning to renewable energy.

 Solar PV paired with Megapack is already cost-competitive with conventional fossil fuel electricity sources





People & Community

3



Our Employees Are Critical to Our Mission

To sustain our pace of innovation, we must ensure we attract, develop and retain a talented workforce with ample opportunity to contribute to our mission and grow professionally.

We are committed to providing a workplace where our employees feel respected, satisfied and appreciated. Our policies are designed to promote fairness and respect for everyone. We hire, evaluate and promote employees based on their skills and performance.



To learn more, view the People & Community section of our full [2023 Impact Report](#).

Preparing the Workforce for a Sustainable Energy Future

A core principle of our recruiting strategy is that the best talent doesn't always come from the established recruiting channels. We are focused on attracting and developing exceptional talent and supporting their growth, regardless of their background.

Nevada K-12 Education Commitment

Introduce a Girl to Engineering Day

We support organizations and conferences in addition to community engagement work focused on developing a robust pipeline of the best candidates. Our education outreach is centered around a hands-on approach to inspiring young people through

Internships and Apprenticeships

High School Graduate Pathways

STEM-based programs and events designed to spark curiosity and foster creativity.

Technician and Service Training

Manufacturing Development Program

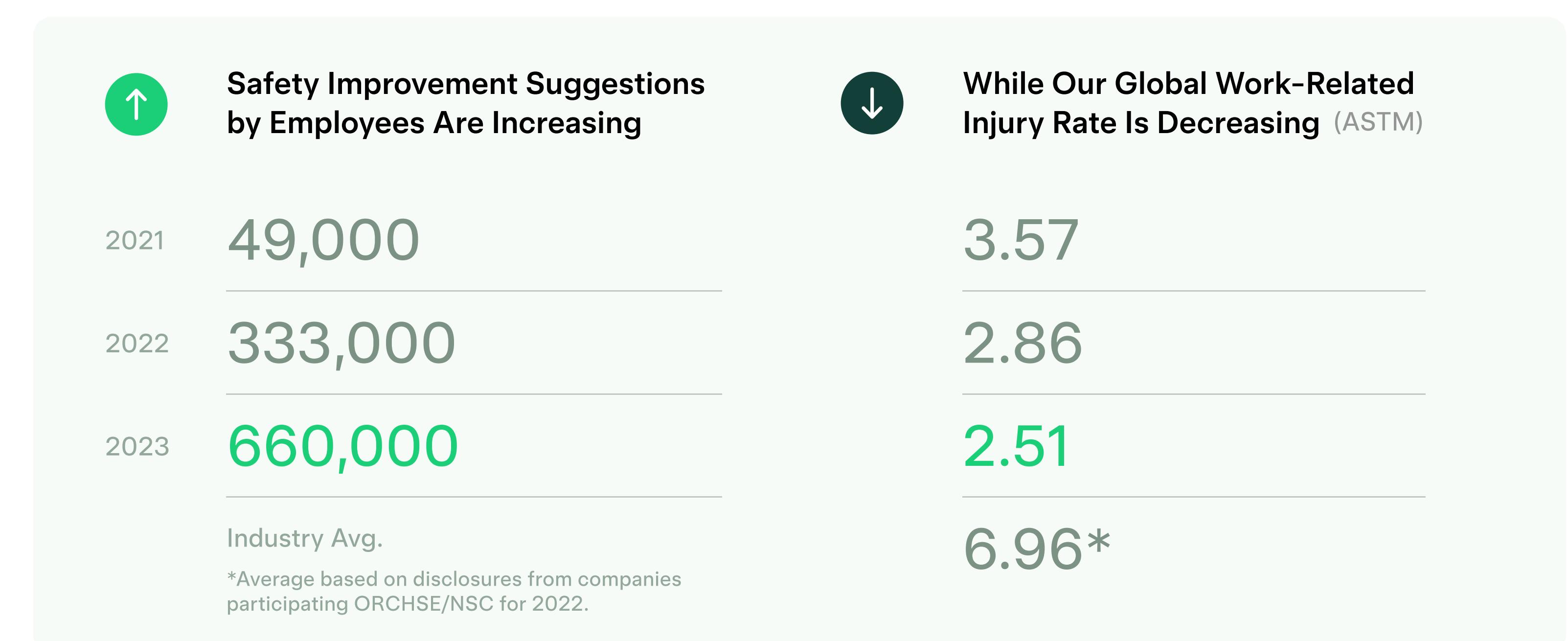
5.9M

We received over 5.9M job applications in 2023, a 64% increase over 2022.



We Empower Our Employees to Build the Safest Operations

We actively engage employees to identify risks before accidents occur and base our programming on three pillars: do the basics right, engage and empower stakeholders and reduce risk. As we've increased employee engagement, we've seen our work-related injury rate come down over the same period.



We Maintain High Standards for Human Rights and Dignity in Our Supply Chain

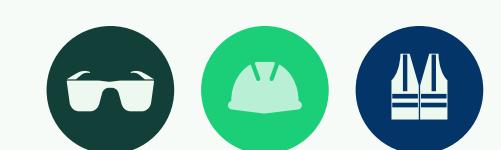
Our approach to people also applies to our suppliers and other partners. We take any allegations seriously and work diligently to uphold respect for freely chosen employment.

In 2023, we invested more human and legal resources than ever before to combat forced and child labor in our supply chain. We also collaborated with suppliers to remedy harm in the interiors, battery, accessories and aluminum supply chains.



156

suppliers audited to identify indicators of forced labor or human rights abuses



3,645

workers interviewed in our supply chain

We Do Not Source Cobalt From Mines That Use Child Labor

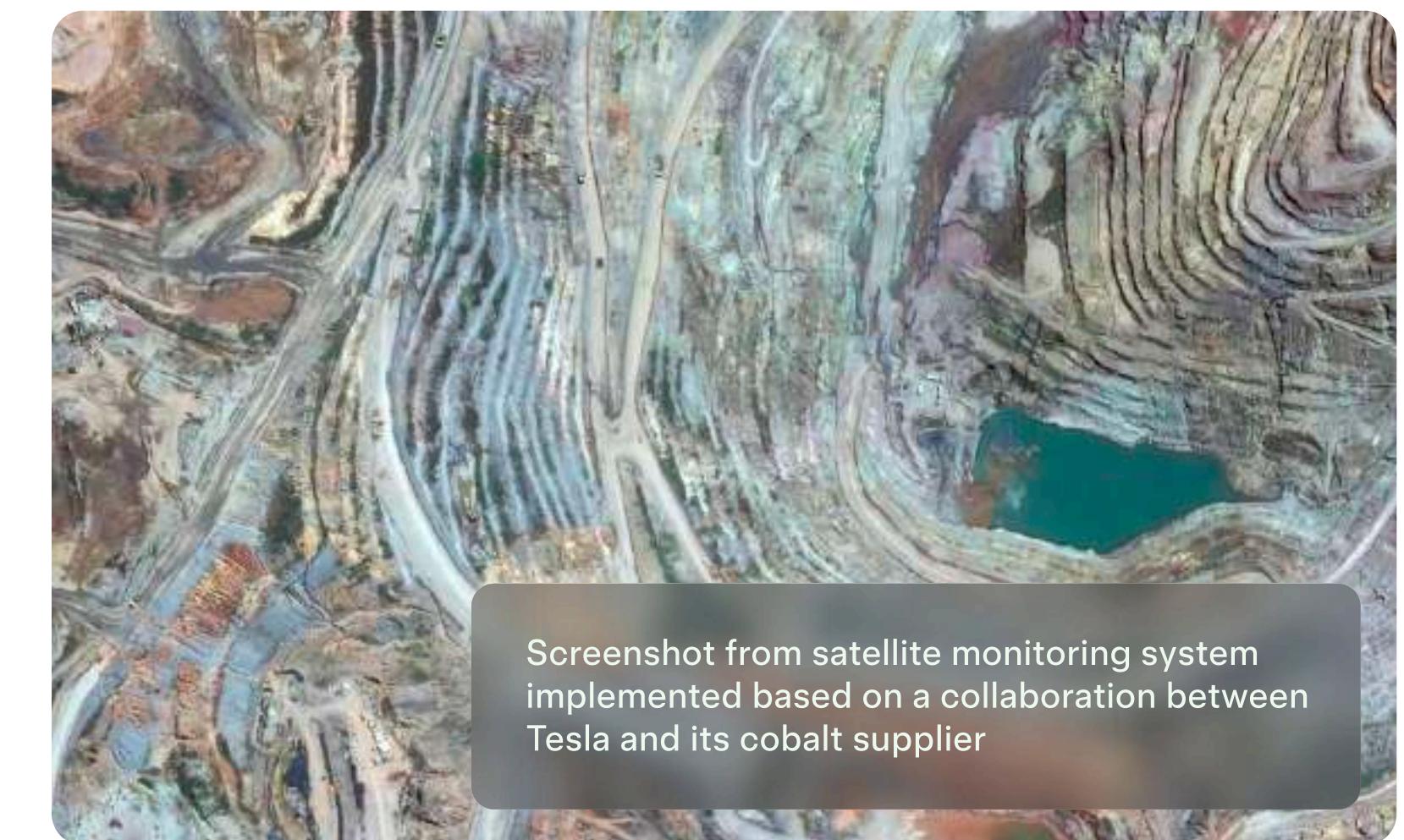
To build our batteries, we use several different cathode chemistries. Our nickel-based cathodes (NMC and NCA) contain cobalt, but others, like our iron-based cathodes (LFP), do not. While our nickel-based cathodes will continue to need cobalt, they contain less cobalt than similar cathode chemistries in the industry, and we are increasing our use of cobalt-free iron-based batteries, particularly for energy storage and standard range products.

Tesla was the first company to directly buy cobalt from mines. We use audits and other tools to ensure that no child labor happens at these mines and that no unauthorized material enters our supply chain. Four audits were conducted in the Democratic Republic of Congo (DRC)* and found no instances of child labor at our suppliers' sites.

In addition, we worked with our supplier Glencore to launch a publicly available satellite monitoring system of its KCC operation located in the DRC. High-resolution images are updated monthly and allow for anyone to see what the operations look like down to 0.5 meters of resolution thus providing a good picture of what is happening at the mine. This is the first time this level of transparency was achieved in this context. Our strategy in the DRC includes funding to the Fair Cobalt Alliance (FCA), which in 2023 provided remediation to children at risk of working in cobalt mines and deployed local community savings groups.

We remain committed to staying engaged in the DRC to improve conditions for stakeholders impacted by cobalt mining.

*Audit frameworks include the International Council on Mining and Metals (ICMM) Performance Expectations and the Responsible Minerals Initiative (RMI) Responsible Minerals Assurance Process (RMAP). Both include provisions on child labor.



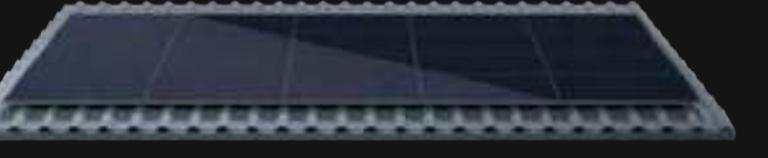
Screenshot from satellite monitoring system implemented based on a collaboration between Tesla and its cobalt supplier

Beyond Tesla

While we are uniquely focused on accelerating the world's transition to sustainable energy, a full transition will require efforts far beyond Tesla.

In Master Plan Part 3, we highlight five key areas that we believe can most dramatically advance the shift to a sustainable energy economy.

*The statements made in this report speak only as of the date on which they are made. We do not assume any obligation to update or revise any statements, whether as a result of new information, future events or otherwise, except as required by law.

We're building a world  powered
by solar energy  running on
batteries  and transported by
electric vehicles. 

View full report Tesla.com/Impact