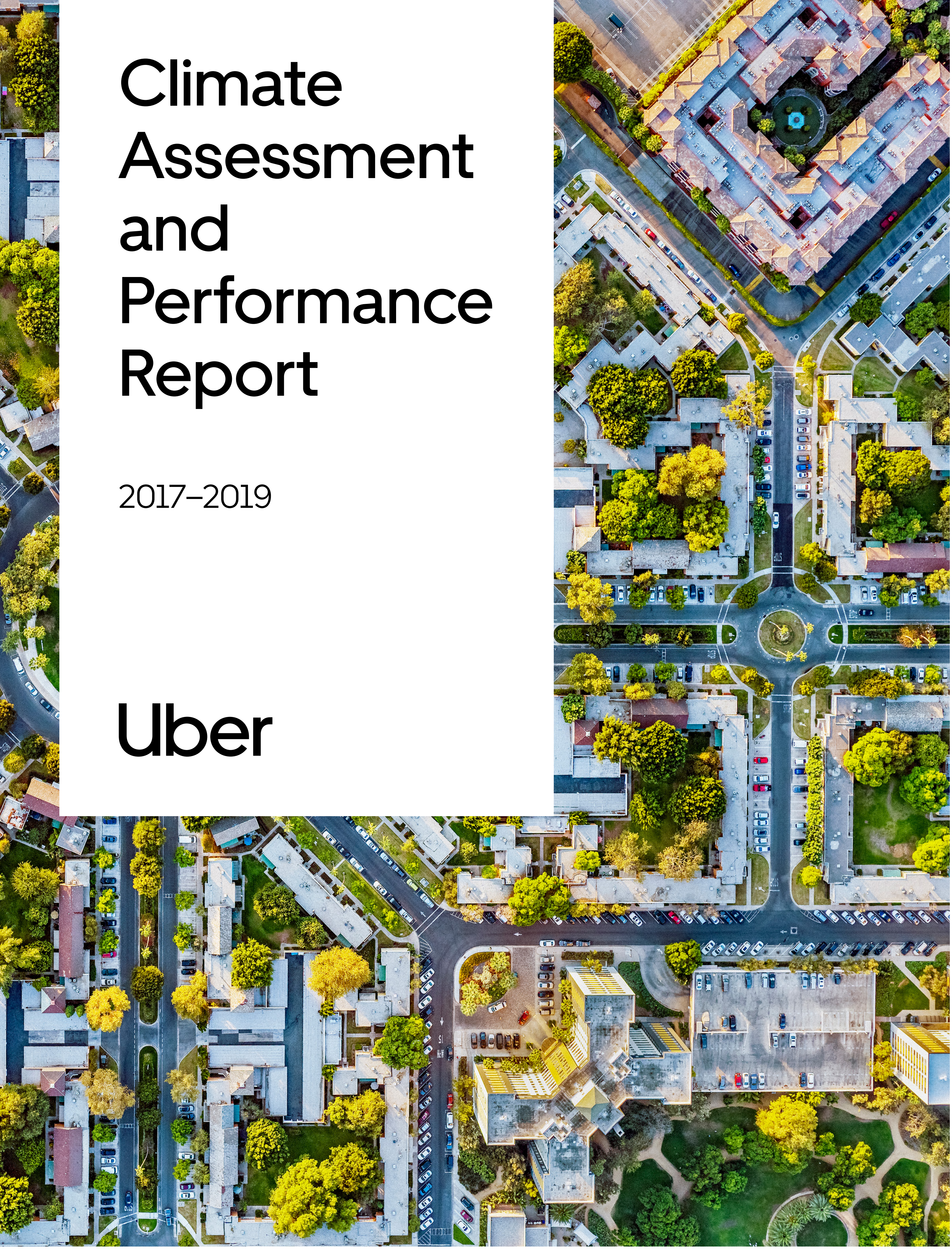
Climate Assessment and Performance Report

2017–2019

Uber



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Letter from the CEO

Dara Khosrowshahi, Chief Executive Officer

Driving a green recovery

Everything changed in 2020. Months of rolling shutdowns cost millions of people their livelihoods and pushed cities and businesses into survival mode. Long-standing inequities have worsened, with many of the same communities that have been plagued by air pollution now vulnerable to the impacts of COVID-19.

Yet during lockdown, blue skies replaced smog above city skylines. Pollution levels fell and wildlife returned. The pandemic has caused many cities to rethink their infrastructure, transforming parking into parks and creating more space for walkers and cyclists. We've had a glimpse of what life could be like with less traffic and cleaner air—in cities built for people, not for cars.

But carbon emissions will return to "normal" soon. When two-thirds of the world's population was under lockdown in early April, carbon emissions fell 17% compared to last year. By June, the drop was only 5%. And the fires that continue to rage across our home state of California are a sobering reminder of the urgency of the climate crisis.

Instead of going back to business as usual, Uber is taking this moment as an opportunity to reduce our environmental impact. It's our responsibility as the largest mobility platform in the world to more aggressively tackle the challenge of climate change. We want to do our part to build back better and drive a green recovery in our cities.

While we've taken some important steps in recent years, from expanding micromobility options to offering public transit in the Uber app, we know we've got a long way to go. That's why we're working with the World Resources Institute, Transport & Environment (T&E), and others to become a stronger partner in the fight against climate change by leveraging our innovation, technology, and talent to expedite the global transition to clean energy.

Uber is committing to become a fully zero-emission platform by 2040, with 100% of rides taking place in zero-emission vehicles, on public transit, or with micromobility. We're also setting an earlier goal to have 100% of rides take place in electric vehicles (EVs) in US, Canadian, and European cities by 2030. In fact, we believe we can achieve this 2030 goal in any major city where we can work with local stakeholders to implement policies that ensure a fair transition to EVs for drivers. In addition to our platform goals, we're also committed to reaching net-zero emissions from our corporate operations by 2030. All told, hitting these goals would put us a decade ahead of Paris Climate Agreement targets.

Uber is committing to become a fully zero-emission platform by 2040, with 100% of rides taking place in zero-emission vehicles, on public transit, or with micromobility.

Goals are important, but we know actions matter most. Uber will take a holistic approach to reducing emissions, starting with 4 key actions:

1. **Expanding Uber Green to make it easier for riders to choose to travel in hybrids or EVs.**
2. **Committing $800 million in resources to help hundreds of thousands of drivers transition to EVs by 2025.**
3. **Investing in our multimodal network to promote sustainable alternatives to personal cars.**
4. **Being transparent and accountable to the public along the way.**

The world is at a critical juncture, and we all have a role to play. Uber is aiming high. We'll seek to build the most efficient, decarbonized, and multimodal platform in the world for on-demand mobility. While we're not the first to set ambitious goals in transitioning to EVs, we intend to be the first to make it happen. Competing on sustainability is a win for the world, and today we challenge other mobility platforms to transparency, accountability, and more action.

This is a start, and we expect to be judged against our actions. The ultimate success of our business will rest on our ability to transition our platform to clean energy in partnership with drivers, industry innovators, and governments. It's the right thing to do for our customers, our cities, our shareholders, and the planet we all share.

Dara Khosrowshahi
Chief Executive Officer, Uber
September 8, 2020

Uber's 4 key actions to tackle climate change

1. Expanding Uber Green

Today we're launching Uber Green in more than 15 US and Canadian cities. For just $1 extra, riders can now tap a button to request a ride in an EV or hybrid vehicle; such trips produce up to 44% fewer carbon emissions than driving a gas-powered car alone. By the end of the year, Uber Green will be available in more than 65 cities globally.

We'll also incentivize consumers to make greener choices when they ride. Riders using Uber Green will receive 3x Uber Rewards points for every trip taken, compared to 2x points for a typical UberX ride.

2. Helping drivers transition to EVs

Making it easier for riders to choose greener rides is only one part of the equation; helping drivers make an equitable transition to electric vehicles is even more important. Today, Uber is committing more than $800 million in resources to help hundreds of thousands of drivers in the US, Canada, and Europe transition to battery EVs by 2025.

We'll help drivers go electric more affordably through various market-based solutions, including a rider surcharge on Uber Green trips and fees collected from innovative programs like our London and French Clean Air Plans. And we'll work with third-party experts in environmental justice, such as EVNoire and GRID Alternatives, to ensure that these resources reach drivers from underserved communities and those who've been disproportionately impacted by the pandemic.

More earnings for drivers
Drivers who choose to drive greener and electric vehicles will earn extra money with each trip. In the US and Canada, hybrid and EV drivers will receive an extra $0.50 directly from the rider on every Uber Green trip completed. Since our goal is to ultimately transition all drivers to zero-emission vehicles, drivers using a zero-emission vehicle (namely, a battery EV) will receive an additional $1.00 for every trip they complete in the US and Canada. This means that battery EV drivers[1] will receive both incentives—a total of $1.50 extra—for every Uber Green trip they complete.

More savings for drivers
As experts remind us, affordable access to green vehicles and charging equipment is paramount to lowering emissions. That's why we're teaming up with vehicle manufacturers, charging network providers, and EV rental and fleet companies to provide millions of dollars in EV savings to drivers around the world.

Specifically, we are working with leading electric carmakers to extend attractive offers on electric vehicles: GM in the US and Canada, and Renault-Nissan across European cities in the UK, France, Netherlands, and Portugal. We'll also expand EV access through Avis in the US to make it easier for drivers to rent a zero-emission vehicle. We've coordinated discounted EV charging around the world in locations where drivers most need it with BP, EVgo, Enel X, Izivia by EDF, and Power Dot. And we're joining forces with emerging innovators like Ample, which offers a robotic alternative to EV battery charging, and Lithium Urban Technologies, which runs an electric fleet in India. By bringing together the diverse insights from dozens of companies from around the world, it's our goal to give every driver the opportunity to more easily transition to a zero-emission vehicle.

Partnering with local governments
Finally, it's clear that we urgently need more robust collaboration between industry and government stakeholders. This includes taking a more serious look together at what it will require to achieve a fair transition for drivers. In London, for example, our team has been hard at work on our all-electric 2025 goal since the launch of the London Clean Air Plan, and we're making real progress. In 2019 alone, London drivers completed more than one million journeys in electric vehicles. And in France we're announcing, together with the government, a French Clean Air Plan, which sets aside money and includes a matching commitment by Uber toward EV purchases made by Paris drivers.

In order to scale this progress across Europe, we're releasing a white paper today that outlines a road map for partnering with public and private leaders in major EU cities to achieve 100% all-electric on-demand mobility.

[1] In lieu of the additional $1 per trip, drivers with electric vehicles in California receive a service fee reduction of 5 percentage points on every Uber trip, in addition to an extra $0.50 on every Uber Green trip.

After conducting this in-depth research to build our path forward for Europe, we've come to believe we can reach 100% battery EV rides in US and Canadian cities as well as in any major city in the world by working together to combine the best of our technology with innovative policies that facilitate a fair, rapid transition for drivers. That's why we're working with the WRI, T&E, the Sierra Club, GRID Alternatives, and EVNoire to produce a global road map for enabling 100% EV on-demand mobility in major cities by or before 2030.

3. Investing in our multimodal network

Uber has long envisioned a future with far less reliance on personal car ownership, a goal we share with cities. We're doubling down on this vision by investing in our multimodal network to provide sustainable alternatives to the personal car.

Lime integration
We'll offer bikes and scooters—2 of the best ways to lower emissions for shorter trips—in our app wherever possible. We've already integrated Lime fully into the Uber app across 55+ cities globally, including Austin, Los Angeles, Munich, Portland, Rome, Zurich, and many more, nearly doubling availability from 2019.

Shared rides expansion
We look forward to expanding Nonstop Shared Rides, our last-in, first-out carpooling product, to all 50+ global cities where Uber Pool is available. This feature prompts you after you request UberX to join a Pool trip headed in the same direction as your destination. You'll be the last to be picked up and the first to be dropped off, all while saving cash. While we've paused Uber Pool since March to help flatten the curve during the pandemic, we continue to monitor the situation closely and will expand this feature as soon as it's safe to do so.

Transit partnerships
The pandemic hit public transit agencies especially hard, with operations driven to a near standstill. As communities recover from COVID-19 and people start moving again, Uber will partner with public transit to avoid the return to traffic gridlock and pollution.

We'll start by expanding our Journey Planning feature to 6 new cities, bringing the total to 40 cities globally by year's end. This means riders can choose their destination and see pricing options, real-time schedules, and walking directions to and from transit stations. We've also expanded in-app ticketing to 10+ total cities this year, so people can purchase and use transit passes directly in the Uber app. And with health and safety top of mind, we've redesigned our touchless ticketing feature for transit agencies so they can more easily integrate it in their cities.

Finally, we're introducing a new multimodal feature in the Uber app: UberX and Transit. Starting in September 2020 in Chicago and Sydney, riders can tap this option and plan their entire journey, combining UberX with walking directions and city bus, subway, or train connections. Powered through real-time transit information and Uber's on-demand mobility network, it's the latest way we're partnering with public transit to create solutions to congestion and reduce everyday use of personal cars.

4. Being transparent and accountable

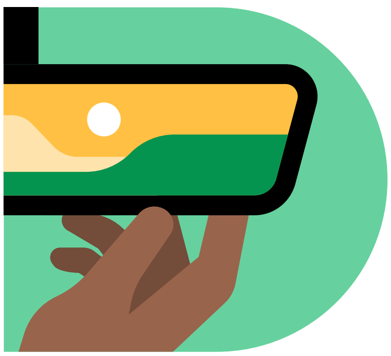
As we learned with our US Safety Report, progress starts with taking an honest look at where we stand today and sharing results to drive accountability. That's why we're releasing our first-ever Climate Assessment and Performance Report, making Uber the only rideshare company and one of the first companies more broadly to measure and report on emissions from customers' real-world use of its products.

Our climate report analyzes real-world data from the nearly 4 billion rides facilitated by Uber's platform in the United States and Canada from 2017 through 2019. Findings indicate that trips taken with Uber are less carbon-intensive than traditional on-demand mobility services like taxis—and the efficiency of our platform improves even as trips grow. Over the 2017–2019 period, we estimate that platform-wide efficiency gains resulted in the avoidance of half a million metric tons of CO_2 emissions and the use of 56 million gallons of gasoline by drivers. We also found that a ride taken on the Uber platform is significantly less carbon-intensive than single-occupancy driving (which makes up 40% of all road travel in the US). And drivers on the platform use more efficient hybrid vehicles 6 times more than average car owners do. But it's not good enough. Carbon intensity for rides taken with Uber is still higher than that of average-occupancy personal cars.

We must do better, and we look forward to using the data in this report to reduce our carbon footprint. Uber has joined the Science Based Targets initiative (SBTi) to ensure that we implement leading practices in emissions accounting, target setting, and transparency. And we'll begin providing riders with information on the carbon impact of their travel, as well as tips for how to reduce it.

Executive summary

As the largest mobility platform in the world, Uber has a responsibility to more aggressively tackle the challenge of climate change. We estimate that emissions resulting from the use of our products are the most material part of Uber's carbon footprint. Improving our climate performance requires greater transparency and accountability, and that's why we developed our first impact report based on the real-world use of our products. Learn more in the *About this report* section.



About this report

Covering nearly 4 billion rides across the US and Canada from 2017 through 2019, this report summarizes a vast amount of anonymous trip data, gathered every 4 seconds. We have made this initial data analysis public to set a baseline against which we can measure progress on delivering real, actionable solutions. Based on our current performance baseline, Uber has set ambitious improvement targets, which will in turn inform our product road map.

Decarbonizing transportation

The current state of transportation is unsustainable. As examined further in the *Decarbonizing transportation* section, transportation emissions have grown faster than any other end-use sector over the last 3 decades. Carbon emissions from the transportation sector account for nearly one-quarter of the global total. The future economic growth of cities depends on a rapid transition to more sustainable modes of transportation.

Metrics

Our journey to understanding our carbon impact began over 2 years ago. Since then, we have worked with Fehr & Peers and the World Resources Institute (WRI) to review, evaluate, and test the methodologies of the key impact metrics used for this report:

- Travel efficiency, which evaluates how well we help people move while minimizing private car use
- Carbon intensity, which measures the emissions resulting from every passenger mile, an industry best-practice metric recently adopted by one of the world's leading air-quality regulatory agencies, the California Air Resources Board (CARB)

The future economic growth of cities depends on a rapid transition to more sustainable modes of transportation.

The *Metrics* and *FAQ* sections detail the definitions, assumptions, data sources, and methods we used for calculating all of our metrics.

We hope the data shared in this report contributes to and acts as a catalyst for ongoing development of sustainable transportation solutions.

A note on COVID-19

We collected all of the data and completed most of the analyses used in this report months before the COVID-19 pandemic began. Consequently, the results shown in the report reflect a pre-pandemic reality. Consumer demand for rides on the Uber platform, shelter-in-place orders, and guidance from health officials have greatly impacted our platform and our ability to provide high-efficiency, on-demand mobility services. For instance, as of the release of this report, Uber Pool services remain offline in keeping with guidance from health officials. However, we're seeing rides come back in markets where health outcomes from COVID-19 are improving and cities have reopened safely. As such, we expect the analytic views and conclusions shared in this report to hold true as on-demand mobility markets return to a pre-pandemic state in the near to medium term.

COVID-19 and shelter-in-place orders have led to a temporary reduction in emissions globally. When two-thirds of the world's population was under lockdown in early April, carbon emissions fell 17% compared to last year. By June, however, the drop was only 5%—and experts expect emissions to continue rebounding throughout recovery. We see many challenges as consumers may turn heavily toward personal car use. We also see opportunity, as many people experience less-polluted skylines and less-congested roadways.

The present crisis has also laid bare the pernicious social inequities that continue to plague our communities. Not least of these is the disproportionate rate of COVID-19 cases suffered by underserved communities and people of color due, in part, to histories of lung disease resulting from disproportionate exposure to air pollution from the transportation sector. The current pandemic is clearly the most pressing crisis that demands a response from all corners of society. But climate change and the long-standing environmental consequences of transportation remain the ultimate long-term crisis that cannot be overlooked.

At this unique moment, we have an unparalleled opportunity to build back better and greener, and Uber is committed to doing our part.

Performance, case studies, and insights

Our analysis shows that there are some encouraging trends as well as areas where improvement is needed.

Efficiency of trips on Uber improved while ridership grew.
From 2017 to the end of 2019, average active monthly ridership increased more than 36%, while carbon intensity declined 6%. We estimate that over the 3-year period, this efficiency improvement resulted in nearly half a million metric tons of avoided CO_2 emissions and 56 million gallons of gasoline conserved.

Uber is more climate efficient than traditional taxis.
The carbon intensity of trips on Uber is as much as 44% lower than that of traditional taxis, according to an analysis we present in the *Case studies* section on the carbon intensity of various modes frequently traveled in Los Angeles. This is consistent with findings published by the National Bureau of Economic Research showing that Uber's technology achieves 40% better vehicle utilization than traditional taxis. According to a 2015 study, US taxi services spend about 60% of miles traveled without passengers.

Uber's performance is even more efficient in cities.
In 2019, the carbon intensity of rides in our top 10 metro markets was 5.4% lower than the Uber average. Rides facilitated in our 2 largest urban markets in California (Los Angeles and San Francisco) resulted in almost 25% lower carbon intensity than those across US and Canada.

Drivers on Uber use hybrid vehicles 5.5 times more than do average car owners.
This demonstrates how Uber's platform can help accelerate the adoption of clean vehicle technologies that deliver economic benefits to drivers. Additionally, in our *Case studies* section, we highlight how vehicles used by drivers on the Uber platform show 18% higher average fuel economy than the local private vehicle market average—even in California, where the local consumer vehicle market is significantly more efficient than other markets in the US.

Uber is beginning to compete with personal car ownership from an efficiency standpoint.
Our results show that the carbon intensity of on-demand trips taken with Uber is 15% lower than that of single-occupancy vehicles (SOVs). These results show how Uber's platform is beginning to compete on an efficiency basis with private car ownership. SOV car use accounts for nearly 40% of all miles traveled in the US.

Uber is less climate efficient than average-occupancy vehicles.
Carbon intensity for a ride on Uber remains 41% higher than that of an average-occupancy vehicle (AOV) ride. Average occupancy for personal vehicles in the US is 1.67 persons per trip, according to the latest government figures (US Department of Transportation, Federal Highway Administration, 2017 National Household Travel Survey, nhts.ornl.gov). This finding mirrors findings from the California Air Resources Board's recent study on the climate impacts of transportation network companies (TNCs) like Uber.

The barriers to electrification remain high.
Battery electric vehicle (battery EV) uptake across Uber's network remains similar to that of average American car owners, with battery EVs serving 0.15% of trip miles. These findings corroborate recent research showing that rideshare drivers today face high vehicle acquisition costs, inadequate charging infrastructure, and decreased earnings potential in battery EVs. In one of the case studies highlighted later in this report, we evaluate current progress and examine options to accelerate electrification on Uber's platform.

4B

Trips in the US and Canada, 2017-2019 based on average active monthly riders

+36.5%

Average active monthly riders

-6.1%

Carbon intensity based on 2019 rides on Uber compared with 2017

5.5x

More hybrid use by drivers on the Uber platform, compared with average US car owners

Commitments

While Uber has made progress in recent years, these results show that we must do much better. We can accelerate our transition to zero-emission, on-demand mobility and help our users and the cities in which they live move more sustainably. Now is the moment to drive further progress by making some key changes. That's why we're pledging to achieve critical decarbonization and electrification goals:

> By 2025, we'll make more than $800 million in resources available to help hundreds of thousands of drivers on Uber's platform more affordably switch to battery EVs.
>
> By or before 2030, 100% of rides will take place in battery EVs in US, Canadian, and European cities, as well as in major global cities where we can work with stakeholders to implement policies that ensure a fair transition for drivers. Additionally, Uber commits to reaching net-zero climate emissions from corporate operations.
>
> By 2040, 100% of rides on the Uber platform globally will be emission-free, whether in zero-emission vehicles, on micromobility, or on public transit.

Enabling 100% zero-emission, on-demand mobility—which means passenger rides supplied 100% by vehicles without tailpipe emissions—will be very challenging, and we cannot do it alone. Uber will work with the World Resources Institute (WRI) and consult with Transport & Environment, Sierra Club, Grid Alternatives, and EVNoire to publish a road map to help cities work with us to reach this goal by or before 2030. We're also launching a portfolio of new partnerships with global automakers, EV charging providers, utilities, and rental and fleet solutions companies. For more information on our growing portfolio of decarbonization and electrification initiatives, go to our announcement launched in tandem with this report.

Decarbonizing our platform

Expanding opportunities for drivers to shift to battery EVs is just one of several key strategies to reduce emissions resulting from rides on the Uber platform and to scale more sustainable mobility options in cities everywhere. We've identified 5 strategies to reduce carbon intensity across all passenger trips taken using Uber:

1. **Expand convenient and affordable low-emission products for riders**
2. **Help drivers shift to greener and electric vehicles**
3. **Increase multimodal connectivity and grow car-free trips**
4. **Engage users and stakeholders with transparency on the impact of trips**
5. **Increase vehicle utilization to reduce empty vehicle miles (deadhead) and empty seats**

We will expand and promote electric and hybrid vehicle options for riders around the world, help drivers transition to EVs, build a multimodal network that promotes sustainable alternatives to personal cars, and continue to be transparent and accountable as we move forward. We are committed to outperforming average-occupancy personal car use on a carbon-intensity basis in just a few years' time. We outline a plan for deploying innovations across the 5 strategies outlined above in the *Commitments* section of this report.

To reach for best-in-class practices as we move forward in our environmental journey, we have joined the [Science Based Targets initiative (SBTi)](), a collaboration between CDP, WRI, the World Wildlife Fund (WWF), and the United Nations Global Compact (UNGC). SBTi has become a leading driver in the transition to a low-carbon economy, and we are looking forward to living up to the rigor and accountability set forth by SBTi.

> We are committed to partnering with others across the transportation value chain to reduce carbon intensity and increase travel efficiency of all trips.

Additionally, we are looking to serve as a guidepost for transportation entities (transit agencies, governments, businesses, etc.) by adopting carbon intensity as a key metric for reporting and policymaking. We hope this report and commitment help further the momentum gathering with organizations such as the California Air Resources Board (CARB) and California Public Utilities Commission (CPUC), who have recently adopted carbon intensity as the centerpiece of their Clean Miles Standard.

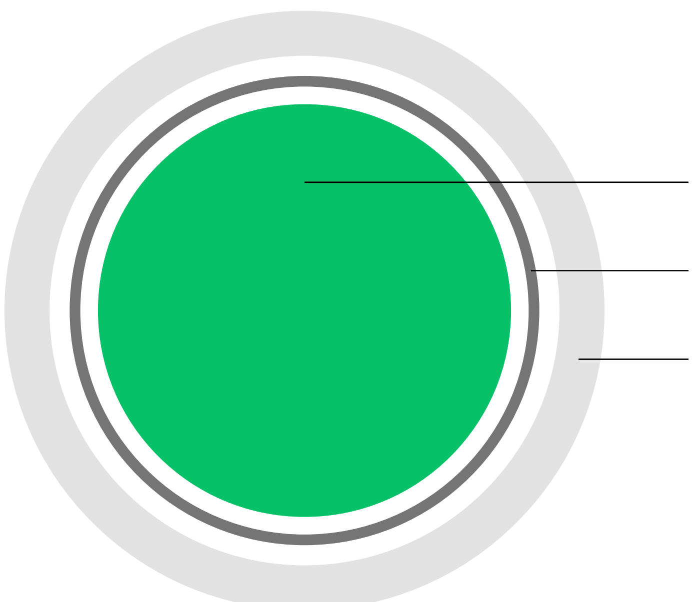
Advocacy and partnerships

We are committed to partnering with others across the transportation value chain to reduce carbon intensity and increase travel efficiency of all trips. Policies that we support to help scale sustainable mobility include improving the quality and availability of local transit and micromobility infrastructure; road pricing that includes all vehicles; increasing drivers' affordable access to greener and electric vehicles; and expanding the availability of EV charging infrastructure and affordable charging needed by rideshare drivers. If we work collaboratively with public- and private-sector leaders, our technology platform can drive deeper decarbonization and higher levels of electrification and contribute to a sustainable transport system that builds back better with cities.

About this report

This *Climate Assessment and Performance Report* provides city officials, users, investors, and other stakeholders with more insight into the climate-related impacts resulting from passenger trips enabled by the Uber app; it also highlights the challenges we face and opportunities we see to arrive at lower-carbon mobility. We share our strategy, programs, and goals to manage these impacts and we outline our support for policies and partnerships that can help achieve more sustainable mobility at scale.

We used real-world data from passenger trips taken across the United States and Canada to quantify climate emissions resulting from the use of our platform and to establish a baseline for future performance. These emissions fall into the first of the 3 categories below, which capture Uber's total theoretical climate-related impact.



1. **Platform:** impact directly resulting from use of Uber's app[2]
2. **Corporate:** impact resulting from Uber's corporate operations[3]
3. **Ecosystem:** indirect impact related to the interaction of users on Uber's app with the multitude of other mobility options available in the transportation ecosystem[4]

Ecosystem impact—which includes effects on car ownership, transportation-system asset intensity (total number of vehicles versus the total number of people or things moving), mode shift, and induced travel—may be significant. However, for this first report, we deliberately choose to focus on impact we can measure based on real-world data we capture through the normal course of business. We purposely avoid constructing counterfactual scenarios or making assumptions about what users do when they're not using our product. See the *Limitations and areas for future exploration* section of the *FAQ* to learn more.

[2]The GHG Protocol categorizes these emissions as Scope 3, Category 11, which "includes emissions from the use of goods and services sold by the reporting company.

[3]The GHG Protocol categorizes these emissions as all Scope 1, 2, and 3 categories except Scope 3, Category 11.

[4]Outside of traditional corporate emission accounting, as described by the GHG Protocol.

The future is multimodal

This report compares performance metrics for trips taken in vehicles on our platform to those taken in personal vehicles. But under no circumstance do we foresee a sustainable future of mobility based on car travel alone. Our vision for urban mobility combines new mobility technology services, like Uber, with high-quality mass transit and lots of space for active mobility such as micromobility and walking. Urban travel experts have shown that on-demand mobility, such as taxi, plays a critical role in enabling more multimodal travel in cities. We believe a platform that extends affordable, convenient, and safe access to on-demand and multimodal options has the greatest chance to provide consumers with an attractive alternative to owning and driving personal cars.

> We believe a platform that extends affordable, convenient, and safe access to on-demand and multimodal options has the greatest chance to provide consumers with an attractive alternative to owning and driving personal cars.

A 2019 report by TransitCenter found that consumers who increased their use of public transit over the last 2 years also walked and telecommuted more, increased their use of rideshare services and taxis, and decreased personal car use. The study shows that transit riders are more likely than others to use transportation network companies (TNCs), and that those who increased their trips on rideshare apps also increased transit use. In contrast, people who increased their use of private vehicles decreased their travel by transit, rideshare, taxis, and walking. Car owners typically use their vehicles for most of their travel, require parking at their destination, and need to drive their car home each day. The vast majority of riders using Uber rely on Uber's on-demand vehicle products to serve a tiny fraction of their trips (in Seattle, for example, 84% of riders take one trip per week or less) and can leverage our platform to conveniently link to other active and shared modes, such as transit, to meet their mobility needs.

The net impact of platform mobility services, or any transportation ecosystem, can be investigated by looking at a holistic picture of all trips taken by each individual or group and calculating average carbon intensity per person across all their modes of travel. This requires data on how people move across all modes of transportation and the individual carbon intensities of each mode (such as that shown in the chart below). We hope the data presented in this report can support researchers working to evaluate the impact of dynamic, multimodal systems.

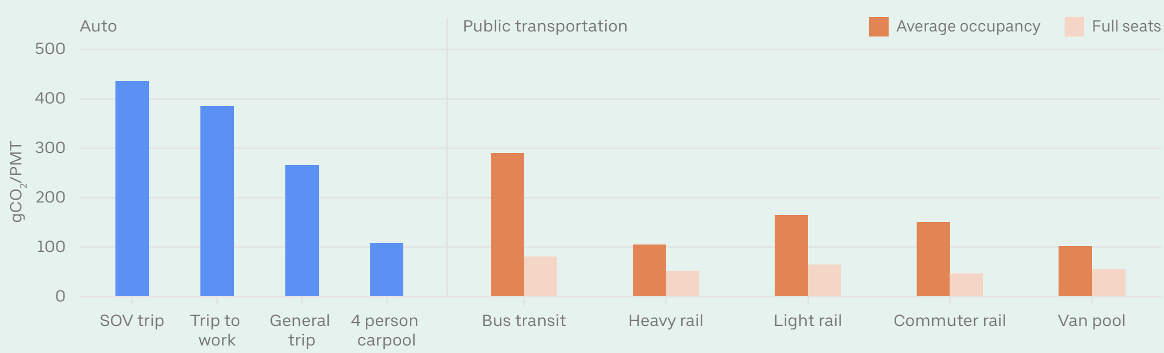


Figure: Estimated pounds of CO_2 emissions per passenger mile for average full occupancy across typical transportation modes in the United States. Department of Transportation Federal Transit Administration. (2010). Public Transportation's Role in Responding to Climate Change.

Emissions data assurance

The Scope 3 Greenhouse Gas Emissions for this report have been verified independently by Lloyd's Register. Please see our Assurance Statement for more details.

Forward-looking statements

This report contains forward-looking statements regarding our future business expectations and goals, which involve risks and uncertainties. Actual results may differ materially from the results anticipated, and reported results should not be considered as an indication of future performance. Forward-looking statements involve known and unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performance, or achievements expressed or implied by the forward-looking statements. These risks, uncertainties, and other factors that could cause actual results to differ from the results predicted include, among others, those risks and uncertainties included in our reports on Forms 10-Q, 10-K, and 8-K.

All information provided in this report is as of the date hereof, and any forward-looking statements contained herein are based on assumptions that we believe to be reasonable as of such date. We undertake no duty to update this information unless required by law.

Decarbonizing transportation

We recognize the long-standing challenges faced by cities to provide more mobility options while bearing the considerable environmental consequences of transportation. All vehicles on the road—including those used by drivers on the Uber platform—contribute to emissions and congestion in cities. Rides taken with Uber remain a small fraction of total transportation—but as we grow, we want to help the rides we facilitate use public resources, especially roads and air, as efficiently as possible.

The current state of transportation is unsustainable. Resulting emissions, congestion, and other externalities create challenges for cities globally, and have done so for decades. Both the Intergovernmental Panel on Climate Change (IPCC) and International Transport Forum (ITF) report that transportation emissions have grown faster than any other end-use sector over the last 3 decades (see chart below). CO_2 emissions from the transportation sector account for nearly one-quarter of the global total. Despite a recession-induced lull since 2007, over the last 50 years in the US, vehicle miles traveled (VMT) roughly doubled on a per-capita basis and nearly tripled in total (State Smart Transportation Initiative).

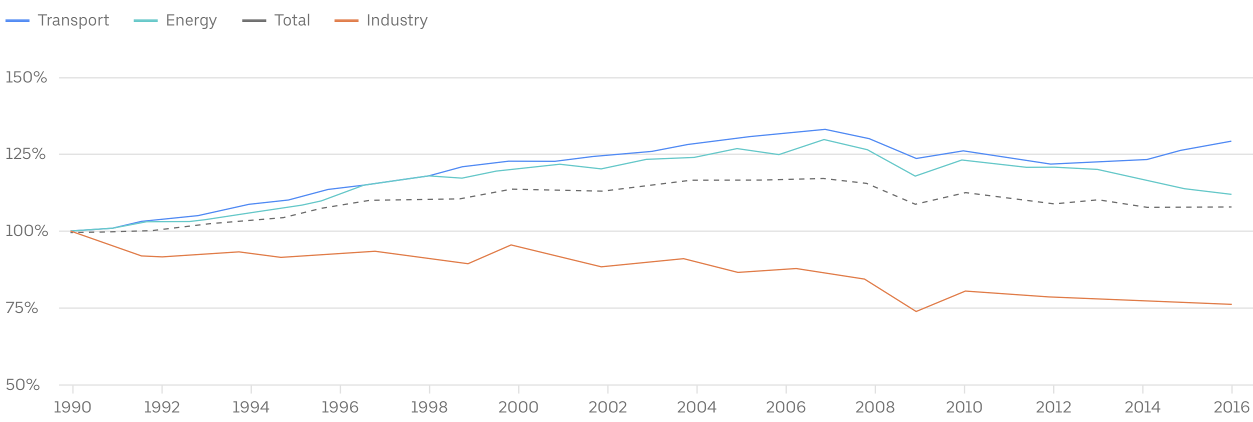
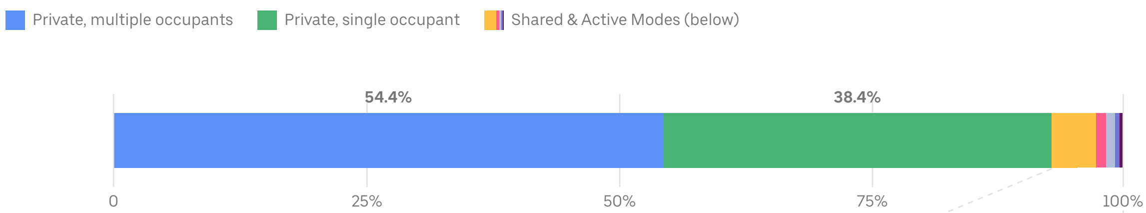


Figure: Relative growth in climate-related emissions by sector, from 1990 base year. ITF (2019). ITF Transport Outlook 2019, OECD Publishing, Paris, https://doi.org/10.1787/transp_outlook-en-2019-en.

The future economic growth of cities depends on a rapid transition to more sustainable modes of transportation. Experts expect demand for mobility (for people and goods) to double or triple by 2050. Current ambitions from governments and the private sector, even if fully realized, will fall short of 2°C scenario targets, according to the SBTi. A study of various scenarios by the IPCC shows that the sector will need to reduce emissions by at least 60% to align with societal climate goals such as the Paris Agreement. Over the next 3 decades, we need to find every way possible to move more people and things more efficiently and with only a fraction of today's climate impact.

Travel mode breakdown – personal car modes (distance-weighted)



Travel mode breakdown – shared and active modes (distance-weighted)

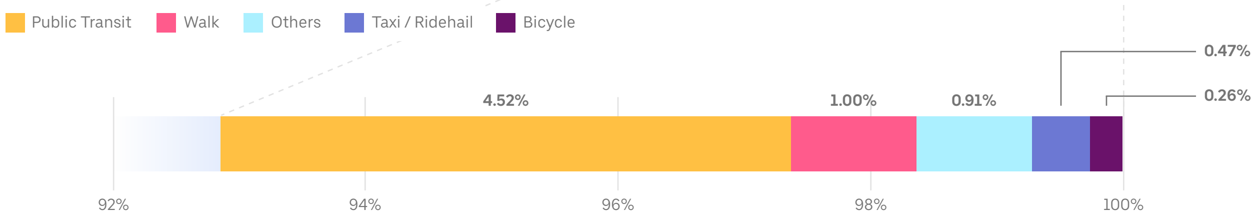
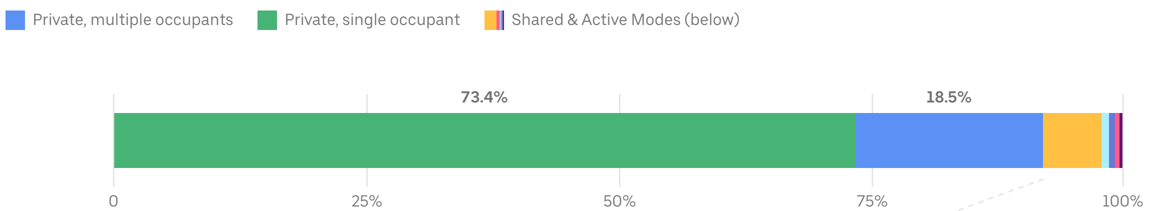


Figure: Ground passenger transportation data sourced from the US Department of Transportation, Federal Highway Administration. (2017). National Household Travel Survey, nhts.ornl.gov.

Under any scenario, the ability of cities to reach their climate goals in the transportation sector depends heavily on reducing reliance on fossil-fueled personal vehicles. Privately owned vehicles consume about half of all transportation energy globally. In the US, people move more than 92% of miles (for ground travel) by private car (see chart above). In particular, single-occupancy vehicle (driver-only) use by private car owners, among the least efficient modes of transportation, accounts for nearly 40% of all passenger miles. Americans rely on single-occupancy vehicles even more to get to and from work. As shown in the figure below, driving alone dominates the US commute, covering almost 3 of every 4 passenger miles. Government reports from even a decade ago demonstrate that single-occupancy vehicles have the highest (worst) carbon intensity compared to other mobility options.

Commuting travel mode breakdown – personal car modes (distance-weighted)



Commuting travel mode breakdown – shared and active modes (distance-weighted)

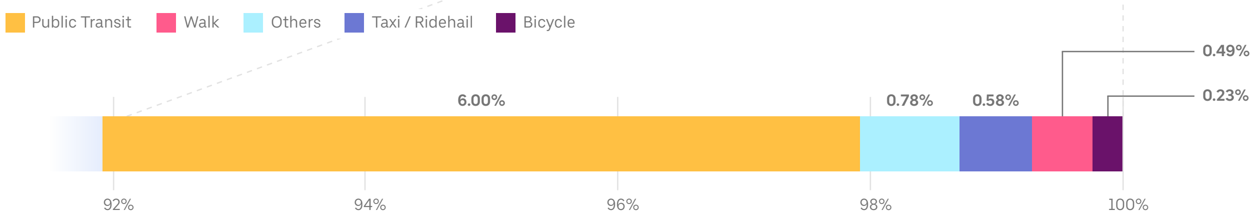


Figure: Ground passenger transportation data sourced from the US Department of Transportation, Federal Highway Administration. (2017). National Household Travel Survey, nhts.ornl.gov.

The number of trips taken with Uber remains relatively small compared to other modes of transport. The latest US government figures (see chart above; US Department of Transportation, Federal Highway Administration, 2017 National Household Travel Survey, nhts.ornl.gov) show that, on a distance-weighted basis, trips taken with taxi, Uber, and other rideshare app companies account for less than 0.5% of all passenger ground-transportation miles, and less than 0.6% of all commuter miles. These figures appear consistent with greenhouse gas emission estimates for rideshare. According to the California Public Utilities Commission (CPUC), rideshare trips account for about 0.54% of California's transportation-sector emissions.

Travel patterns can vary by geography, of course. The story can be different at the city level. According to a study of ridesharing by Fehr & Peers, the share of total vehicle miles traveled from cars on our platform and Lyft's reach only to single digits or the low teens in the downtown areas of 6 major US cities.

On a trip-by-trip basis, the impact of a ride booked on the Uber app may seem similar to the impact of driving a personal car—or it may even seem worse, given the vehicle deadheading (moving empty, without passengers) that's necessary to provide on-demand, point-to-point service. For this reason, when calculating Uber's climate-related emissions impact, we conservatively include emissions resulting for all the vehicle miles we can record in the normal course of business, including those moved without passengers. This allows for a more robust comparison between rides enabled by our platform and rides taken in personal vehicles, both during single-occupancy and average-occupancy use.

We applaud the efforts of cities around the world aiming to do the improbable: move more people with much less impact.

Benchmarks for personally owned vehicles do not provide perfect points for comparison. For example, we use real-world Uber trip data to calculate our impact metrics, while only average approximations are available for personal vehicles. Furthermore, the utility of on-demand trips taken with Uber is very different from those taken in privately owned vehicles. On a trip with Uber, the rider does not need to consider issues such as parking, refueling, car maintenance, insurance, and more, as they do when taking a trip in their own car. However, we find estimated metrics from privately owned vehicle population averages useful for benchmarking our progress since personal car use remains the overwhelmingly preferred mode of transportation for American consumers, accounting for more than 92% of all passenger ground travel in the US.

We applaud the efforts of cities around the world aiming to do the improbable: move more people with much less impact. An assessment of ambitious climate action plans conducted by WRI shows that a number of major global cities aim to make significant cuts to transport emissions over the next 2 decades. Uber aims to develop technology solutions that can help cities achieve these goals.

City climate action plans – transportation

City	Plan	2025 GHG reduction targets	2050 GHG reduction targets	Components
Los Angeles	Green New Deal	25%	100%	50% share of trips walk/bike/transit/micro-mobility; reduce VMT/cap by 45%; 100% ZEVs
San Francisco	0-80-100 Plan	40%	100%	80% shift to non-auto trips; reduce solo car trips; 100% renewables
New York	OneNYC 2050	25%	–	Charging infrastructure, incentives for ZEV purchases, optimize curb space
London	Zero Carbon London	25%	100%	80% trips by walk/bike/transit; Battery EVs, Fuel Cell EVs
Paris	Towards a Carbon Neutral City	25%	100%	100% renewables, low emission zones, public spaces, "tranquil mobility," last-mile connectivity, freight, hydrogen era
Berlin	Climate-Neutral Berlin 2050	25%	100%	Personal car ownership down to 17% by 2050, parking management, eco-mobility

Figure: Developed by and used with permission from the World Resources Institute.

Metrics

In consultation with WRI, we identified 3 broad, interrelated themes from long-term environmental plans published by major global cities:

- Dramatic decarbonization of transportation, up to net zero by 2050
- Reducing personal car use by discouraging single-occupancy vehicle use, cutting vehicle miles traveled, and addressing congestion
- Rapid electrification of transportation, up to 100% by 2050

The metrics used in this report seek to align with these themes:

- Decarbonization: **carbon intensity** and **network average fuel economy**
- Reduced car use: **travel efficiency**
- Electrification: vehicle **engine type** (e.g., conventional internal combustion engine [ICE], hybrid, plug-in hybrid, or battery EV) and **zero-tailpipe-emission vehicles and trips**

We consulted with experts Fehr & Peers and the WRI to develop the methodologies for the key metrics used in this report. We collaborated with Fehr & Peers to develop the travel efficiency metric and worked with them to validate our approach to calculating travel efficiency and carbon intensity with data we gather in the normal course of business. We worked with WRI to evaluate the 2050 transportation decarbonization plans of major global cities, organize a stakeholder workshop with key city representatives to gain feedback on our impact measurement approach, and begin a process of aligning our carbon intensity goals with cities' long-term climate goals, including Paris Climate Agreement targets.

For this report, we compute carbon intensity (see the *FAQ* section for more information on definitions) instead of absolute climate-related emissions for a few important reasons.

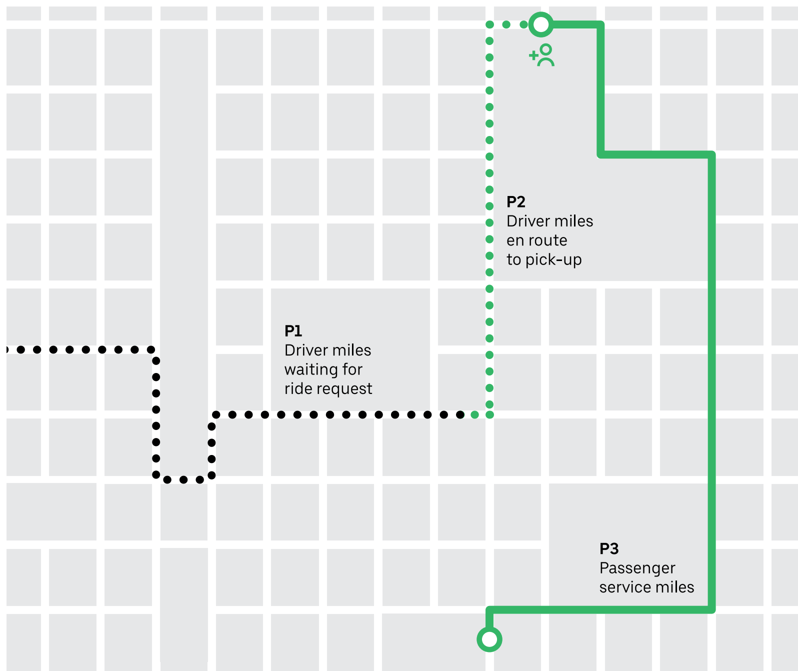
First, carbon intensity is a performance-based metric comparable across any mode of transportation. Our vision for urban mobility combines new mobility technology services enabling more efficient on-demand services, like Uber, with high-quality mass transit and lots of space for active mobility modes such as micromobility options and walking. The vast majority of riders using Uber rely on our on-demand vehicle products to serve a tiny fraction of their trips (in Seattle, for example, 84% of riders take one trip per week or less). Urban travel experts have shown that on-demand mobility, such as taxi, plays a critical role in enabling more multimodal travel in cities. The net impact of platform mobility services, or any transportation ecosystem, can be investigated by looking at a holistic picture of all trips taken by each individual or group of individuals and calculating average carbon intensity across all transportation modes. This requires data on how people move across all modes and the individual carbon intensities of each mode. We hope the data presented in this report can support researchers working to evaluate the impact of dynamic, multimodal systems.

Second, carbon intensity can be a useful policy tool for both governments and corporations. One of the world's leading air-quality regulatory agencies, the California Air Resources Board (CARB), recently adopted carbon intensity as state policy. Outside of California, both the IPCC and SBTi acknowledge the usefulness of intensity metrics in long-term target setting. One can estimate absolute emissions using passenger carbon intensity by multiplying total passenger distance traveled in a given time period and geographic region.

When calculating the carbon intensity of trips taken using Uber, we allocate estimated emissions per passenger distance across 3 driver states:

- **Online:** the period between the moment a driver drops off a rider (or changes their in-app status so they're able to accept trip requests) and the moment they accept their next trip request
- **En route:** the period between the moment a driver accepts a ride request and the moment they pick up that rider
- **On trip:** the period between the moment a driver accepts a rider into their vehicle and the moment they drop off that rider; during pooled service, on-trip periods for multiple rider accounts can overlap

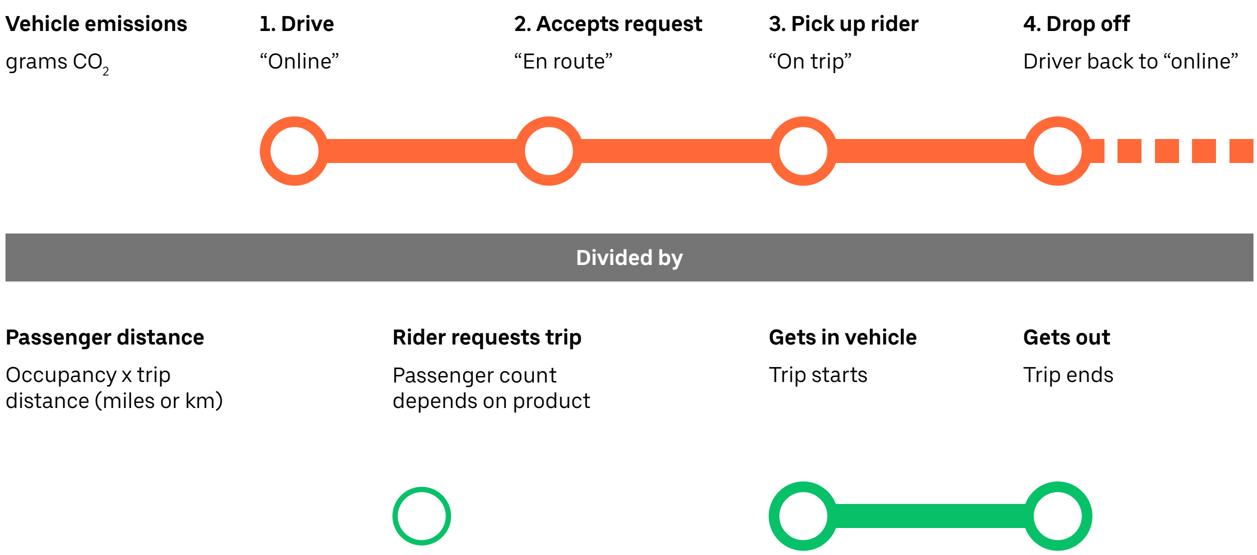
Driver states: Online (P1), En route (P2), On trip (P3)



For more on the methodologies we developed for passenger carbon intensity and travel efficiency, see our respective blog posts. For more on how we used trip data to calculate performance on these metrics for this report, go to the *FAQ* section.

To calculate impact performance metrics, we conservatively include all vehicle miles for which we can gather data during the normal course of business. The method used throughout this report does not discount for drivers driving on multiple rideshare platforms (dual-apping). A recently released report from the California Air Resources Board (CARB), using real-world data provided by Uber, Lyft, and other rideshare app providers in California, found that "almost 11% of vehicle miles traveled (VMT) during [the online period] overlaps between at least 2 companies." We only reflect the possibility for this level of overlap in the error bar calculation for travel efficiency and carbon intensity metrics (for more on how we calculated error bars, go to the *FAQ* section). This approach is still conservative because we ignore drivers' use of non-rideshare apps (such as delivery apps) and personal travel when the driver may have unintentionally left the app in online mode.

Carbon intensity: emissions per unit passenger distance



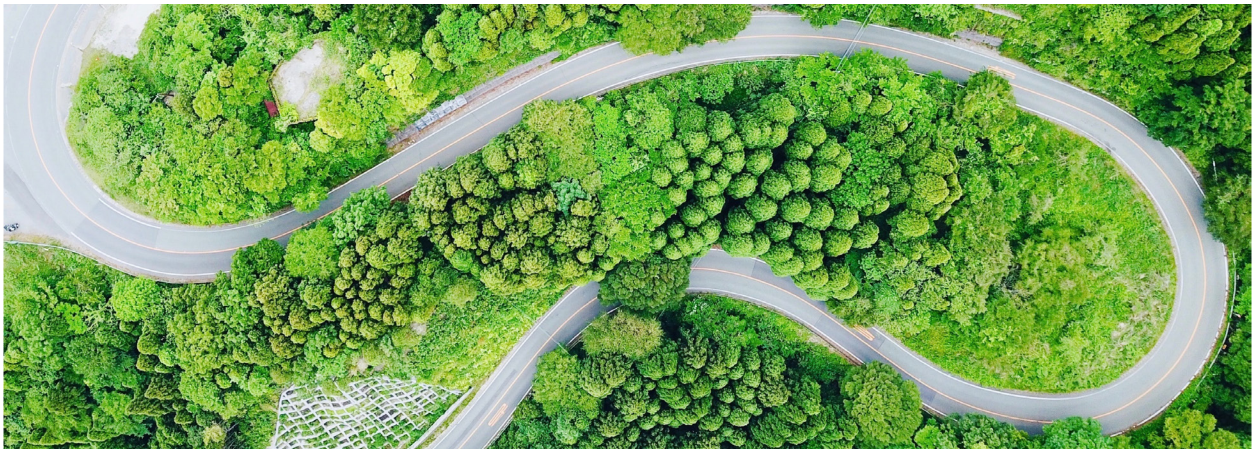
To compare our progress, we developed new benchmarks. In the US and Canada, consumers overwhelmingly rely on car ownership, with personal vehicles accounting for more than 90% of all passenger miles traveled. Therefore, for our carbon intensity calculation, the best proxy was consumer vehicle data from the US government, both for single-occupancy vehicles (SOVs) and for average vehicle occupancy (AVO) use. The latest government figures, based on a small sample of consumer surveys, put average vehicle occupancy for passenger vehicles in the US at 1.67 people per trip (US Department of Transportation, Federal Highway Administration, 2017 National Household Travel Survey, nhts.ornl.gov). Average vehicle occupancy includes single-occupancy vehicle (SOV) trips.

We recognize that comparing emissions metrics from ridesharing to those from personal car use is not exactly apples to apples. Ridesharing is a form of on-demand mobility whereby drivers use their cars more by offering rides to, comparably, multiple more passengers. Personal car ownership requires most of the passengers to spend time driving and bear annual ownership expenses, and consumes more parking space, among other things. Finally, as discussed in the *Decarbonizing transportation* section, on-demand mobility options show potential for complementing multimodal lifestyles and use of lower-emission transportation modes such as public transit, walking, and biking. Conversely, consumers who purchase vehicles for personal use often use their car for the vast majority of their trips, and increased personal vehicle use is correlated with less use of other transportation modes.

Lastly, we faced notable limitations to construct comparable metrics for personally owned vehicles. First, while we use real-world trip data throughout the report to calculate performance metrics for trips taken with Uber, we had to rely on government sources that used regional averages based on computer models and surveys to estimate similar figures for personal car use. Second, we conservatively assume that all government estimates of vehicle miles completed by private owners constitute productive passenger miles or, put differently, lack the equivalent of deadhead miles. Notably, personal drivers make substantial deviations—both intentional and unintentional—from their planned routes, such as when looking for parking (which, according to one study, takes an additional 8 minutes on average in major global cities). They also drive empty for one leg of various round-trip journeys to pick up or drop off people or goods. These less-productive trips can add as much as 100 billion vehicle miles, or 5% of total mileage, to US roads. However, for this report, we ignore deadheading-equivalent vehicle miles that would otherwise increase carbon intensity and decrease travel efficiency estimates for private-car benchmarks.

More details on the terms, definitions, and methods used throughout the report can be found in the *FAQ* section.

Performance (2017–2019)



Improving our environmental performance starts with taking a serious look at where we stand today and sharing results to drive accountability. This report provides users, cities, investors, employees, and the public with more transparency on the climate- and vehicle-related impacts resulting from the more than 4 billion rides served by Uber's platform in the United States and Canada from 2017 through 2019. See our *Metrics* section to learn more about metric definitions, our calculations, and the consumer benchmarks our report uses.

United States and Canada mega-region

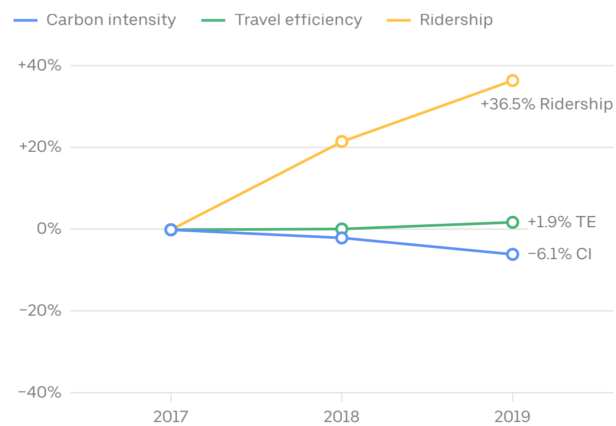
- Carbon intensity reduced 6% and travel efficiency increased 2% while average active monthly ridership increased more than 36% from 2017 to 2019.
- We estimate that, over these 3 years, the efficiency improvement helped rides avoid around half a million metric tons of CO_2 emissions and helped drivers save 56 million gallons of gasoline.
- Travel efficiency is a measure of how well Uber's platform enables the movement of people while minimizing the movement of vehicles. In 2019, the travel efficiency of trips taken on the Uber platform was 1.02. This means that every vehicle mile driven by drivers on the platform resulted in more than one passenger mile for riders because average on-trip occupancy—not counting the driver—offset any deadhead mileage necessary for on-demand service. The travel-efficiency results corroborate research published by the National Bureau of Economic Research that demonstrates how Uber's technology achieves 40% better vehicle utilization than traditional on-demand services, such as taxis, which (according to a 2015 study of US taxi services) spend about 60% of miles traveled empty of passengers.
- Rides with Uber resulted in 15% lower carbon intensity than that of single-occupancy vehicles, or SOVs, which account for nearly 40% of all passenger miles traveled and as much as 75% of all commuter miles in the US.
- Vehicle mileage accrued by drivers during Uber-routed periods (en route + on trip) showed 3% lower carbon intensity than average vehicle use; vehicle mileage incurred by drivers while online, before accepting trips, accounts for the remaining emissions.
- Compared to average-occupancy private cars, on-demand rides on the Uber platform in 2019 resulted in 41% higher carbon intensity and 39% lower travel efficiency. This finding mirrors the carbon intensity level findings from the California Air Resources Board's recent study on the climate impacts of TNCs.
- Drivers using Uber in the US and Canada use greener and electric vehicles—hybrids, plug-in EVs, battery EVs, and hydrogen fuel cell EVs—5 times more than do average car owners.

Ridership growth and key metric trends in US/CAN

Percentange change in carbon intensity, travel intensity, and average active monthly riders

+36.5%

Average active monthly riders, 2017–19

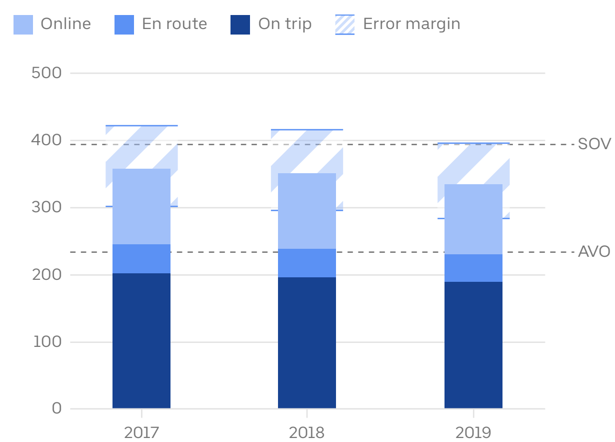


Carbon intensity in US/CAN

Grams CO_2 emitted per passenger mile traveled

-6.0%

Carbon intensity 2017–19



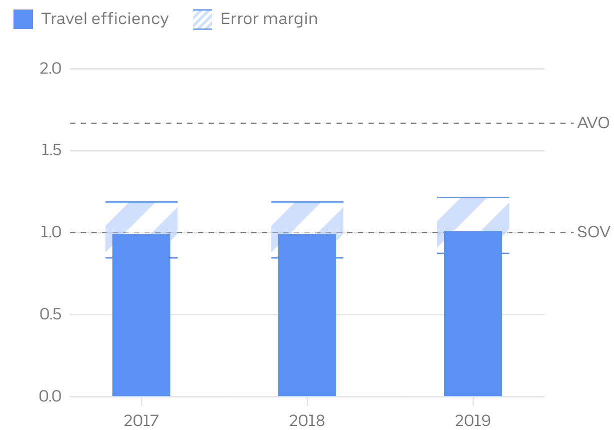
Online and en-route distances are based on estimated mileage, and passenger distance traveled is computed using estimated occupancy from user surveys (see *Metrics*). Privately owned vehicle benchmarks are calculated from the latest government figures (see *FAQ*).

Travel efficiency in US/CAN

Passenger miles enabled per vehicle mile

+1.9%

Travel efficiency 2017–19



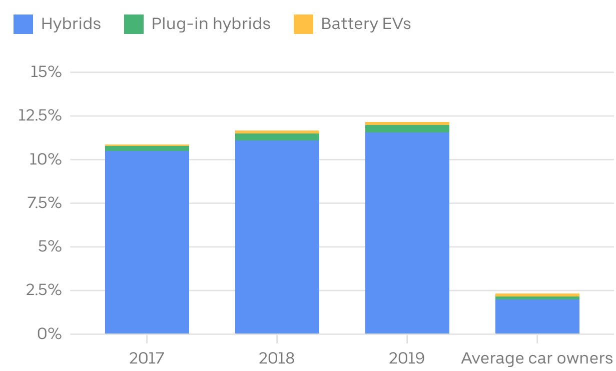
Travel efficiency is calculated using estimated occupancy from user surveys (see *Metrics*). Privately owned vehicle benchmarks are calculated from the latest government figures (see *FAQ*).

Engine type: green and electric vehicle use in US/CAN

Trip miles weighted average share

5.2x

More green and electric vehicle use by drivers using Uber than by average car owners, 2019



Average car owner benchmarks are from NHTS 2017.

Top 10 US and Canada metros

As a first step to understanding urban-area travel on Uber compared with our findings of US and Canada as a whole, we computed impact performance metrics for trips conducted in the 10 largest metros in the US and Canada. Metro market size was determined by average active monthly ridership in 2019. Top 10 metros (listed alphabetically) include: Atlanta; Boston; Chicago; Los Angeles; Miami; New Jersey; New York City; San Francisco; Toronto; and Washington, DC. In 2019, these markets accounted for more than half of all active riders in the US and Canada, on an average monthly basis.

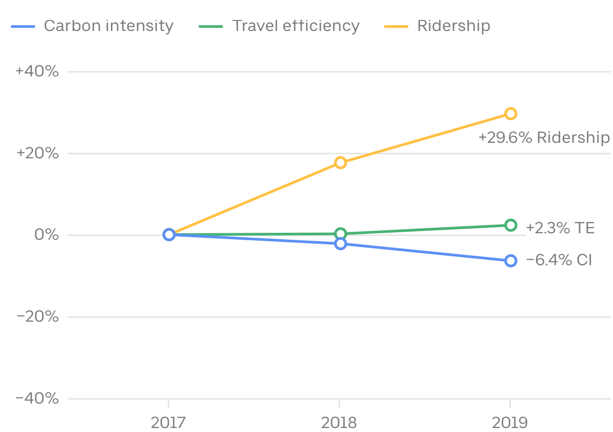
- Carbon intensity decreased more than 6% and travel efficiency increased 5% over the period, outpacing performance for both metrics from rides across the US and Canada as a whole
- Average active monthly ridership grew slower in cities, increasing about 30% in the top metros compared to 36% in the US and Canada
- Travel efficiency of rides in top-10 metro markets was 4.7% higher than that of all rides in the US and Canada 2017, and improved to 5.1% higher by 2019
- Carbon intensity of rides taken with Uber in top-10 metro markets was 5% lower than the US and Canada in 2017, and improved to 5.4% lower by 2019
- Impact metric performance for on-demand rides with Uber in top-10 metros in 2019 was more competitive with average-occupancy personal cars than at the national level, resulting in just 33% higher carbon intensity and 36% lower travel efficiency
- Similarly, vehicle mileage accrued by drivers during Uber-routed periods (en route and on trip) showed nearly 7% lower carbon intensity than that of average vehicle use
- Compared to single-occupancy, driver-only personal vehicles, rides in top-10 metros resulted in 20% lower carbon intensity and nearly 7% higher travel efficiency
- Drivers showed even greater preference for greener and electric vehicles in the top-10 metros than across the US and Canada as a whole, completing nearly 1 in 7 Uber trips in hybrids, plug-in hybrids, or battery EVs in 2019

Ridership growth and key metric trends in top 10 metros

Percentage change in carbon intensity, travel efficiency, and average active monthly riders

+29.6%

Average active monthly riders, 2017–19

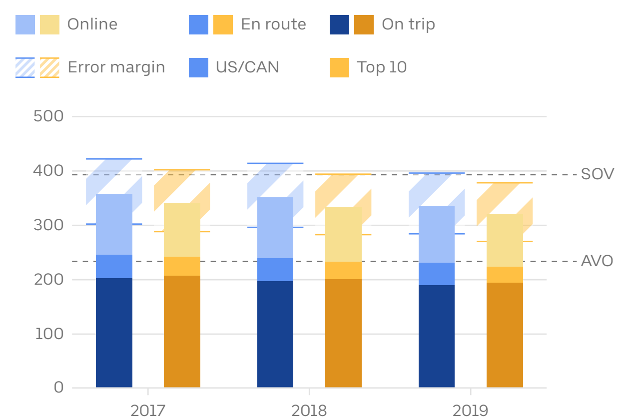


Carbon intensity in US/CAN and top 10 metros

Grams CO_2 emitted per passenger mile traveled

5.2%

Lower carbon intensity in top 10 metros than in US/CAN on average annual basis

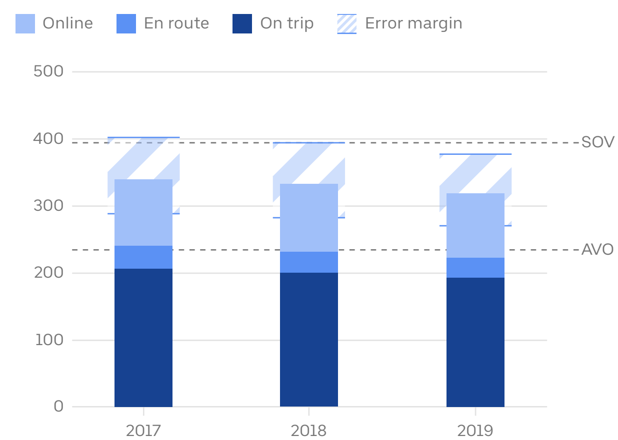


Carbon intensity in top 10 metros

Grams CO_2 emitted per passenger mile traveled

-6.4%

Carbon intensity 2017–19

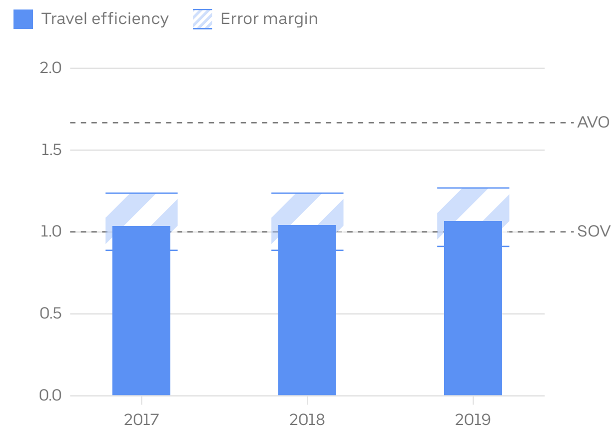


Travel efficiency in top 10 metros

Passenger miles enabled per vehicle mile

+2.3%

Travel efficiency 2017–19

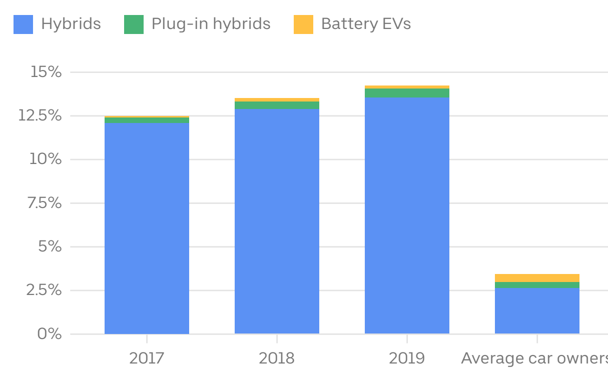


Engine type: green and electric vehicle use in top 10 metros

Trip miles weighted average share

5.4x

More green and electric vehicle use by drivers using Uber than by average car owners, 2019



Case studies and insights

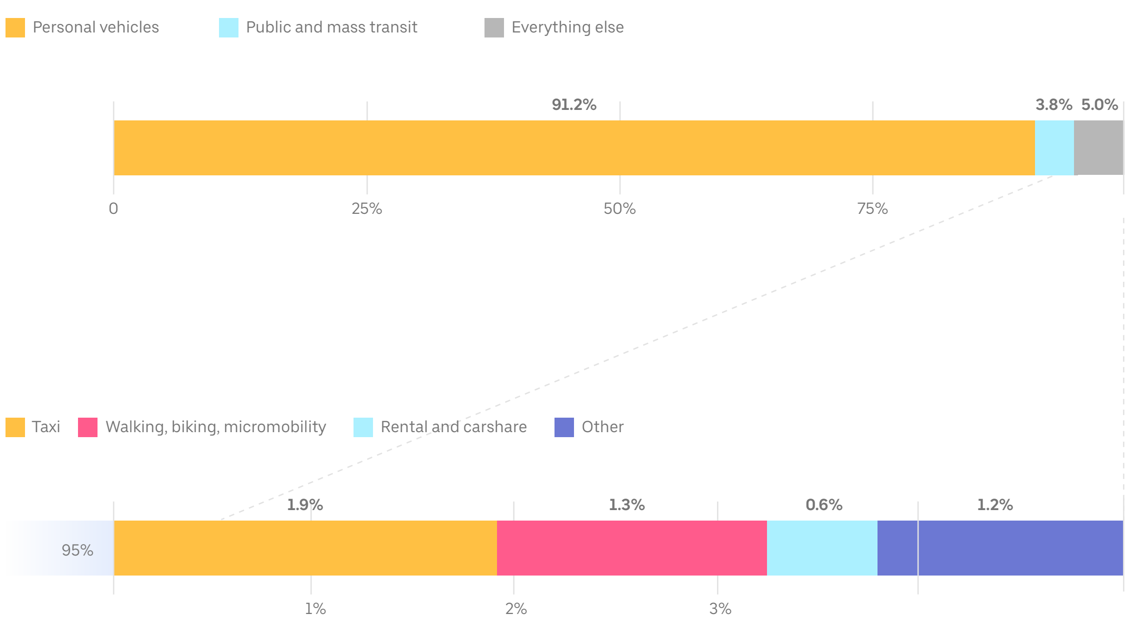
Case study 1:

Comparing carbon intensity across urban travel modes in Los Angeles

In most major cities, riders have many options for getting from A to B. Trips taken using Uber, and the emissions that result, tend to make up a tiny fraction of any individual's travel. To understand the carbon intensity performance from Uber rides within the bigger picture of urban travel, we worked with the World Resources Institute (WRI) to compare our data to that from other modes of transportation.

The team at WRI identified sufficient, publicly available data from Los Angeles, from 2018, for the majority of transportation modes (finding adequate, publicly available data with clearly stated assumptions to compute carbon intensity is a challenge in and of itself). Although personal car use comprises more than 90% of Angelenos' ground passenger miles, LA offers some of the best public transit in the US, with an innovative vanpool program for commuters and one of the highest-occupancy bus services in the country. The average annual mode split of ground travel in LA and the percentage of passenger miles traveled by mode are represented in the figure below.

Annual average of percentage of passenger miles traveled by mode in Los Angeles



The WRI team computed carbon intensity for each of the modes used by Angelenos, except walking, biking, and other active modes. We provided data from rides completed on the Uber platform in the Los Angeles metro region during 2018 to enable the WRI team to compare the carbon intensity of rides taken with Uber to the carbon intensity of other modes. A full account of their analysis can be found on WRI's website. The results are shown in the figure below.

Carbon intensity

Grams CO_2 emitted per passenger mile traveled per mode in Los Angeles, 2018

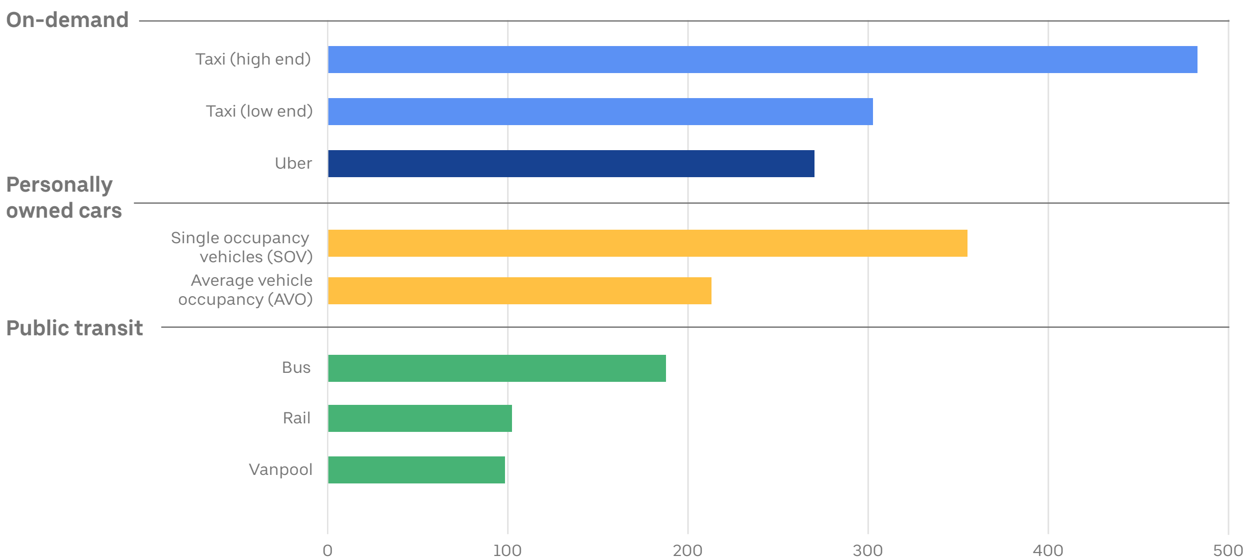


Figure: Carbon intensities for popular transportation modes in the Los Angeles metropolitan area, based on 2018 or most recent data. Chart data compiled by World Resources Institute from: U.S. Department of Transportation; National Transit Database (LA Metro PMT); Los Angeles 2019 Energy and Resources Report (2018 GHG Emissions); Los Angeles Department of Transportation (Fleet Fuel Economy); National Household Travel Survey (Passenger Vehicle Occupancy); California Air Resources Board, EMFAC (Passenger Fuel Economy); National Bureau of Economic Research (Taxi Trip Data); and U.S. Environmental Protection Agency (Mobile Fuel Combustion Factors).

Note: The carbon intensities estimated by the WRI team for personal cars—both average-occupancy personally owned vehicles (AVO) and single-occupancy vehicles (SOV)—are slightly higher than those reported elsewhere in our report. This is because WRI used 2017 data from CARB's EMFAC model and included both light-duty passenger vehicles and medium-duty passenger vehicles. Go to WRI for more on their method for computing the figures shown. Go to *Metrics* for more on how Uber estimated carbon intensity benchmarks for personal cars.

We make 3 observations from WRI's results about how rides taken using Uber fit in with the broader LA transportation ecosystem from a carbon-intensity perspective.

First, the findings show that Uber offers a more efficient option than comparable, traditional on-demand services. The average carbon intensity of rides taken using Uber is lower than that of traditional taxi rides—10.7% compared to 44.1%.[5] This finding is particularly significant given the larger scale of Uber's services in Los Angeles and greater coverage of underserved neighborhoods compared to traditional taxi fleets.

Second, why riders chose a given mode over other modes matters, especially when assessing their carbon intensity. As the results clearly show, public transit services offer the lowest-carbon option. But according to the mode split figures, Angelenos choose transit for less than 4% of passenger miles. For a variety of different reasons, riders may choose more carbon-intensive modes, perhaps because that specific trip requires more space, time, or flexibility. The vast majority of riders using Uber rely on the app to serve a tiny fraction of their trips (in Seattle, for example, *84% of riders take one trip per week or less*). Moreover, using Uber or taxi enables a rider to link trips across multiple modes. For example, they might take one trip using Uber, then link to transit or shared micromobility options—or even walk—for the next parts of their journey. By comparison, someone making a trip in their own car almost always guarantees that the next or future trip will be in the same car, either to bring it home or because it's always immediately available. We look forward to continuing to work with transit agencies and other mass transit providers to make their low-carbon mobility offerings easier for riders to find, connect with, and pay for on the Uber platform.

Finally, the analysis shows that Uber's on-demand options are starting to compete, on a carbon-intensity basis, with personal car use, even in a city like Los Angeles with a vast transportation infrastructure predominantly built to support private car ownership. Average carbon intensity for Uber trips outperforms single-occupancy driving by 24%. We have more progress to make, however; carbon intensity of on-demand rides with Uber lags that of average-occupancy personal driving (which is 1.66 passengers, according to government surveys of LA drivers) by about 26%.

We look forward to continuing to work with WRI and organizations like NUMO to promote the use of common performance metrics such as carbon intensity and travel efficiency to evaluate the ecosystem of mobility options available to riders everywhere. Uber's platform offers a greater number of lower-carbon mobility options (including transit and micromobility) than higher-occupancy personal car driving offers. We'll continue nonetheless to employ carbon-reducing strategies across the platform to ensure that we outperform the carbon intensity of personal car use. We also strongly encourage other companies developing products for the transportation sector, transit agencies, cities, and governments to support the sharing of real-world performance metrics, like carbon intensity, to make analyses like these possible more regularly in more cities.

[5]The team at WRI could not identify definitive, publicly available seat-occupancy data from Los Angeles taxi services, but they did find several studies that indicated a range of average occupancy between 1.10 and 1.755; this occupancy range accounts for the final carbon intensity range shown.

Case study 2:

Network growth and efficiency improvements in San Francisco, 2013-2019

Although Uber remains a young company with just about a decade of experience, our presence is more established in the greater San Francisco Bay Area (SF) than anywhere else we operate globally. In 2019, more than 1.5 million unique riders moved with Uber in SF every month. Examining our history of performance in SF helps us understand the impact of growth and key improvement drivers.

We estimated travel efficiency and carbon intensity for all rides enabled by Uber in SF from 2013 (the first full year with our peer-to-peer rideshare service, UberX) to 2016 (see *FAQ* for more detail on estimation methods) and joined that data with the data reported here (see *Performance*) to complete a 7-year picture. From 2013 through 2019, the average number of active monthly riders on the Uber platform in SF multiplied by a factor of about 15. Over the same period, travel efficiency increased by 54% and carbon intensity decreased by 56%. We attribute these efficiency gains to network growth and innovations explained more in the 5 innovation pillars (see the *Commitments* section):

Deadhead reduction: Over the case-study time period, the proportion of online vehicle miles traveled without passengers decreased by an estimated 40%. We believe this decrease can be attributed to network effects that result from an increase in the number of drivers and riders and matching technology improvements.

Occupancy: Although this case study applies the same average-occupancy assumptions to non-Pool trips that are used throughout the report as constants, the launch of UberXL in 2014, Uber Pool in 2014, and Express Pool in 2018 in SF all contributed to increased vehicle utilization and shares of higher-occupancy trips.

Platform greening: Over the duration of the case study, we estimate that average (miles-weighted) network-wide fuel economy increased 48% due to an increasing share of trips served by drivers with more fuel-efficient cars such as hybrid vehicles.

Travel efficiency in Bay Area

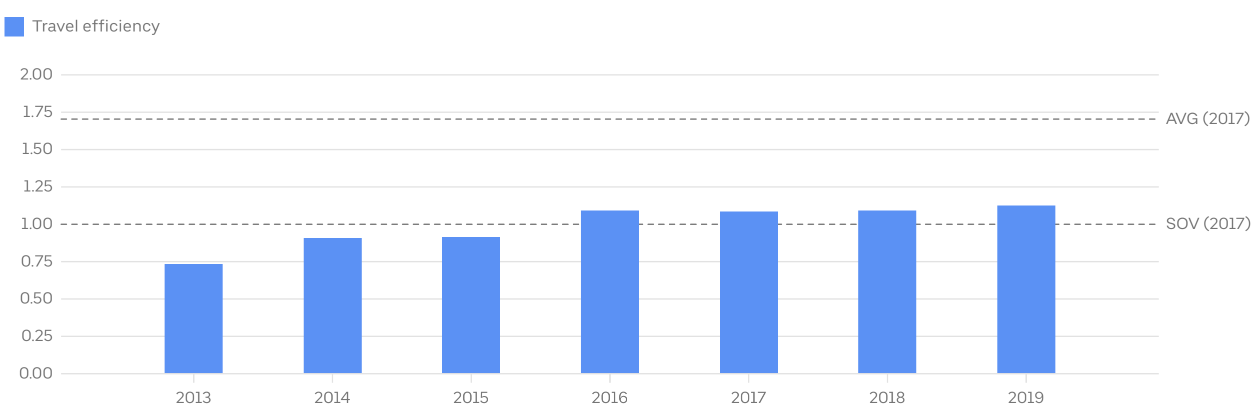


Figure: Estimated travel efficiency for all trips completed using Uber in the greater San Francisco Bay Area metro from 2013 through 2019, compared with personal car use

Carbon intensity in Bay Area (gCO_2/PMT)

Grams CO_2 emitted per passenger mile traveled

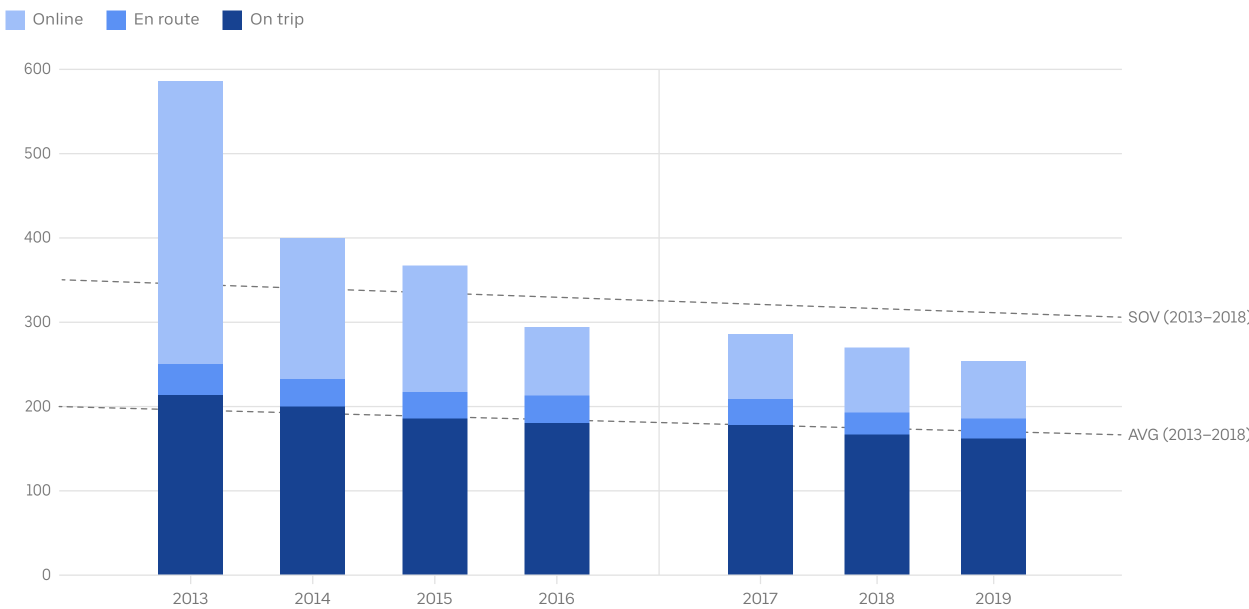


Figure: Estimated carbon intensity for all trips completed using Uber in the greater San Francisco Bay Area metro from 2013 through 2019, broken out by trip status, compared with personal car use

Notably, this data does not fully reflect the impact of multimodal options such as shared micromobility and transit journey planning. We did not include data from non-car trips taken with these modes for the impact metric computations in this case study. However, we believe micromobility and transit product options will have a significant and positive impact on the overall carbon intensity of trips users take on Uber's platform.

Case study 3:

Urban area zoom-in: impact metrics from trips in Los Angeles and San Francisco

As highlighted in the *Performance* section of this report, impact metric results for trips taken with Uber in major metro areas can outperform those for the entire country as a whole. This makes sense intuitively: our platform can operate more efficiently in denser, better connected areas with larger, more established user markets, more multimodal transport options, more support for greener and electric cars, and less reliance on personal car ownership. Until now, however, we didn't have the data to examine these differences or their levels of magnitude. The advent of the Clean Miles Standard policy, under development by the California Air Resources Board (CARB) and California Public Utilities Commission (CPUC), gives a unique opportunity to explore, at a deeper level, the impact of rides taken with Uber in metro areas.

In accordance with the Clean Miles Standard, CARB released a *Base-year Emissions Inventory* and calculated an average carbon intensity for the rideshare industry of 301 grams of CO_2 per passenger mile. This calculation was based on real-world trip data collected from the largest transportation network companies in California in 2018. As points of comparison, this case study includes impact performance metrics for Uber's 2 largest metro markets in California—Los Angeles (LA) and San Francisco (SF)—which capture more than 75% of trips completed on Uber's platform across the state over the reporting time period. While the calculation method for carbon intensity used throughout this report includes only a few small but notable differences from that used by CARB (see *FAQ*), we believe the metrics below are comparable to those provided in the Inventory report. For reference, the carbon intensity of trips completed in California with Uber in 2018 was 282 grams of CO_2 per passenger mile, 6% lower than the industry average.

We adjusted the personally owned car benchmark metrics to account for the specific Los Angeles and San Francisco market conditions. According to the latest available government data, both markets observe higher average car occupancy and vehicle fuel economy compared to the same metrics for the entire US (see *FAQ* for more on data sources and benchmarking methods). The table below summarizes the metrics for personal car benchmarks in each market.

City	Personally owned vehicle benchmarks		
	Carbon intensity[6] (AVO / SOV)	**Travel efficiency** (AVO / SOV)	**Engine type**[7] (hybrid / plug-in hybrid / battery EV)
	grams CO_2 / passenger mile	passenger miles / vehicle mile	% of on-road vehicle miles
Los Angeles	198.28 / 329.14	1.66 / 1	4.99% / 0.91% / 0.70%
San Francisco	192.48 / 329.14	1.71 / 1	6.68% / 0.69% / 1.40%

[6]The carbon intensity benchmarks for personal car use listed here are slightly different (<5%) from those used by CARB for their *Inventory* report due to the differences in data sources and target regions (see *FAQ* for more details).

[7]California hosts one of the largest markets for hydrogen-powered fuel cell vehicles, with more than 8,000 vehicles sold and leased according to the California Fuel Cell Partnership. However, these represent 0% share of the more than 15 million on-road vehicles in California, if rounding within 2 decimal places. On Uber's platform, we recorded several hydrogen fuel cell vehicles completing trips for about 700 riders in 2018 and 2019. Due to these de minimis values, we did not include hydrogen fuel cell vehicles in the engine type category for this case study.

Finally, as is apparent in the maps below, the "metro" areas Uber uses to define the LA and SF markets—as is the case for most of our metro markets globally—are geographically broader than the municipal or even typical population area (i.e., "greater Los Angeles area" or "greater Bay Area") boundaries. Uber's metro market boundaries include substantial areas that could be defined as ex-urban, suburban, or rural on a population-density basis.

Los Angeles metro region

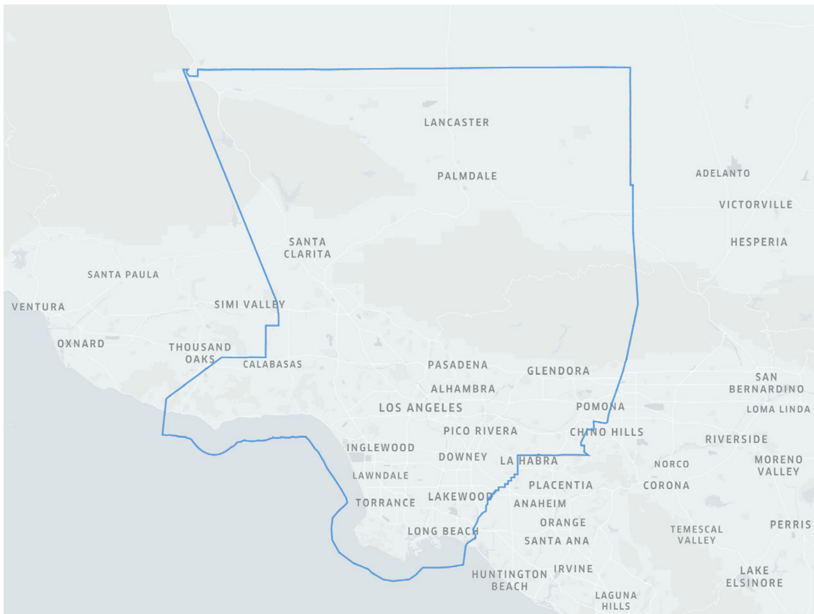


Figure: Geofence bounding Uber's Los Angeles metro market

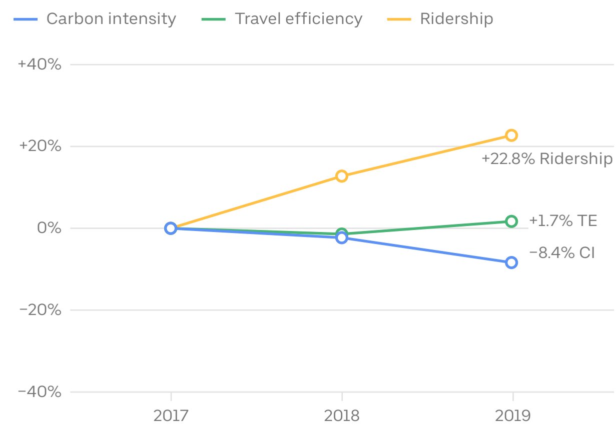
- As of 2019, rides taken on the Uber platform in the Los Angeles metro region (LA) resulted in 257 grams of CO2 per passenger mile and 1.19 passenger miles per vehicle mile
- From 2017 to 2019, carbon intensity decreased more than 8%, and travel efficiency increased nearly 2%, while average active monthly ridership increased nearly 23%
- Throughout the reporting period, carbon intensity of rides completed in LA was more than 22% lower than that of all rides in the US and Canada
- Rides taken on the Uber platform in LA in 2018 resulted in nearly 9% lower CO2 emissions per passenger mile than the California state industry-wide average carbon intensity reported in CARB's Inventory for that year
- Vehicle mileage accrued by drivers during Uber-routed periods (en route and on trip) in LA in 2019 showed nearly 1% lower carbon intensity than average vehicle use in California; vehicle mileage incurred by drivers while online, before accepting trips, accounts for the remaining emissions
- Drivers on the Uber platform in LA completed nearly 1 in 4 Uber trips in hybrids, plug-in hybrids, or battery EVs in 2019, which means they drove greener and electric vehicles about 3.7 times more than the average Southern California car owner, and 10 times more than the average US car owner
- As of 2019, battery EV use by drivers on the Uber platform in LA fell behind local personal car owner adoption levels, at 0.37% of trip miles compared to 0.70% of on-road vehicle miles (for more on battery EVs, see our case study *Electrifying trips on Uber: progress and challenges*)

Ridership growth and key metric trends in Los Angeles

Percentage change in carbon intensity, travel efficiency, and average active monthly riders

+22.8%

Average active monthly riders, 2017–19

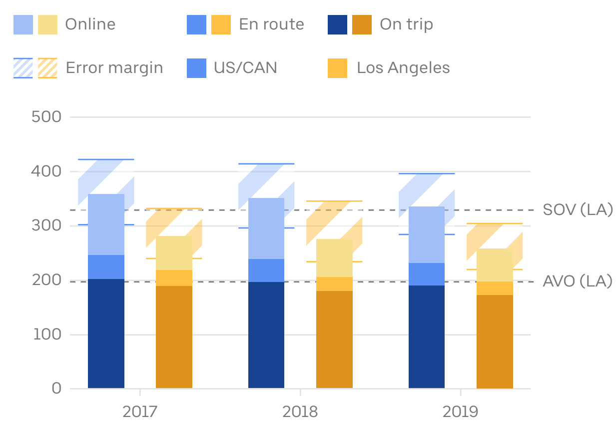


Carbon intensity in US/CAN and Los Angeles

Grams CO_2 emitted per passenger mile traveled

22.4%

Lower carbon intensity in Los Angeles than in US/CAN on average annual basis

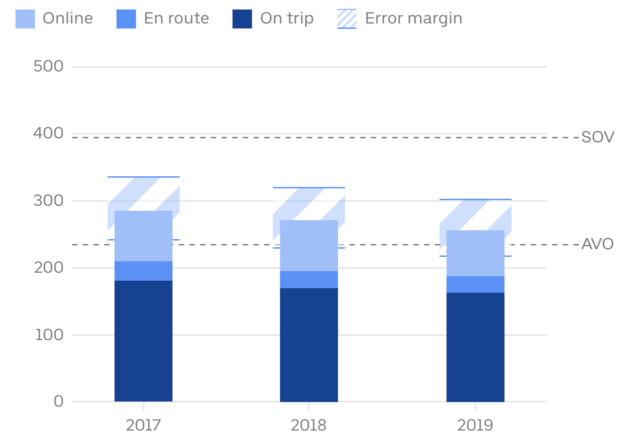


Carbon intensity in Los Angeles

Grams CO_2 emitted per passenger mile traveled

-8.4%

Carbon intensity 2017–19

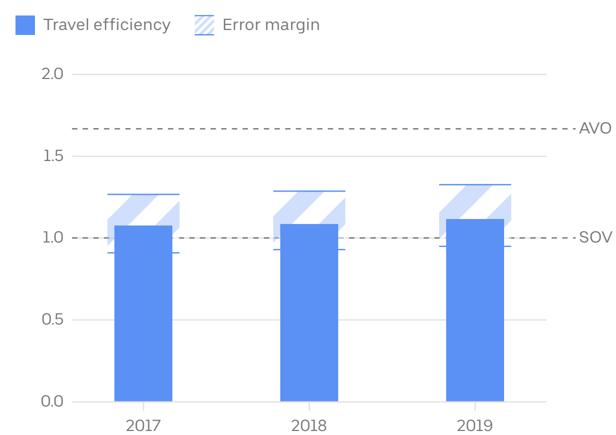


Travel efficiency in Los Angeles

Passenger miles enabled per vehicle mile

+1.7%

Travel efficiency 2017–19

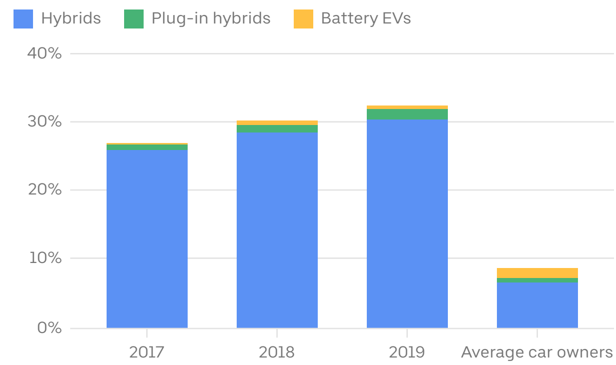


Engine type: green and electric vehicle use in Los Angeles

Grams CO_2 emitted per passenger mile traveled

3.6x

More green and electric vehicle use by drivers using Uber than by average car owners, 2019



San Francisco metro region

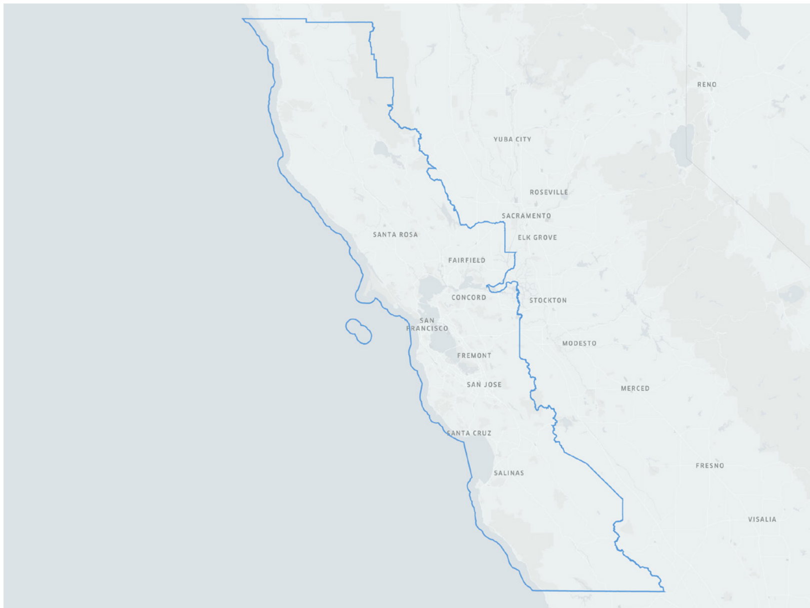


Figure: Geofence bounding Uber's San Francisco metro market

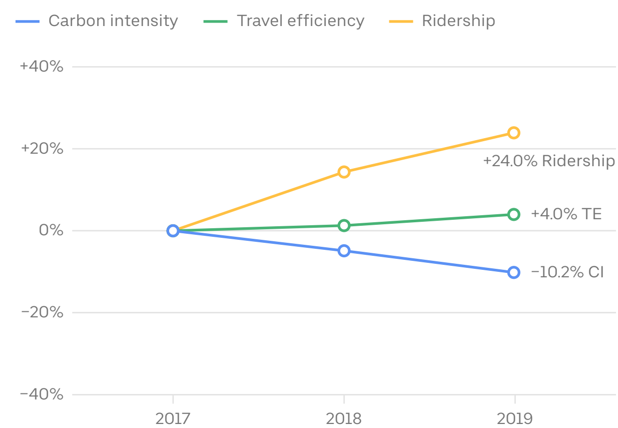
- As of 2019, rides taken with Uber in the San Francisco metro area resulted in 255 grams of CO_2 per passenger mile and 1.12 passenger miles per vehicle mile.
- From 2017 to 2019, carbon intensity decreased more than 10% and travel efficiency increased 4%, while average active monthly ridership grew almost 24%.
- Throughout the reporting period, carbon intensity of rides completed in SF was almost 23% lower than that of all rides in the US and Canada.
- Uber trips in SF in 2018 resulted in 10% lower CO_2 emissions per passenger mile than the California state industry-wide average carbon intensity reported in CARB's Inventory for that year.
- Vehicle mileage accrued by drivers during Uber-routed periods (en route and on trip) in SF in 2019 showed nearly 3% lower carbon intensity than average vehicle use in California; vehicle mileage incurred by drivers while online, before accepting trips, accounts for the remaining emissions.
- Drivers on the Uber platform in SF completed nearly 1 in 3 Uber trips in hybrids, plug-in hybrids, or battery EVs in 2019, which means they drove greener and electric vehicles about 1.4 times more than drivers using Uber in LA, about 3.7 times more than the average Bay Area car owner, and nearly 14 times more than the average US car owner.
- As was the case in LA, drivers on the Uber platform in SF in 2019 used battery EVs less than average Bay Area car owners did. Battery EV drivers using Uber completed 0.48% of SF trip miles. By comparison, government estimates show that battery EVs account for 1.40% of on-road vehicle miles traveled by car owners in California (for more on battery EVs, see our case study on *Electrifying trips on Uber: progress and challenges*).

Ridership growth and key metric trends in San Francisco

Percentage change in carbon intensity, travel efficiency, and average active monthly riders

+24.0%

Average active monthly riders, 2017–19

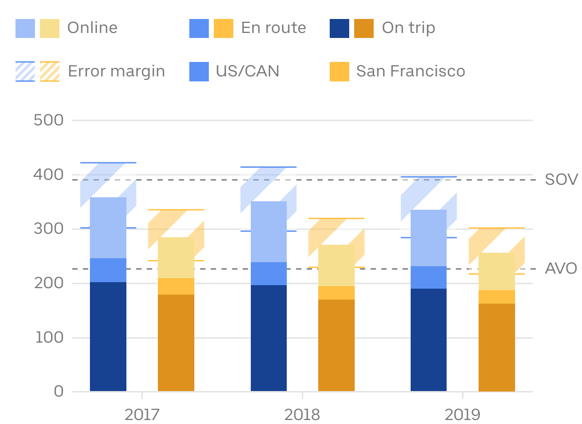


Carbon intensity in US/CAN and San Francisco

Percentage change in carbon intensity, travel efficiency, and average active monthly riders

22.7%

Lower carbon intensity in San Francisco than in US/CAN on average annual basis

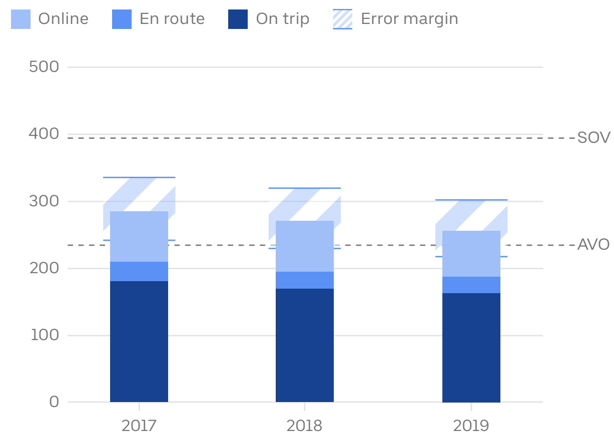


Carbon intensity in San Francisco

Grams CO_2 emitted per passenger mile traveled

-10.2%

Carbon intensity 2017–19

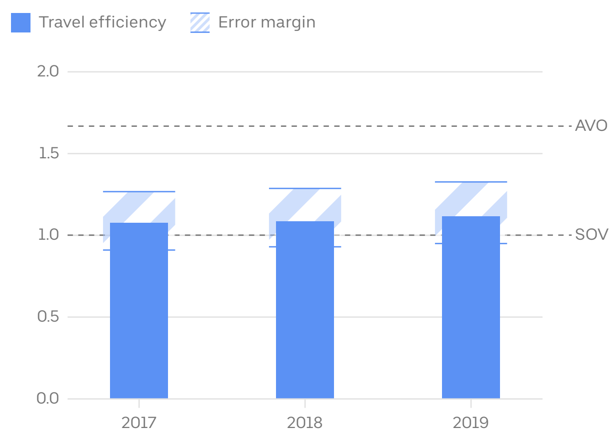


Travel efficiency in San Francisco

Passenger miles enabled per vehicle mile

+4.0%

Travel efficiency 2017–19

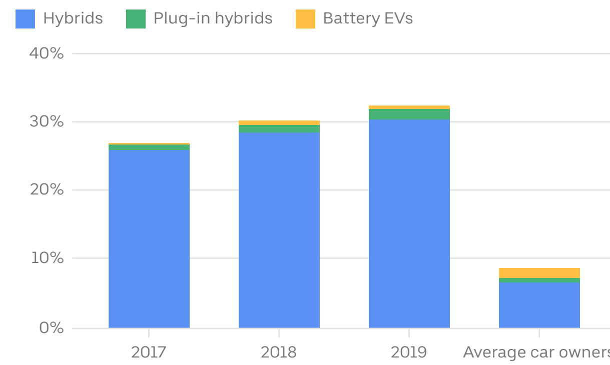


Engine type: green and electric vehicle use in San Francisco

Trip-miles weighted average share

3.7x

More green and electric vehicle use by drivers using Uber than by average car owners, 2019



Case study 4:

Fuel efficiency of vehicles serving trips on Uber

The carbon intensity metrics shared in this report depend heavily on the fuel consumption characteristics of vehicles used by drivers to move riders. We examined the average fuel economy of the cars used by drivers on Uber's platform.

Drivers' use of our platform varies greatly. Some drivers complete just one trip per year and others serve more than a hundred per week. To take a neutral approach, we calculated the trip-miles-weighted average by multiplying each participating vehicle's fuel economy by the total number of on-trip miles completed by the vehicle's driver in a given year, summing the result for all drivers, then dividing by the total annual on-trip miles of all drivers. For more on how we determined each vehicle's fuel economy, see *FAQ*.

We compared the result to the average fuel economy of on-road, light-duty passenger vehicles in the US based on the latest available government data. In evaluating the 3 years' worth of trip data, we found that drivers using the Uber platform drove vehicles with more than 14% better fuel economy than that of the average car owner's vehicle. By 2019, drivers using Uber drove vehicles with nearly 17% better fuel economy than the on-road vehicle average in the US. The result corroborates anecdotal feedback from drivers—especially those who do a lot of trips—that using a more fuel-efficient vehicle helps save on fuel costs.

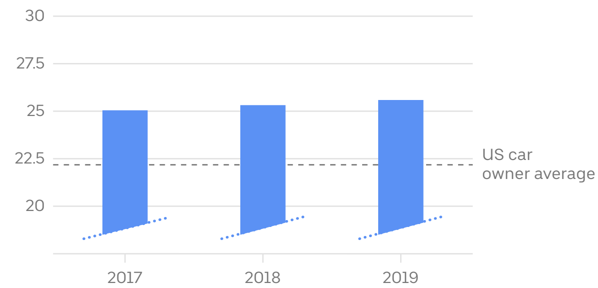
The US government reports average fuel economy for on-road vehicles on a sales-weighted basis only. While not completely a direct match with our miles-weighted average computed from real-world trip data, these government figures represent the best available. We encourage government agencies to cultivate more fuel-consumption datasets based on real-world trip measurements. For more on key data sources, see *FAQ*.

Average fuel efficiency: US/CAN

Trip miles weighted, average miles per gallon

14%

Higher average fuel efficiency among drivers using Uber than among the average US vehicle population



Drivers on Uber's platform appear to more strongly support adoption of more fuel-efficient vehicles. The result holds true even in California, where the average fuel economy of vehicles sold in the consumer market is higher than those elsewhere on the continent. The state's clean-vehicle policies and consumer demand have cultivated a markedly more efficient passenger-vehicle market than is found in the rest of the US. Leadership from regulators like the California Air Resources Board (CARB) helped form the greenest consumer vehicle markets in North America. In fact, the California fuel economy benchmark for personally owned cars is 17% higher than that for the US (which includes California, accounting for over 13% of the US vehicle market).

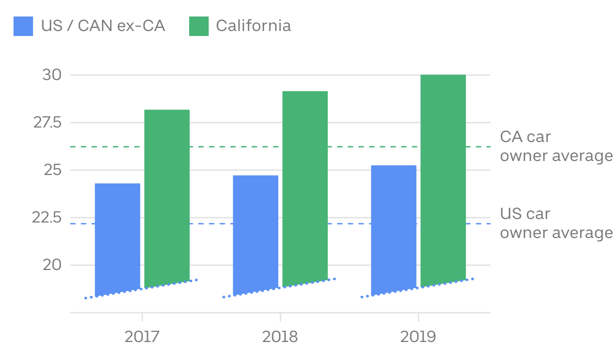
Rides data from 2019 shows that drivers on the Uber platform in California used vehicles that had almost 17% and nearly 35% better fuel economy than that of the average car owners in California and those in the US, respectively. Moreover, the trip-miles weighted-average fuel economy for California drivers using Uber was 18% higher than those in the rest of the US and Canada, and rose by nearly 7% between 2017 and 2019. By comparison, drivers using Uber in the rest of the US and Canada saw improvement of just above 4% from 2017 to 2019.

Average fuel efficiency: California and US/CAN

Trip miles weighted, average miles per gallon

18%

Higher average fuel efficiency among drivers using Uber in CA than those in the rest of the US and Canada



Case study 5:

Electrifying trips on Uber: progress and challenges

Electrification is a critical strategy for driving more sustainable urban mobility. Cities that can significantly increase battery electric vehicle (EV) use can lower carbon emissions by 40-70% by 2050. In fact, a growing body of research (from ITF, UC Davis ITS, and LBNL, for example) shows that combining electric mobility with sharing and automation technologies can reduce on-road vehicles by 90% or more and cut transportation's climate impact by as much as 80%.

Using rides data from the 2017–2019 period, we evaluated the use of battery EV technology[8] by drivers using Uber in the US and Canada. In 2017, battery EV drivers served just 0.07% of on-trip miles. By 2019, the rate doubled to 0.15%, putting battery EV use by drivers using Uber about level with that of average US car owners, according to the latest government estimates (NHTS, 2017). By contrast, drivers on the Uber platform appear to use hybrids—both plug-in hybrids and conventional, non-plug-in hybrids—about 5.5 times more than do average car owners.

Battery electric vehicles and riders in US/CAN

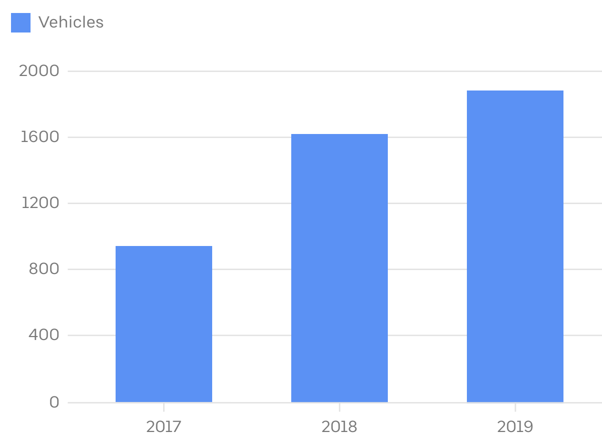
Average active monthly

188k

Unique riders took trips in

1.8k

Battery EVs in 2019



Similar to the fuel-economy case study, we see contrasting results on battery EV uptake in California compared to everywhere else. In 2019, battery EV on-trip-mileage share was highest in California markets, averaging 0.42%. Although this is slightly below the 0.64% battery EV use by average car owners in the state (as reported by NHTS, 2017), it's nearly 2.5 times more than the use of battery EVs by average US drivers.

For the 2018–2019 period, we see battery EV use by drivers on the Uber platform level out throughout the US and Canada and fall slightly in California compared to the 2017–2018 period. While we did not fully assess all of the prospective causes for these outcomes, we attribute a portion of the annual rate decrease to reduced battery EV supply from short-term rental and carshare companies in 2019. Many of these companies throughout the US and Canada were forced to reduce inventories and trim their businesses in 2019 due to a variety of business challenges.

[8]As also noted in the case study on performance metrics in Los Angeles and San Francisco, we recorded only a small amount of hydrogen fuel cell vehicles used to complete trips for about 700 riders on the Uber platform across the US and Canada in 2018 and 2019. Due to these de minimis values, we did not include hydrogen fuel cell vehicles in the engine-type category for this case study.

Though this may have only had marginal impact for drivers on the Uber platform, these short-term solutions can offer lower-income drivers one of the few affordable options for accessing vehicles that are suitable for frequent use on rideshare platforms. In the case of battery EVs in particular, short-term rental and carshare services, especially when bundled with adequate charging solutions, can provide a unique opportunity for many drivers to try out the technology for the first time without taking on the added obligation and expense of buying a battery EV or leasing it over a longer term.

Battery electric vehicles and riders in California

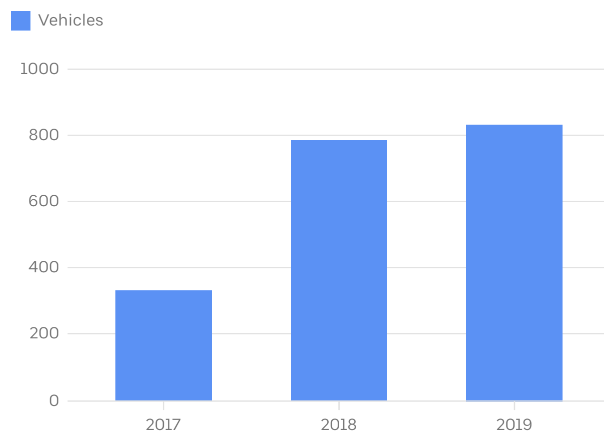
Average active monthly

99k

Unique riders took trips in

800+

Battery EVs in 2019

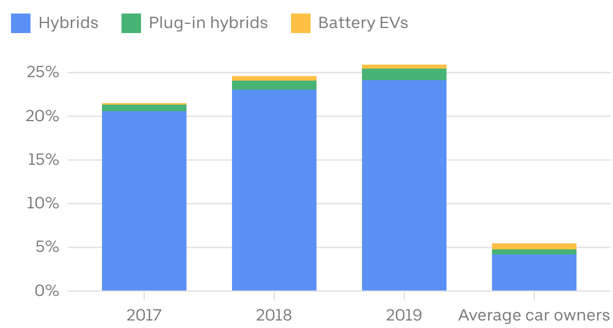


Engine type: green and electric vehicle use in California

Trip miles weighted average share

4.8x

More green and electric vehicle use than average car owners, 2019



Some of the latest research on rideshare drivers' adoption of green vehicle technologies by the International Clean Council on Transportation (ICCT) shows that most drivers are worse off today in a battery EV compared to more conventional internal combustion options, especially hybrids. The report estimates that, given current battery EV acquisition cost and infrastructure development, most rideshare drivers will face significant economic barriers to shifting to full battery EVs—rather than to hybrids—until at least 2023-2025. Key barriers include high vehicle acquisition costs, inadequate charging infrastructure, and lost earnings potential from increased vehicle downtime due to charging needs.

Rideshare drivers—and any drivers or fleets offering commercial, revenue-generating mobility services—face a unique cost factor when switching from conventional internal combustion vehicles to battery EVs: opportunity cost of charging. As a simple illustration of this phenomenon, consider 2 drivers: Driver A in a conventional internal combustion engine (ICE) vehicle and Driver B in a battery EV. Driver A can replenish 300 miles in 5 to 10 minutes at a ubiquitous network of gasoline refueling stations available within a few blocks in major urban areas; 600 miles if they're driving a high-mileage hybrid. Driver B, on the other hand, has to spend time searching for and accessing scarce EV charging infrastructure and then, once they can plug in, hopes to gain 150 to 200 miles in 45 to 60 minutes if they're lucky enough to find a fast charger. Driver A can get back on the road quickly to earn more fares. By comparison, Driver B must forgo fares while taking time to replenish range. A study by UC Davis that surveyed nearly 800 plug-in EV drivers on Uber found that the total opportunity cost of searching for, accessing, recharging, and returning to fare-generating service can take anywhere from about 1.5 to more than 4 hours.

Understanding and learning from EV drivers on our platform

In 2019, we helped researchers at UC Davis's Institute of Transportation Studies (UCD-ITS) access thousands of plug-in EV drivers on Uber (both those with plug-in hybrids, PHEVs, and battery EVs) across the US and Canada. They received responses from 780 EV drivers in the largest academic study of EV rideshare drivers to date. Professor Ken Kurani, a long-time expert on consumer EV awareness and adoption, led the study and in March 2020 released the first of what will be a series of papers. We're proud to collaborate with UCD-ITS to make more research on EV rideshare drivers (a remarkable group of people pioneering shared zero-emission mobility in the communities they serve) available to the public. Learning from drivers about what works for them and what barriers they face in accessing greener and electric vehicles is crucial to our work to reduce emissions and increase electrification across our global portfolio of on-demand mobility solutions.

Market and policy contexts also matter. The fact that drivers using the Uber platform in California use battery EVs more than others outside of the state throughout the US and Canada likely reflects the significant investment California government agencies and cities have made in pursuit of electrification over the last couple decades. Although rideshare drivers everywhere, including those in California, continue to face critical economic and policy barriers to electrification, the state's strong support for EVs clearly has a positive impact on EV adoption by drivers on our platform.

Although the adoption of battery EVs by drivers on the Uber platform across the US and Canada remains at or below consumer levels, we see encouraging signs in the trip-level data. Across the US and Canada mega-region, each month in 2019, an average 1,880 active battery EV drivers served nearly 190,000 riders with zero-emission mobility on the Uber platform. From 2017 to 2019, the average number of monthly battery EV drivers almost doubled, and the average number of monthly EV riders nearly tripled.

> **From 2017 to 2019, the average number of monthly battery EV drivers almost doubled, and the average number of monthly EV riders nearly tripled.**

In the California market, EV use appears even higher. More than 800 active EVs in California moved almost 100,000 riders every month in 2019, more than 1.3 times more riders per EV than in all other markets in the US and Canada outside of California. Additionally, active monthly EVs in California almost doubled, and active monthly riders more than doubled between 2017 and 2019. With the proper policy and industry enablers, we believe shared mobility technology platforms like Uber's can make electric mobility accessible to millions of people—with far fewer and more highly utilized vehicles on the road than would be found in scenarios heavily reliant upon car ownership.

Commitments

We commit to reducing emissions from rides taken on the Uber platform, ultimately to zero. We aim to enable 100% of rides globally in zero-emission vehicles, on public transit, and with micromobility options by 2040, a decade earlier than Paris Climate Agreement targets. In cities in the US, Canada, and Europe, we can reach 100% on-demand car rides in battery EVs by 2030 given supportive policies that allow drivers to make a fair transition. To help reach these goals, we'll invest in innovations that reduce the impact that Uber-enabled mobility has on the environment and expand greener modes of transport. We want every passenger trip on Uber—whether it's with UberX, Uber Pool, UberXL, Uber Black, a bike or scooter via our micromobility partners, or Uber Transit—to be more efficient than the last.

We're encouraged by the initial results shared in this first report. Technology improvements and network effects on Uber's platform are beginning to result in on-demand vehicle options that can compete—on an emissions basis—with personally owned car use. Uber remains a very new participant with a nearly de minimis share of passenger trips compared to the century-old market for personally owned vehicles. But we know that cities need more mobility with much less impact. To meet Paris Climate Agreement targets, we and other public and private players supporting the transportation sector must find radical new solutions to unlock deeper levels of decarbonization.

The results of this report remind us of how much work we have to do. We must accelerate our transition to zero-emission, on-demand mobility and help our users and the cities in which they use our products move more sustainably. It starts with having clear goals.

To support the future of decarbonization and electrification, we commit that:

By 2025, we'll make more than $800 million in resources available to help hundreds of thousands of drivers on Uber's platform more affordably switch to battery EVs.

By or before 2030, 100% of rides will take place in battery EVs in US, Canadian, and European cities, as well as in major global cities where we can work with stakeholders to implement policies that ensure a fair transition for drivers. Additionally, Uber commits to reaching net-zero climate emissions from corporate operations.

By 2040, 100% of rides on the Uber platform globally will be emission-free, whether in zero-emission vehicles, on micromobility, or on public transit.

Uber has committed to 100% all-electric passenger service in London by 2025.

Zero-emission mobility means passenger rides supplied 100% by vehicles without tailpipe emissions, such as 100% battery electric vehicles. Enabling 100% zero-emission, on-demand mobility will be very challenging, and we cannot do it alone. Furthermore, we know it will require new mobility initiatives and policies with few precedents. To this end, Uber will work with the World Resources Institute (WRI) and consult with Transport & Environment, Sierra Club, Grid Alternatives, and EVNoire, to publish a road map that's meant to help cities work with us so we can have 100% electric options on the Uber platform. We believe the necessary policies can be win-win: for communities, for lower emissions, and for rideshare drivers.

To help plot the course for US and Canadian cities, as well as every major city globally, we'll leverage our experience from European markets. Uber has committed to 100% all-electric passenger service in London by 2025. Reaching 100% all-electric on-demand service in the next 5 years in these cities is possible, in part, because of world-class policy innovations including congestion and emissions road-pricing plans that apply to all vehicles; emissions-based and combustion vehicle exclusion zones; and, in the case of Amsterdam, policies that make at- and near-home on-street EV charging accessible for most drivers. SPARK!, our report on electrifying ridesharing in Europe (released in tandem with this report), outlines a road map for partnering with public and private actors in major cities in the EU/UK to create a situation in which a driver is no worse off in an EV than they are in a vehicle with an internal combustion engine (ICE) and, once that situation is established, to ensure that all ride options on the Uber platform are 100% electric. The analysis and insights from SPARK! provide an important foundation that will help inform our 2030 road map to 100% EV in consultation with the organizations noted above. Key supportive policies, identified in the white paper, include those that enable 3 key market conditions:

- Drivers are able to reliably access overnight charging at or near their home, where they park
- Drivers can access secondhand or affordable EVs that can reliably drive a full day on a single charge
- Any residual total cost of ownership (TCO) differences between battery EVs and traditional ICE vehicles, including hybrids, are mitigated by financial incentives

It's important to note that local market regulations in most European cities require licensed private-hire drivers for rideshare and, often, prohibit peer-to-peer (P2P) approaches more prevalent in the US. In London, Paris, and Amsterdam, 30-50% of rideshare drivers are online on Uber's platform for more than 30 hours a week. By contrast, in Chicago; Los Angeles; and Washington, DC, less than 25% of drivers are online more than 30 hours a week. Additionally, in P2P markets in the US, significant driver segments engage with Uber's platform for only a short period of time—such as several weeks or a few months—often to reach a specific earnings goal. Therefore, European drivers' vehicle choice may be more driven by their decision to offer rideshare mobility and vehicle TCO, while US drivers' vehicle choice may be influenced more by broader vehicle consumer trends than by their ridesharing participation. These and other market differences will be addressed in the forthcoming 2030 road map.

Our global commitments

	2025	2030	2040
Rides platform	**$800M in battery EV transition support** for hundreds of thousands of drivers in cities in US, Canada and Europe	**Road map to 100% rides in battery EVs** for on-demand car trips in cities in US, Canada and Europe through public and private partnerships to support drivers	**100% rides globally in zero-emission vehicles, on public transit and with micromobility options**
Corporate operations	**100% renewable electricity** for US offices	**Net zero climate emissions** from all corporate operations (scope 1 & 2)	On track for **net-zero climate emissions across scopes 1, 2 and 3**

☐ Previously announced

In the *Metrics* section of this report, we show how the carbon intensity and travel efficiency of rides taken with Uber in our top 10 metro markets outperform the same metrics for the US and Canada mega-region by more than 5%. As profiled in the *Case studies* section, in some cities today—like Los Angeles and San Francisco—estimated carbon intensity of rides is around 24% lower than that of the US and Canada as a whole. The data indicates that we can achieve lower-emission, shared, and electric mobility faster in cities.

> For our passenger mobility services in the United States and Canada, we'll develop product innovations, work with industry partners, and advocate for policies that enable a dramatic reduction of the carbon intensity of rides and a transition to full battery EV rideshare in cities over the next decade.

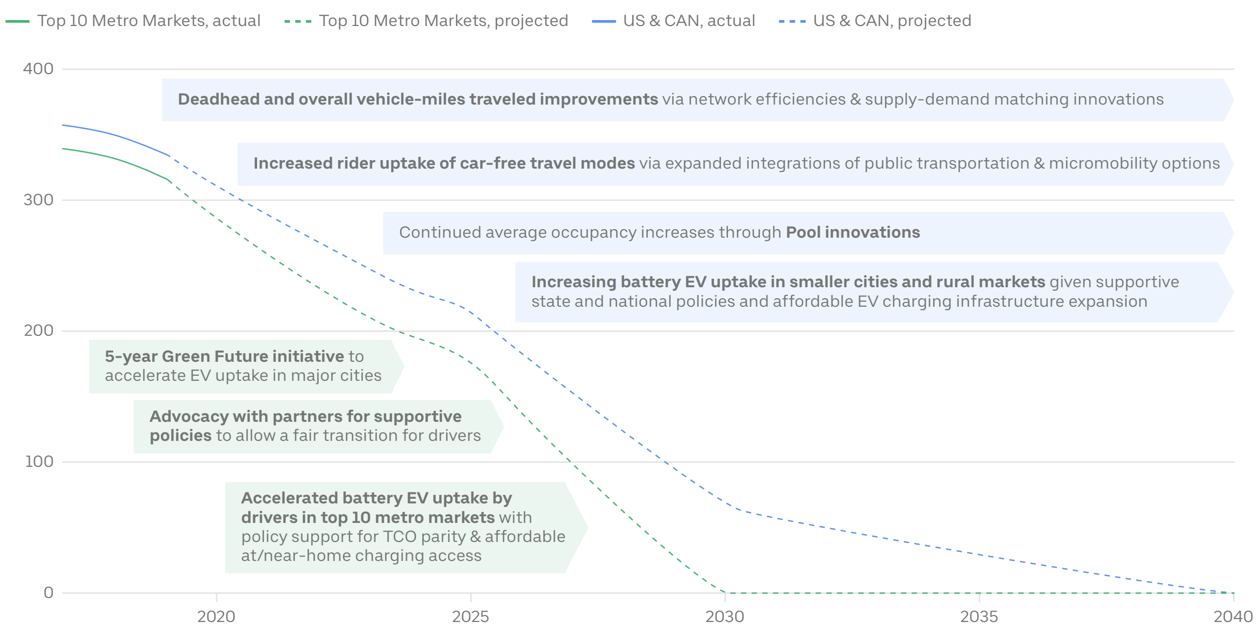
For our passenger mobility services in the United States and Canada, we'll develop product innovations, work with industry partners, and advocate for policies that enable a dramatic reduction of the carbon intensity of rides and a transition to full battery EV rideshare in cities over the next decade. According to our real-world trip data, as of 2019, the annual average passenger carbon intensity of all rides completed on the Uber platform across the US and Canada was almost 340 grams of CO_2 per passenger mile (~210 grams CO_2 per passenger kilometer). We'll work with partners and policymakers to enable zero-tailpipe-emission mobility on Uber (for example, 100% battery electric vehicles available via the Uber platform) in hundreds of cities across the mega-region by 2030 or earlier. By 2040, we must drive the carbon intensity of all trips across the mega-region, including those needed in rural areas, to zero.

The below chart illustrates one scenario for carbon-intensity reduction across all rides on our US and Canada on-demand mobility platform consistent with our stated goals. This scenario requires the following:

- Our 5-year Green Future initiative supports hundreds of thousands of drivers to affordably switch to battery EVs in major markets by 2025, with about 100 times more all-electric trips than 2019 levels
- By 2030, 100% of trips in our 10 largest metro markets are served by battery EV drivers aided by new win-win policies that enable a fair transition for all driver segments, including those with lower average weekly participation

- A large portion of major city markets (those with at least 100,000 active monthly riders, today) adopt supportive policies that enable up to 100% transition to all-electric rideshare by driver segments with higher average weekly participation so that, by 2030, 50% of trips across major city markets are served by battery EV drivers
- By 2030, battery EV drivers in rural markets and in driver segments with lower-than-average weekly participation complete 6% of trips, roughly consistent with current battery EV adoption projections for average consumers
- From 2019 to 2040, pooling innovations (e.g., Non-Stop Shared Rides) continue to improve average trip occupancy by 25% in top 10 metro markets, 15% in major city markets, and 5% in rural markets
- From 2019 to 2040, marketplace innovations (e.g., Hybrid Routing, supply-demand matching technology) continue to reduce the average ratio of deadhead miles to passenger miles by 30% in top 10 metro markets, 25% in major city markets, and 10% in rural markets

Scenario: reducing Uber's carbon intensity in US and Canada (gCO_2/PMT)



As demonstrated in the figure above, realizing these decarbonization and electrification improvements would lead to a 35–45% reduction of the carbon intensity of trips across the US and Canada by 2025, an 80-100% reduction by 2030, and a 100% reduction by 2040.[9]

No carbon offsets

Our plan for Uber's passenger-mobility platform intentionally avoids carbon-offset purchasing as a primary strategy. At best, offsets focus only on climate-related emissions, leaving harmful local air pollutants unaddressed. Additionally, researchers continue to critique the various weaknesses of carbon offsets, including verification challenges. With our operational excellence and global footprint, we believe we can play a more catalytic role in decarbonizing on-demand mobility without offsets that effectively pay to make it someone else's responsibility.

[9]This illustration accounts for tailpipe emissions for on-demand rides services provided by passenger vehicles. For simplicity, we do not offset the carbon intensity of rides completed by car-based products with any completed by micromobility or public transportation partners.

We do recognize, however, that reaching net-zero emissions by 2040, from a corporate accounting standpoint—across emissions scopes 1, 2, and 3—may require high-quality carbon offsets to address emissions segments that are difficult to decarbonize and hard for us to influence, such as employee business travel by air.

We call upon cities, governments, and environmental experts to join us in examining critical decarbonization and electrification needs across the transportation sector. We ultimately aim to align our sustainability goals with relevant policy and industry efforts to support the transportation sector in achieving the Paris Climate Agreement. We must do better, and we look forward to using the data in this report to reduce our carbon footprint. Uber has joined the Science Based Targets initiative (SBTi) to ensure that we implement leading practices in emissions accounting, target setting, and transparency.

> **We call upon cities, governments, and environmental experts to join us in examining critical decarbonization and electrification needs across the transportation sector.**

We're adding our emissions-reduction and electrification goals to a growing list of global initiatives to help Uber operate more sustainably as a company and drive product innovation so that our platform can help users and cities access more sustainable mobility options. These commitments include:[10]

- Joining the Science Based Targets initiative (SBTi)
- Our pledge to power all of our US offices with 100% renewable electricity by 2025
- Signing the We Are Still In declaration to support climate action to meet the Paris Agreement
- Joining other leading technology companies to launch the Step Up Declaration, an alliance dedicated to harnessing the power of emerging technologies to help solve the climate challenge
- Signing on to United for the Paris Agreement
- Joining the Standards Advisory Group of the Sustainability Accounting Standards Board (SASB)

For cities and citizens, the destination is clear: zero-emission mobility. The path, however, remains unclear and fraught with challenges, and requires cooperation from every participant up and down the transportation value chain, including businesses, governments, and consumers.

[10] This is not an exhaustive list of highlights.

Decarbonizing our platform

To reach our ambitious goals and make progress on the journey, we'll continue to build an efficiency-driving technology platform that enables our users to adopt shared, greener, and electric modes of transportation.

Platform-wide carbon-intensity reduction strategies

- Low emission products
- Greener and electric cars
- Multimodal and car-free
- Transparency and engagement
- Utilization

As a technology platform for on-demand mobility options, Uber will drive carbon-intensity reduction for all the rides we facilitate by focusing on the following strategies:

1. **Expand convenient and affordable low-emission products for riders**
2. **Help drivers shift to greener and electric vehicles**
3. **Increase multimodal connectivity and grow car-free trips**
4. **Engage users and stakeholders with transparency on the impact of trips**
5. **Increase vehicle utilization to reduce empty vehicle miles (deadhead) and empty seats**

As of the release of this report, to kick-start our decarbonization and electrification efforts, we're launching a series of driver resources, new product rollouts, and partnerships with industry solution providers. These new initiatives join the number of existing solutions developed across the 5 strategy areas:

1. **Expand convenient and affordable low-emission trip products for riders:** We can increase lower-emission mobility by expanding riders' green trip options and meeting them in a moment of need with convenient, affordable, and high-quality service. Our low-emission product innovations include the following:
    - As of the release of this report, we're launching Uber Green in 15 US/CAN cities. For just $1 extra, riders can now tap a button and request a ride in an EV or hybrid vehicle. We'll expand Uber Green to a total of 65+ cities globally by the end of the year. Each US/CAN Uber Green trip produces, on average, 43% fewer carbon emissions than taking your own gas-powered car.

- We offer riders the option of requesting EV-only vehicles through Uber Green in dozens of cities in Europe (as of the release of this report), including Amsterdam, Kyiv, Lisbon, Vienna, and any city in Germany where Uber is available. In Paris, Uber Green allows riders to request rides in battery EVs, plug-in hybrids, and non-plug-in hybrids. Our Uber Green efforts in Europe help us evaluate consumer demand for lower-carbon trips and assess how we can help riders adjust to ambitious city policies such as low-and zero-emission-zone policies.

2. **Help drivers shift to greener and electric cars:** We'll continue to advance initiatives that help drivers use their current vehicle more efficiently and go greener on the next.
   a. Learnings from the data
      - Average, trip-miles-weighted fuel economy of vehicles used by drivers on the Uber platform in the US and Canada in 2019 was almost 17% more efficient than those used by average car owners
      - Drivers moved riders in greener and electric vehicles—hybrids, plug-in EVs, battery EVs, and a few hydrogen fuel cell EVs—for over 12% of trip miles, meaning that they used these types of vehicles 5 times more often than average car owners
      - In 2019, battery EV drivers using Uber served 0.15% of rider miles, right around the same level of use as average car owners; this corroborates the latest research, which shows that drivers using ridesharing apps still face major financial barriers to battery EV adoption (including higher upfront costs and lower earnings potential when compared to conventional vehicles and, especially, high-efficiency hybrids)

   b. Our innovations
      - As of the release of this report, all eligible battery EV drivers in the US and Canada will receive a new $1 Zero Emissions incentive per trip to help bridge the additional operating costs they face, as examined in this report. For more on our latest resources to help drivers go electric, visit our website.
      - As of the release of this report, we're launching a portfolio of new partnerships with global automakers, EV charging providers, utilities, and rental and fleet solutions companies. For more information on our growing portfolio of decarbonization and electrification initiatives, learn more here.
      - We're developing market-based solutions to help drivers gain affordable access to high-efficiency, high-performance vehicles, such as with our Clean Air Plan in London and our newly announced French Clean Air Plan (not available in the US or Canada).
      - We're leveraging our scale and best-in-class marketplace efficiency to secure discounted access for drivers to EVs and EV-charging solutions, working with major global automakers, EV-charging providers, utilities, and fleet solutions companies. For more on our latest discounts and partnerships, visit our website.

3. **Increase multimodal connectivity and grow car-free trips:** We'll continue to invest in products and partnerships that increase users' access to car-free modes of transportation. In the future, we see incredible potential for electric micromobility and transit products to provide more low-carbon mobility options for users who are looking for efficient rides across town through the Uber app. Innovations that help accelerate car-free travel include:
   a. As of the release of this report, Lime micromobility scooter integration is live in the Uber app in more than 55 cities.
   b. We've expanded zero-tailpipe-emission micromobility options through additional partner integrations such as Cityscoot.
   c. As of the release of this report, we're expanding Uber Transit products and partnerships, including Journey Planning in over 30 cities and expanding to a total of 40 by the end of 2020.
   d. As of the release of this report, we're also introducing our new transit multimodal feature, which integrates UberX and public transportation travel routes into one complete route, coupled with walking directions to your destination, right in the app.

4. **Engage users and stakeholders with transparency on the impact of trips:** We continue to look for ways to help our users and external stakeholders understand the environmental impact of consumer travel choices. With this report, we're taking a first step to provide our users and the cities in which they move with more transparency on the environmental implications of traveling on Uber's platform.

5. **Increase vehicle utilization to reduce empty vehicle miles (deadhead) and empty seats:** All modes of transport, including personal vehicles, often create vehicle miles without passengers (known as deadhead) or unproductive mileage. Non-passenger miles are a necessary consequence when providing on-demand mobility services, because you generally need to get the vehicle to the passenger. We're working to minimize deadheading and empty seats. Research shows that Uber's technology already enables nearly 40% better vehicle utilization than traditional on-demand, point-to-point services like conventional taxis, which spend about 60% of miles traveled empty of passengers, according to a 2015 study of US taxi services. We'll continue to develop innovations and grow our mobility marketplace in ways that increase the travel efficiency of trips on our platform and develop products that enable more people to move in fewer vehicles that have fewer empty seats.

    a. Learnings from the data

    - In San Francisco over the last 7 years, we recorded a 40% reduction of deadheading by vehicles on the Uber platform
    - As of 2019, travel efficiency of trips on the Uber platform was slightly above that of single-occupancy driving, on a per-passenger-mile basis
    - Riders share UberX trips with family and friends, with average occupancy at 1.74 according to prior surveys used for this report (see more on occupancy in the *FAQ*)
    - Riders pile in even more passengers with UberXL and Uber SUV trips, with average occupancy at 4.12 and 4.40, respectively (see more on occupancy in the *FAQ* section), meaning that riders choose to use larger vehicle products as they're intended and rarely ride in them as solo occupants; for reference, passenger carbon intensity for 4 riders in an SUV crossover vehicle can be lower than the carbon intensity of one rider in a hybrid sedan

    b. Our innovations

    - As of the release of this report, we're announcing the launch of Hybrid Routing. This feature now factors in distance in addition to time when suggesting routes. In June 2020 alone, we estimate that Hybrid Routing helped drivers avoid 1 million vehicle miles in the 11 US cities where we piloted the feature.
    - As of the release of this report, we've announced that we'll expand our Non-Stop Shared Rides feature (last in, first out) to all global cities where we offer Uber Pool, when health officials suggest it's safe to do so. This is a critical tool for improving network efficiency, as it offers riders discounted service with minimal ETA adjustment while reducing single-occupancy UberX trips and causing less stress for drivers.
    - We've developed efficient routing, smart navigation, and smart supply rebalancing and positioning features—including surge pricing—that help all drivers avoid unnecessary movement.
    - Our driver destinations feature helps drivers turn otherwise empty miles into passenger-full trips.
    - Our Rematch technology supports more than 250 airports worldwide and helps to trim the congestion contribution of vehicles by efficiently connecting a driver dropping off passengers with a new group of arrivals without extra vehicle miles on airport roadways.
    - We've developed features that make it easier to share an Uber trip with family and friends, including Split Fare and Multiple Destination Trips.
    - We've created products that move larger parties, including UberXL, Uber Black SUV, and Uber Bus (not available in the US or Canada).
    - We've made products, including Uber Pool, Express Pool, and Non-Stop Shared Rides, that help strangers carpool.

We'll pursue many approaches across the above 5 strategies to reach our decarbonization and electrification goals over the next 2 decades. We recognize the enormous challenge this presents, and that we cannot do it alone. We look forward to working with experts in the private and public sectors to tackle the many diverse and local policy and market dynamics in cities where Uber is available.

Advocacy and partnerships

We believe that, given sufficient collaboration and policy reform, shared mobility can help cities achieve deep levels of transportation decarbonization and zero-emission mobility over the next 2 decades. Today, city infrastructure and policies are predominantly designed for privately owned vehicles powered by fossil fuels. Retooling to enable more shared, green, and electric modes can drive much greater impact, and Uber is committed to doing our part to help and support a green recovery in our cities.

We're committed to working with cities, governments, and industry partners serving the transportation sector to do the following:

1. **Adopt carbon intensity and travel efficiency as key metrics for reporting and policy guidance:** Both metrics are performance-based and applicable to any form of mobility. The California Air Resources Board (CARB) and California Public Utilities Commission (CPUC) recently adopted carbon intensity as the centerpiece of their Clean Miles Standard. The Union of Concerned Scientists and other environmental experts recognized this as a step in the right direction.

   Uber is now using carbon intensity, along with travel efficiency, as a performance metric to inform our business. With this report, we aim to leverage the metric to enhance transparency with users, cities, and governments throughout the United States and Canada. We strongly encourage other businesses participating in the transportation sector, transit agencies, cities, and governments to adopt carbon intensity as a key metric for reporting and policymaking. For more on the metric and its generic applicability, see this article. For more on how we used the data we collect in the normal course of business to estimate carbon intensity for this report, see the *FAQ* section.

2. **Incentivize modes of transportation that support high travel efficiency and low carbon intensity:** Cities can support transport modes that deliver higher travel efficiency and reduced carbon intensity with smart policies that improve effectiveness and incentivize their use. Such modes include walking and micromobility, high-occupancy mass transit, low-emission shared or pooled mobility, and first- and last-mile options.

   Urban transportation experts have confirmed that on-demand mobility plays a critical role in enabling more multimodal travel in cities. A 2019 report by TransitCenter found that consumers who increased their use of public transit over the last 2 years also walked and telecommuted more, increased their use of rideshare services and taxis, and decreased personal car use. Simply put, Uber riders are also transit riders, bikers, and walkers; when transit and active modes do well, Uber does well.

   Modes with lower relative performance and less positive contribution to multimodal transportation systems (for example, single-occupancy vehicle use) should be deprioritized.

   Many climate action plans from cities and governments include fuel switching and mode shift as significant themes. Increasing occupancy across all modes should also be considered as an important strategy, especially in high-capacity corridors where the potential for shared rides and corresponding low carbon intensity is greatest.

3. **Increase space for and access to modes of transportation that can perform with high travel efficiency and low carbon intensity:** Space is a scarce and valuable resource in most cities. Increased "flexible zones" (as defined by NACTO) or other shared-use curb space can help reduce deadhead and increase travel efficiency for shared-use vehicles by offering a safe, efficient alternative to vehicles traveling empty or double-parking. Removing free or low-cost parking can also reduce induced private car driving. Where applicable, high-travel-efficiency and low-carbon-intensity vehicles, trips, and critical modes (such as wheelchairs) should gain preferred access.

   Beyond the curb, cities and businesses should implement high-occupancy or low emission vehicle preferred lanes and car-free or zero-emission zones to signal new priorities. In order to achieve the greatest positive climate impact, such policies should apply to all vehicles and reward high-travel-efficiency, low-carbon-intensity modes and trips.

   We support cities in taking bold steps and instituting impactful policies to achieve their climate and other goals, such as when San Francisco removed cars from key parts of Market Street in 2019. Uber's shared-use technology platform can help citizens and visitors adapt to ambitious access policies by offering multimodal travel options that comply with new policies and help with pickup/dropoff management around controlled areas.

4. **Increase investment in car-free travel modes and infrastructure, especially mass transit and micromobility:** Mass transit and micromobility can move more people at a superior travel efficiency and carbon intensity along dense urban corridors compared to car-based modes of travel. To reach deeper levels of decarbonization, trips on Uber and throughout the transportation sector must rapidly shift toward these and other car-free, high-efficiency modes. To get there, Uber will continue to invest in new technologies that make it easier and more appealing for consumers to take more bus, train, bike, and scooter trips. Additionally, we'll lend our support to cities looking to prioritize sustainable transportation on their streets.

   We recognize the critical relationship between urban land-use policies and high-efficiency mass transit. As is evident in our open letter to the European Commission and our examination of complete street design options, Uber will continue to support thoughtful transit-enabling policies and developments—such as SB50 in California—and to promote the use of public transit by expanding journey planning and mobile ticketing on our platform. We strongly encourage policymakers and businesses supporting the transportation sector to support these policies as well.

   We will collaborate with public and private organizations to support public transit agency efforts to grow and extend service and increase infrastructure.

5. **Transform electrification initiatives to support shared EVs:** A growing body of research from places such as ITF, UC Davis ITS, and LBNL shows that combining electric mobility options with sharing and automation technologies can reduce on-road vehicles by 90% or more and cut transportation's climate impact by as much as 80%. A new report from UC Davis shows that utilization-driving technologies, such as shared mobility and ridesharing, can play a critical role in gaining life-cycle emission benefits from battery EVs as market preference for larger vehicles and battery sizes continues.

   Over time, Uber's platform can help accelerate the transition to electric mobility. As shown in the electrification case study, one battery EV driver on the Uber platform serves dozens of riders a month.

   However, significant barriers remain to electrifying shared mobility. In all cities profiled in this report, zero-tailpipe-emission trip-mileage share on Uber remains at or below consumer levels. Research shows that, due to high vehicle-acquisition costs, inadequate charging infrastructure, and decreased earnings potential from charging-related downtime, a shift to battery EVs would make most drivers economically worse off than if they drove conventional vehicles, especially high-efficiency hybrids, for at least the next 4 to 6 years.

To address these challenges, we call on both public and private stakeholders to join us in investing in and promoting the following approaches:

- **Focus more on increasing the use of scarce EVs and EV infrastructure:** One way to approach this would be to adjust EV rebate and similar programs to differentiate between high-utilization applications and private use. EVs in high-utilization, commercial applications can extend the benefits of EVs to more people, including those who cannot afford an EV but could afford a trip in an EV. Research from UC Davis shows EVs used by rideshare drivers can deliver 3 times the emissions benefits of those used by private owners. Additionally, initial industry findings show that EVs in rideshare applications can provide grid benefits and, potentially, increased renewable energy consumption. There is much we can learn from precedents being established in countries such as India, where—as highlighted in a recent report from the Rocky Mountain Institute—the new FAME II scheme proposes to subsidize all-electric 4-wheelers in commercial and shared mobility applications.
- **Expand charging policies to emphasize home and near-home charging for low-income drivers and urban fast-charging suitable for high-utilization fleets and shared mobility networks:** In the near to medium term, shared-use drivers will benefit the most from access to at-home, slower charging infrastructure to give them highly affordable access to charging, with lower-income drivers needing multi-family-unit dwelling infrastructure support. (The latest research from ICCT shows that EV drivers with at-home charging access may reach superior economics earlier.) Urban fast-charging will be critical not only to rideshare drivers but increasingly to transit-bus and local-goods-delivery electrification efforts.
- **Focus on incentivizing electric passenger miles, less on EV sales:** This could be similar to federal programs for mileage reimbursement. Vehicle sales do not directly lead to cleaner air and fewer emissions; vehicle use matters far more. Cleaner air comes from increasing the portion of passenger miles traveled by lower and zero-tailpipe-emission modes of transport and by decreasing the share of travel by those consuming fossil fuel. Those services and drivers completing more low-carbon and zero-tailpipe-emission passenger miles should gain access to federal, state, and local support on a performance or usage basis. Incentives for EV-charging infrastructure programs can similarly allocate funding on the basis of the potential future electric passenger miles traveled, improving the travel efficiency impact for each plug.
- **Help fleet management and rental service providers increase battery EV adoption to give taxi, rideshare, carshare, and other high-utilization drivers more affordable access to high-quality electric options:** For example, Colorado recently updated its EV tax credit program to extend the same level of incentive to both private car owners and those using rental EVs on ridesharing platforms.

6. **Expand driver access to affordable, high-efficiency, high-quality vehicles, especially for drivers from underserved communities:** Uber's mobility platform leverages market mechanisms that can encourage accelerated adoption of high-efficiency vehicles. In 2019, drivers serving trips on Uber's platform drove vehicles with almost 17% better fuel economy than the vehicles of average US car owners. Additionally, as of 2019, drivers using Uber drove hybrid and electric vehicles 5 times more than did their private-car-owner counterparts.

   The final carbon intensity of trips enabled by our platform depends a lot on driver access to high-efficiency vehicles in the local consumer market. For instance, carbon intensity of rides in our California markets in 2019 outperformed that of all US and Canada rides by 21% and 23%, respectively. Notably, the consumer car market in California is among the largest and greenest in the world, with an average fuel economy of on-road passenger vehicles 17% higher than the US average.

   Drivers on the Uber platform need affordable access to high-efficiency vehicles with performance (sufficient range, high passenger and luggage capacity) suitable for high-utilization applications such as ridesharing. In particular, lower-income drivers need support to shift to greener and electric vehicles. Lower-income groups are generally over-represented among shared mobility service providers, including rideshare, taxi, and other private-hire drivers. By contrast, battery EVs today tend to be owned by middle- to higher-income segments, according to the latest research from UC Davis. Without supportive policies and affordable solutions, therefore, overly ambitious shifts toward lower-carbon and more electric mobility options could disproportionately harm lower-income drivers.

   We support governments in setting ambitious fuel-efficiency policy, low-emission-vehicle standards and pricing in carbon emissions to cultivate a more competitive vehicle market with more choices for greener driving. We encourage all governments to support policies that increase the supply and affordability of low- to zero-tailpipe-emission vehicles, especially for lower income drivers and those from communities of color. To increase emissions impact, such policies can be strengthened by focusing more on vehicle use and passenger-mileage consumption, and less on vehicles sold. Over time, ridesharing and other high-utilization applications can support lower-carbon-intensity passenger miles, make advanced technology alternatives more accessible, and displace more polluting vehicle miles traveled.

7. **Promote the Shared Mobility Principles for Livable Cities to guide policy development and minimize future unintended consequences:** Uber signed on to the Shared Mobility Principles and regularly engages with NUMO, the organization leading the promotion and implementation of the principles. Proposed environmental policies and pursuits can leverage the Shared Mobility Principles to monitor for potential unintended consequences. For instance, an improperly implemented and overly rapid shift toward electrification could disproportionately impact low-income shared mobility drivers most (reference Shared Mobility Principles 4 and 5 on stakeholder engagement and equity).

8. **Price-in critical externalities from all modes:** At Uber, we want to pay for our fair share of public resource consumption. As is evident from the open letter to C40 mayors promoting road pricing (which we supported with the Global New Mobility Coalition) and our New York City congestion pricing campaign, we advocate for comprehensive road-pricing policies based on vehicles' consumption of road space (especially during congested times) and environmental impact. Trips and transportation modes with the lowest relative performance on travel efficiency and carbon intensity should pay the most, even those booked through our app. When applied to all vehicles, such policies encourage transportation providers to compete on efficiency and incentivize consumers to shift toward more efficient trips. Additional revenues generated through road-pricing schemes should be allocated to support transport options with the lowest carbon-intensity and highest travel-efficiency potential, as well as those that enhance transportation equity for vulnerable populations, such as public transit, micromobility, and pedestrian infrastructure.

Getting to 100% EV in London by 2025

In London, we can already see what's possible due to visionary climate policy and new mobility technology. In April 2019, the city implemented an Ultra Low Emission Zone (ULEZ), charging drivers in the downtown area for pollution. Over the next few years, the ULEZ will grow geographically to include most of urban London and all vehicles with tailpipe emissions. Only full-battery-electric and zero-tailpipe-emission vehicles will be exempt from the charge in a few years' time.

Coupled with the existing Congestion Charge zone (CC) that now applies to private-hire applications, the ULEZ policy reset the economic playing field for drivers. Researchers expect worse-off economics for most rideshare drivers switching to EVs, compared to conventional options or hybrids, for the next 4 to 6 years. However, the London ULEZ charge means that a switch to EVs can make sense for more drivers in an earlier time frame.

Anticipating these positive economics, in January 2019 we launched our Clean Air Plan to help drivers overcome price premiums for battery EVs, with a goal of 100% all-electric service in London by 2025. With the Clean Air Plan, every driver using our app in London gets access to incentives to support acquisition of an electric car. It works through a clean air fee of 15 pence per mile, charged to riders who book trips through the Uber app in London. Uber takes no commission on the fee. Drivers gain access to assistance at the same rate as they drive. We expect to raise more than £200 million to support drivers transitioning to battery EVs over the next few years. As of January 2020, we raised £80 million to support drivers transitioning to electric vehicles and recorded almost 900,000 zero-emission journeys completed in 2019.

Uber will continue to engage with city, environmental, and urban-planning stakeholders to promote the above initiatives and collaborate on new approaches that can drive more efficient mobility. While political will is required to implement such policies, we believe it will be possible to reach zero-tailpipe-emission mobility on our platform in dozens of major cities in the US and Canada by or before 2030 through public and private sector collaboration.

To promote and develop these policies, we engage with a number of partners and initiatives, including the following:[11]

- Science-Based Targets initiative (SBTi)
- Global New Mobility Coalition, of which Uber is a co-founding member
- Step Up Declaration and coalition
- Shared Mobility Principles and signatories
- The Standards Advisory Group of the Sustainability Accounting Standards Board (SASB)

We hope to leverage the findings from this report to inform our plans and products, and improve our impact. We don't have all the answers, and the transportation landscape continues to evolve rapidly. We want to continue engaging with our users, city leaders, environmental and urban-planning stakeholders, and current and prospective partners to identify large-scale ways to drive low-carbon-intensity, high-travel-efficiency mobility. This is our start.

[11]This is not an exhaustive list.

Frequently asked questions

Key terms

How do you define average active monthly riders (or ridership)?
An active monthly rider is an individual with an Uber account who has completed at least one trip in that month. For example, if rider A takes one trip in February and 2 trips in March, we record them as one active rider for each month. If rider B takes 3 trips in February and none in March, we record them as an active rider only in February. Considering both examples, total active ridership would be recorded as 2 active riders in February and one in March, or an average of 1.5 active riders per month.

How do you define carbon intensity?
Carbon intensity, or passenger carbon intensity, is defined as units of CO_2 emissions per passenger distance. For countries using the metric system, this figure can be represented as grams of CO_2 emissions per passenger kilometer traveled (PKT). For the United States, we use grams of CO_2 emissions per passenger mile traveled (PMT), which follows the convention used by the California Air Resources Board (CARB) for the Clean Miles Standard. Learn more in our carbon intensity methodology post.

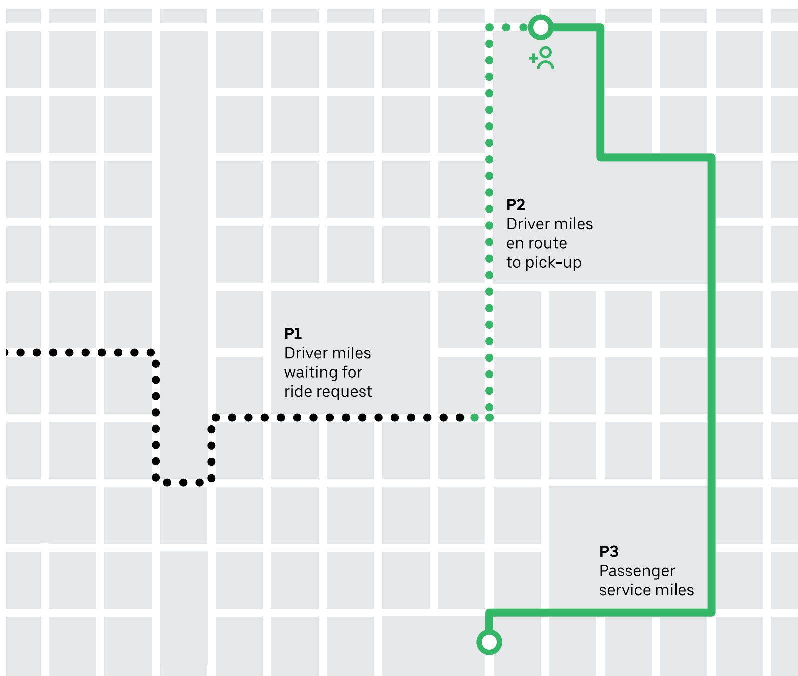
How do you define greenhouse gas emissions?
Greenhouse gas emissions are those gaseous substances with global warming potential, as defined by the Intergovernmental Panel on Climate Change (IPCC). For this report we focus only on measuring carbon dioxide (CO_2) emissions. Data from the US Environmental Protection Agency (EPA) shows that CO_2 is the primary greenhouse gas resulting from fossil-fueled vehicles.

How do you define deadhead (or deadheading)?
Deadhead miles are those that a driver travels without a rider. The driver states that normally incur deadhead mileage are the online and en route states (see next question).

What are the different driver states?
There are 3 driver states, or status categories, assigned to data recorded from drivers' use of the Driver app, in accordance with our Terms of Use. The 3 driver states are:

- **Online:** the time between the moment a driver drops off a rider (or changes their in-app status to be able to accept ride requests) and the moment they accept their next ride request
- **En route:** the period between the moment a driver accepts a ride request and the moment they pick up that rider
- **On trip:** the period between the moment a driver accepts a rider into their vehicle and the moment they drop off that rider; during pooled service, on-trip periods for multiple rider accounts can overlap

Driver states: Online (P1), En route (P2), On trip (P3)



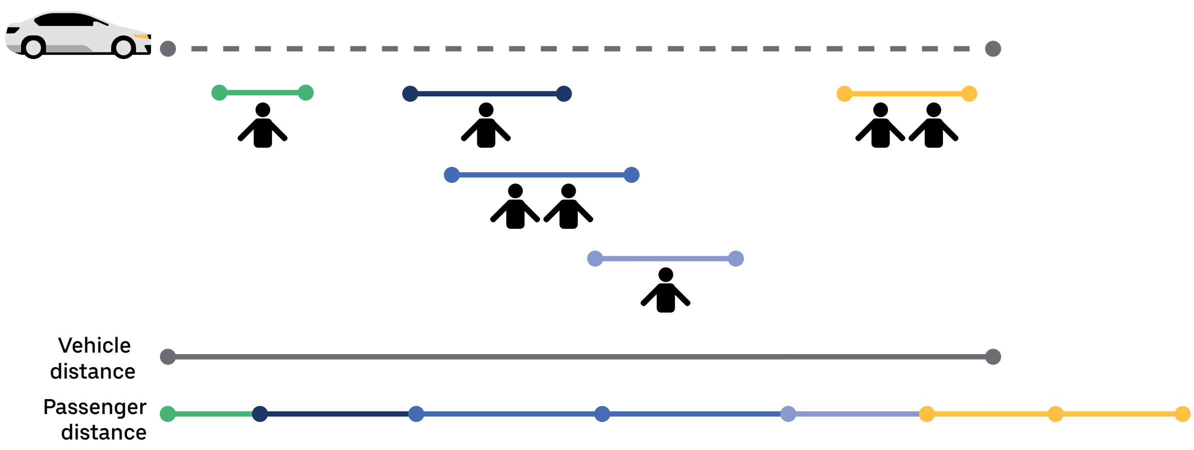
How do you define passenger distance traveled (PDT)?
Passenger distance traveled is the total distance traveled by each passenger. For example, if 2 passengers are in a car, the passenger distance traveled for that trip is 2 times the vehicle distance traveled. For countries using the metric system, PDT is often represented as passenger kilometers traveled (PKT); in the United States, it's often passenger miles traveled (PMT).

How do you define engine type?
Engine type is shorthand for the trip-miles weighted average of engine types in drivers' vehicles for a specific geography over a set period of time. Engine types assessed for this report include:

- Internal combustion engine (ICE), including those powered by gasoline, ethanol-gasoline blends, diesel, compressed natural gas, and other fossil fuels
- Hybrid electric vehicle, non-plug-in (hybrids or HEV)
- Plug-in hybrid electric vehicle (PHEV)
- Hydrogen fuel cell electric vehicle (FCEV)
- Battery electric vehicle (BEV)

How do you define single-occupancy vehicles (or single-occupancy driving)?
This is defined as any vehicle use, not facilitated by a rideshare or similar app, where the driver is the sole vehicle occupant.

How do you define travel efficiency?
This is defined as passenger distance traveled per vehicle distance traveled. For countries using the metric system, this figure can be represented as passenger kilometers traveled per vehicle kilometer (PKT/VKT); in the United States, it's represented as passenger miles traveled per vehicle mile (PMT/VMT). Learn more in our travel efficiency methodology post.



How do you define vehicle distance traveled (VDT)?
VDT is the estimated distance traveled by the vehicle and driver, including empty (deadhead) miles traveled without passengers. In countries using the metric system, this figure is often represented as vehicle kilometers traveled (VKT); in the United States it is vehicle miles traveled (VMT).

How do you define zero-emission vehicle (ZEV)?
ZEVs are vehicles that have zero tailpipe emissions according to standards set by the California Air Resources Board (CARB). Included in this definition are 100% full battery EVs and hydrogen fuel cell electric vehicles (FCEVs).

Key assumptions

How did you measure passenger occupancy?
Uber does not regularly collect data on the number of passengers on rides in non-pooled products (see passenger occupancy for pooled products, on the next page). In this report, we assumed constant passenger occupancy during the reporting period for all non-pooled products based on average occupancy, by product type (UberX, UberXL, etc.), from a survey that EBP US (formerly EDR Group) conducted in 2017 with a representative sample of drivers and riders. Average passenger occupancies (not including the driver) by product, based on survey responses were:

- UberX: 1.74
- UberXL: 4.12
- Uber Black: 1.81
- Uber Black SUV: 4.4

How did you measure passenger occupancy for pooled products?
For Uber Pool and Express Pool, Uber captures riders' seat request data. When requesting an Uber Pool trip, app users are required to input the number of seats (1 or 2) they need for the trip. We assume the number of occupants for each pooled trip equals the number of seats requested by riders. The passenger distance calculation is based on on-trip vehicle distance. There may be cases where riders request fewer or more seats than their passenger count.

Why do you have error bars on the carbon intensity and travel efficiency metrics results? How did you calculate them?
Carbon intensity and travel efficiency metrics are calculated from various data sources. Although the majority of the trip-related data is coming from monitored sources, some data needs to be estimated. Error bars exist to show the uncertainties in the metrics.

For the purposes of this report, we assumed an uncertainty range based on 2 key parameters:

- **Occupancy:** As explained above, the reported metrics follow occupancy data collected by a US countrywide survey. Existing literature reports both higher occupancy (UCDavis Circella et al 2019, California data, N=1287) and lower occupancy (Henao et al 2018, Colorado data, N=416). To account for the variety of outcomes found in these external reports and the survey we used, we applied a -15% to +15% error range to the average occupancy portion of the calculation.
- **Dual-apping:** We capture all vehicle miles incurred during online, en route, and on-trip driver states to calculate travel efficiency and carbon intensity. This conservative approach results in an underestimation of travel efficiency and an overestimation of carbon intensity. One reason for this is that many drivers drive on multiple rideshare platforms (dual-apping). To reflect the uncertainty around dual-apping, we applied an 11% discount rate for the error bar calculation. This is based on CARB's finding that 11% of all rideshare drivers' deadhead miles show overlap with at least 2 transportation network companies. The approach is still conservative because it ignores drivers' use of non-rideshare apps (such as delivery apps) and personal travel when the driver may have unintentionally left the app in online mode.

How do you calculate passenger travel distance during pooled service?
To calculate passenger travel distance during pooled service, we multiply the seats requested by the actual vehicle distance recorded. When multiple riders pool, the trip distance for each rider is recorded separately and then added all together. As a result, our current method may overestimate travel efficiency and underestimate carbon intensity on pooled products.

We aim to improve our calculation method, over time, to more accurately capture efficiency metrics. For instance, pooled vehicles must deviate somewhat from an individual passenger's most direct route in order to accommodate successive passenger pickups and dropoffs. A future improvement would be to remove any deviation-related passenger miles, however small that number may be, to avoid overcounting.

How did you select and calculate the single-occupancy vehicle (SOV) and average vehicle occupancy (AVO) benchmarks?
We calculate the average carbon intensity for all on-road light-duty passenger vehicles used in the US by personal drivers, including regular passenger cars, sport utility vehicles (SUVs), vans, and trucks. According to US government figures from the last 6 years, regular passenger cars account for less than half of new passenger vehicle sales, with SUVs, crossovers, trucks, and vans making up the majority.

The average fuel efficiency for on-road light-duty passenger vehicles was 22.04 in 2016, according to the latest data available from the US Department of Transportation (US DOT) as of the time we calculated the metrics presented in this report. This number is used for all reported markets except markets in California, where clean vehicle policies have created a more efficient passenger vehicle market. For markets in California, we use fuel efficiencies reported on CARB's EMFAC 2017 model. Finally, vehicle occupancy data was retrieved from NHTS 2017. We used Core Based Statistical Area occupancy data for city-level benchmarks.

Is it fair to compare multi-occupant trips on Uber to single-occupancy vehicle (SOV) use?
Yes, for a few reasons. First, it is important to understand the impact performance of trips on Uber within the context of other options in the transportation system. SOV driving is a highly preferred mode among Americans, accounting for nearly 40% of all passenger miles traveled and as much as 75% of all commuter miles in the US. Second, many factors contribute to occupancy results for various modes including trip type, trip cost, and utility (e.g. when, where and how can a rider go from A to B on a given mode; see more discussion in the first case study comparing carbon intensity results of various modes of traveling Los Angeles). Riders using Uber's app have a number of options, which include UberX trips as well as lower-carbon alternatives that are generally cheaper, such as transit, micromobility, and Uber Pool trips. Each ride provides estimated price and time, allowing the rider to make the most appropriate choice given their specific trip needs, including the number of travellers making the trip together. Finally, this report focuses on real-world results of trips taken on Uber. As shown elsewhere, our surveys demonstrate that average occupancy of trips on Uber is higher than that of personal cars.

Did you account for drivers operating on multiple shared mobility platforms (known as dual-apping) to avoid overcounting deadhead mileage?
In most parts of the US and Canada, there are multiple platforms on which drivers can simultaneously operate to provide passenger mobility or food and parcel delivery services. It is therefore possible, for instance, for one platform to record mileage from a driver as "on trip" while another captures the same data as "online." A recent report from the California Air Resources Board (CARB) estimates that nearly 11% of "online" VMT may be overlapping with operations for competing platforms. Additionally, we know anecdotally of cases where drivers inadvertently leave the app on, in online status, while driving their vehicle for personal reasons. Since we don't have visibility into competitors' systems and don't have data on drivers' inadvertent use, for this report we assumed all VMT recorded from drivers' apps should be included and, therefore, we conservatively bias our calculations for travel efficiency downward and carbon intensity upward. The 11% overlap finding from CARB's study is included in the downside carbon intensity and travel efficiency error bar assumptions (see error bar FAQ for more information).

Are there cases where 2 driver states exist simultaneously? How do you avoid double counting?
It is possible for a driver to exist in 2 driver states (see driver states defined in *FAQ*) simultaneously (for example, when a driver drops off one rider and then immediately picks up another rider in the same location). Technically, when the driver was in the on-trip state with the first rider, they were also en route for the second rider. In this case, however, our data systems only record a single state. We select driver states based on this prioritization ladder: on trip > en route > online. Therefore, in the example, the on-trip state is the only driver state recorded.

How do you measure vehicle mileage?
Vehicle distance traveled is estimated using GPS data for both the driver and rider apps. We employ map-matching methods to capture real-world distances. However, in cases where map-matching is impractical or inaccurate, we rely on Haversine geometry to calculate distance.

Are there cases where GPS data cannot be used to estimate vehicle travel distance? How did you account for these?
GPS data errors can occur due to occasional though infrequent instability in Uber's systems; drivers entering areas where GPS coverage is unavailable; or errors in aggregating GPS points to segments. Cases exist where the GPS data implies improbable vehicle speeds (for example, >100 miles per hour or mph), so we remove these trips from our analysis.

In order to calculate CO_2 emissions, how did you estimate vehicle fuel economy?
We leverage Uber data captured in the normal course of business and external data sources to estimate average fuel economy for each trip. When available and accurate, we decode the drivers' vehicle identification number (VIN) to identify vehicle details, including highway, urban, and blended fuel economy ratings. For VINs associated with trip data in the US and Canadian markets, we rely on data decoding services provided by DataOne Software. DataOne is an automotive data source providing data to solution and service providers in North America across many sectors, including automotive marketing, transportation, and risk management.

Whenever VIN data is unavailable or cannot be decoded via DataOne, we use the US EPA's fuel efficiency database as a secondary source by matching vehicle make, model, and year obtained from drivers. When the target vehicle data cannot be identified by either data source, we assume national average fuel efficiency (22.04 in 2016, according to the latest data available from the US Department of Transportation as of the time we calculated the metrics presented in this report).

We assign city or highway fuel efficiency depending on the average speed of a trip. For this report, when the average speed of a trip is less than 30 miles per hour (mph), city fuel efficiency is assigned. When the speed is 30 mph or higher, highway fuel efficiency is assigned.

How do you estimate fuel economy for plug-in hybrid vehicles?
Plug-in hybrid EVs have both electric motors and combustion engines and can accept energy input from both fossil-based liquid fuels (generally gasoline) and electric recharging. Estimating emissions from a plug-in hybrid EV without on-board detection equipment is challenging. The blend of energy consumption between battery and fossil fuel can fluctuate depending on a number of factors, including road conditions. For this report, we rely on US EPA average data.

How do you know the drivers' vehicle fuel and engine type?
We leverage Uber data and external data sources to assign fuel and engine type to drivers' vehicles. When it's available, we decode the drivers' vehicle identification number (VIN) to identify vehicle details, including fuel type (e.g., diesel, gasoline, compressed natural gas, hydrogen, or electricity) and engine type (e.g., conventional internal combustion, non-plug-in hybrid electric engine, plug-in hybrid, hydrogen fuel cell, or full battery electric). For VINs associated with trip data for the North American markets, we rely on data decoding services provided by DataOne Software. DataOne is an automotive data source providing data to solution and service providers in North America across many sectors including automotive marketing, transportation, and risk management.

Whenever VIN decoding is not feasible and EPA's data is not sufficient to determine fuel type, we assume fuel type based on the selection ladder, which roughly mirrors the order of fuel type popularity among consumers in North America: gasoline > diesel > CNG > electricity.

How do you measure greenhouse gas emissions?
For trip data recorded in North American markets, we follow the US EPA's emission factor guidance: 8,887 grams of CO_2 per gallon for gasoline, and 10,180 grams of CO_2 per gallon for diesel (US EPA). Since the fuel efficiency for compressed natural gas (CNG) is returned in gasoline fuel efficiency equivalent, 8,887 grams of CO_2 per gallon is used for CNG vehicles.

For simplicity, we do not include upstream emissions from fuel production. In this report, trips in zero-tailpipe-emission vehicle technologies are reported as zero-emission trips. The method for calculating carbon intensity throughout the report could include upstream emissions with appropriate emission factors, so long as the approach applies to all fuels. For instance, factors for electricity would include local power plant emissions while gasoline and other fossil fuels should include those from crude oil mining and refining.

Isn't the fuel economy of vehicles used by drivers on the Uber platform better than that of the consumer vehicle population because the former are simply newer? Aren't there model-year restrictions that apply to vehicles used on rideshare platforms?
Uber requires all drivers joining the passenger service platform to use an eligible vehicle that's no more than 15 years old. However, local or state authorities having jurisdiction set varying vehicle age requirements (usually no more than 10 years old) for rideshare and private-hire drivers. By comparison, the average age of privately owned vehicles in the US is 12 years. Based on our analysis, however, average vehicle age alone does not explain the significant difference we demonstrate in the fuel efficiency case study.

Why do you not include data on local air pollution (e.g., "criteria pollutants" such as oxides of nitrogen [NOx], particulate matter [PM], carbon monoxide [CO], and more)?
Eventually, once we have access to sufficient data and accurate estimation techniques, we'd like to include metrics on local air pollutants because of the serious human health impact transportation pollution has in cities around the world. But at the moment, we're unable to estimate local air pollutants with sufficient accuracy; doing so would require additional data (e.g., geolocational data), more assumptions about key onboard vehicle technologies (e.g., catalytic converters, exhaust filters), and vehicle use measurements (e.g., start/stop characteristics, vehicle speed and acceleration profiles) that we don't currently have.

What additional assumptions did you make to calculate carbon intensity and travel efficiency from 2013 to 2019 for the San Francisco case study?
In this case study, due to data availability and structure, calculations for metrics on rides completed in the 2013-2016 time frame employed the following assumptions in addition to those employed throughout this report:

- En route distance for all rides from 2013 through 2016 was estimated at a constant 17% of on-trip distance, which was the average ratio of en-route to on-trip distance observed for the rides covered in this report (all rides completed on the Uber platform in the US and Canada from 2017 to 2019)
- The ratio of the distance for online period (see FAQ on driver states) to the distance for all periods (online, en route, and on trip) was estimated to be the same as the ratio of online time to the time for all periods (meaning that we assume the average vehicle speed was the same for all periods)
- Vehicle data for Uber trips completed in the US and Canada from 2013 through 2016 include lower vehicle identification number (VIN) coverage than those periods covered in the remainder of the report (2017 through 2019); therefore, the fuel efficiency for a greater portion of vehicles was estimated from matching make-model-year data collected from drivers with publicly available data from the US Environmental Protection Agency (US EPA)

Data sources

What external data sources did you rely on to produce this report?

- VIN data decoding services are provided by DataOne Software; DataOne is an automotive data source providing data to solution and service providers in North America across many sectors including automotive marketing, transportation, and risk management
- Fuel economy and emission factor data from the US EPA, primarily from the following sources:
  - EPA fuel economy database
  - EPA emission factors
- Benchmark data from US DOT, NHTS, and CARB
  - US DOT Average Fuel Efficiency of US Light Duty Vehicles
  - NHTS 2017
  - CARB EMFAC 2017

Limitations and areas for future exploration

What about drivers' commutes and associated emissions from drivers leaving their homes and traveling to cities to offer mobility services on the Uber platform?
Like all workers in the economy, drivers who offer mobility services on the Uber platform commute to work. We do not record vehicle mileage when drivers are offline; when drivers are offline, we're unable to gather data on why and how much they're generating off-trip mileage. There may be cases, however, when drivers go online with the Uber app as soon as they leave home, in which case our data may already capture commute distances. We don't know of any peer-reviewed studies demonstrating major differences between the commuting behaviors of drivers using Uber and those of average commuters.

According to the GHG Protocol, the emissions produced by drivers while they're commuting (but not online and available for trips) fall outside the boundaries of Uber's Scope 3 emissions. The GHG Protocol establishes these boundaries based on what companies have reasonable access to and influence over.

Are there VMT and associated emissions missing from the calculations?
Drivers operating on rideshare platforms may turn off the app and drive to areas where they believe there is higher demand and greater likelihood of getting a ride request. Drivers may also leave the app on when they are not working and are driving to a destination for their own purposes. Like most companies, we're unable to know what drivers are doing when not using our product. While likely small, we acknowledge that not accounting for off-app mileage could bias our calculations for both carbon intensity and travel efficiency.

What about all the people who use Uber instead of biking, walking, and using public transit? Does mode shift occur (for example, do riders take trips with Uber instead of using lower-carbon options)?
Uber is one of many transportation options available to riders. Of course, any rider taking a trip with Uber may have decided against choosing a lower-carbon option or a higher-carbon option. Trip choice depends a lot on various local market conditions. There is also the chance that a rider might take a trip with Uber instead of not traveling at all (what some researchers call induced travel).

It's difficult to understand exactly how riders choose between transportation options, and it's complicated to model how they would have behaved in a world where one of these modes never existed. This report, therefore, is focused exclusively on quantifying the impact of rides from data we capture through Uber's app and purposely avoids any counterfactual scenario modeling that would require us to make assumptions about what people do when not using our app.

Urban transportation experts have shown that on-demand mobility, such as traditional taxi, plays a critical role in enabling more multimodal travel in cities. A 2019 report by TransitCenter found that consumers who increased their use of public transit over the last 2 years also walked and telecommuted more, increased their use of rideshare and taxi services, and decreased their personal car use.

What about upstream and downstream emissions associated with the vehicles themselves or the fuel they consume, sometimes referred to as life-cycle emissions?
This report aims to estimate emissions using all the data available to Uber regarding driver and rider travel distances according to the 3 driver states (see FAQ on driver states). We do not include drivers' upstream emissions, such as those resulting from vehicle manufacturing, vehicle maintenance, or fuel production.

Similarly, we do not include drivers' downstream emissions, such as those resulting from vehicle or fuel disposal. However, we believe our approach captures the vast majority of trip-associated emissions. Most research—including life-cycle analysis research from MIT and Renault—demonstrates that, in vehicles with internal combustion engines, the vast majority of life-cycle greenhouse gases occur during the vehicle operations and use phase.

According to the GHG Protocol, drivers' upstream and downstream emissions fall outside the boundaries of Uber's Scope 3 emissions. The GHG Protocol establishes these boundaries based on what companies have reasonable access to and influence over.

What other emissions might you be excluding that could result from the use of Uber's app?
This report does not include any Scope 1 and 2 emissions resulting from Uber's corporate operations and activities (electricity consumption by IT servers, buildings, and employees, for example). While we expect that corporate emissions are small compared to those associated with combustion vehicle use, we are currently in the process of baselining our corporate emissions. With the release of this report, Uber is committing to reach net-zero climate-related emissions from corporate operations by 2030. Additionally, we pledged to power all of our US offices (both owned and leased) with 100% renewable electricity by 2025, which will effectively bring our Scope 2 emissions for US office operations to zero.

Do the numbers shared in this report fit within any common standards or definitions for corporate GHG emissions?
Uber's product is an app that connects drivers and riders. Therefore, when we evaluate emissions and divide them into Scope 1, Scope 2, and Scope 3 (according to WRI's The GHG Protocol Corporate Accounting and Reporting Standard), the trips taken by drivers using our app fall into our Scope 3, Category 11: Use of Sold Products. As is the case for many businesses, we estimate that our Scope 3 emissions are far greater than those we more directly influence in our Scope 1 and 2 inventory; it was therefore important to Uber that we develop performance metrics and use this report to address these Scope 3 emissions. While we have not yet reported on a comprehensive Scope 1, 2, and 3 inventory, we know from publicly reported CDP data from other companies in the transportation and technology sectors that our Category 11: Use of Sold Products is where the majority of GHG emissions exist.

How does Uber's methodology for calculating carbon intensity differ from the approach of the California Air Resources Board (CARB) under the Clean Miles Standard (CMS) regulation?
Broadly, both methods follow the same general approach. But there are a few differences:

- This report covers around 4 billion trips taken on the Uber platform in the US and Canada between 2017 and 2019, whereas CARB's CMS calculates carbon intensity for 365 million trips served by all transportation network companies (TNCs) operating in California.
- Vehicle occupancy: CARB's calculation is based on trip logs from 31 California TNC drivers. Uber's vehicle occupancy calculation is based on a countrywide survey (2,411 riders and 1,530 drivers) of Uber users in the US, conducted in 2017 as part of EDR Group's Uber's Economic Impacts in the United States report.
- Fuel efficiency adjustment: CARB's calculation uses fuel efficiency adjusted by trip speed, based on the trip data recorded from 28 California TNC drivers. Uber's fuel efficiency measurement is based on real-world, trip-level data from each trip completed on the Uber platform during the reporting time frame (see vehicle fuel economy FAQ for more).
- Vehicle identification: Uber generally relies on vehicle identification numbers (VIN) provided by drivers during the onboarding process. CARB uses VIN data provided by Uber and other TNCs covered under the CMS. Whenever a VIN is incomplete, incorrect, or missing, Uber takes a conservative approach and assigns the lowest fuel efficiency number reported by the US EPA. This assignment is based on the vehicle's make, model, and year (see vehicle fuel economy FAQ for more). Additionally, when VIN data is insufficient, CARB's process adds an analytical step that applies natural language processing techniques to estimate the most likely vehicle.
- Product breadth: CARB's calculation covers only peer-to-peer (P2P) TNC products, while Uber's calculation covers all Uber's vehicle-based ride products (including Uber Black and Uber Taxi).
- Online mileage discount: CARB's calculation discounts emissions estimates from vehicle mileage accrued by TNC drivers during the online period by nearly 11% due to dual-apping across TNC platforms. Even though we believe this discount remains conservative, Uber does not apply any discount to emissions estimates for recorded mileage.

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